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Final Report
March 2010

Assessment of the Provision of **Marine Aids to Navigation** around the United Kingdom & Ireland >

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Assessment of the Provision of Marine Aids to Navigation around the UK and Ireland
Final Report

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This Report

This Final Report was produced by Atkins Limited, in association with Drennan Marine Consultancy Ltd, for the Department for Transport (UK) and the Department of Transport (RoI) for the specific purpose of the Assessment of the Provision of Marine Aids to Navigation around the UK and Ireland.

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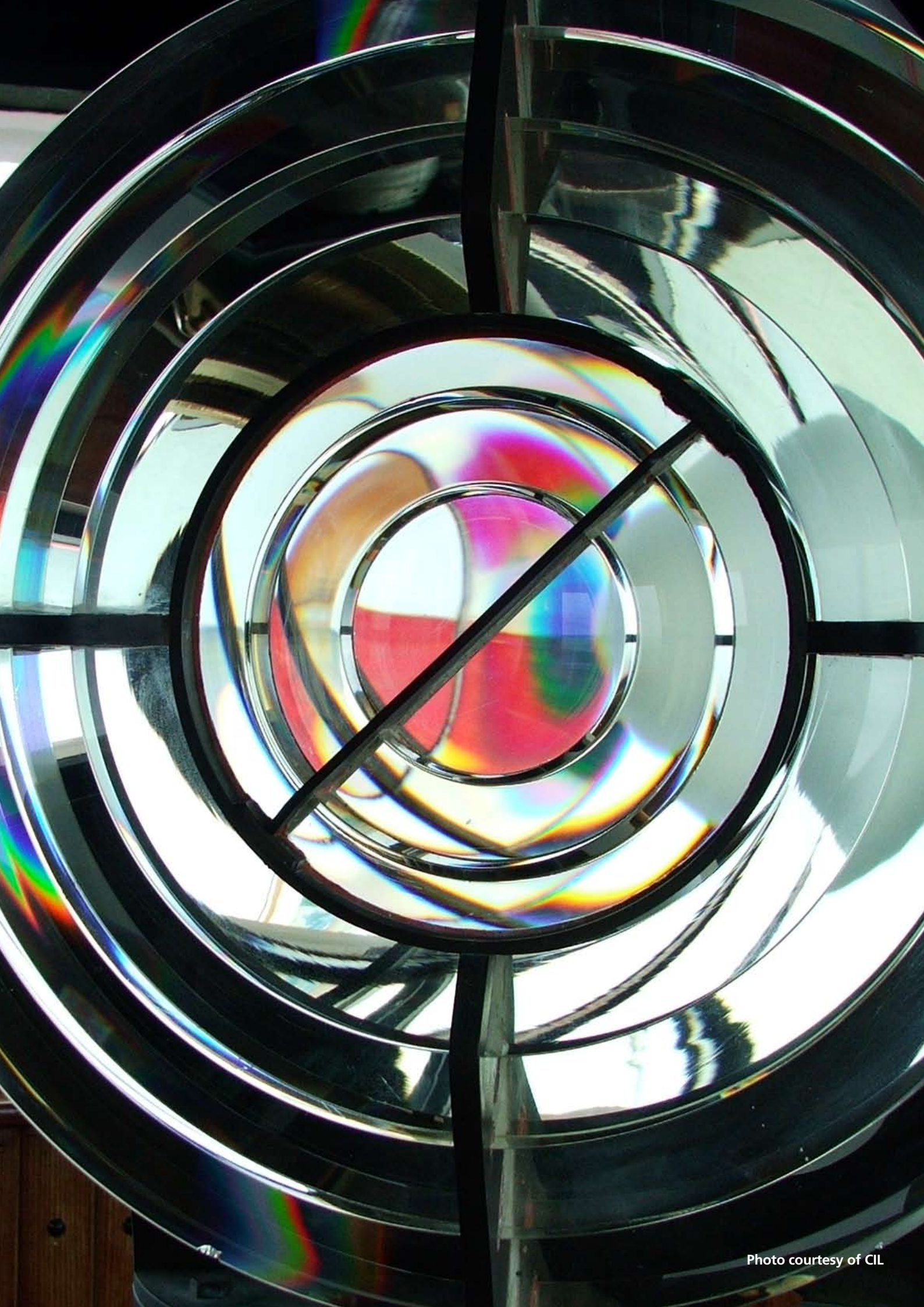

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Glossary

AtoN	-	Aids to Navigation
AIS	-	Automatic Identification System
CBA	-	Cost-Benefit Analysis
CEA	-	Cost-Effectiveness Analysis
CIL	-	Commissioners of Irish Lights
CIPFA	-	Chartered Institute of Public Finance and Accountancy
DfT	-	Department for Transport (UK)
DoT	-	Department of Transport (Republic of Ireland)
eLoran	-	Enhanced Loran
FPM	-	Financial Planning Model (GLF)
FSA	-	Financial Services Authority
FTE	-	Full Time Equivalent
GAD	-	Government Actuary's Department
GLA	-	General Lighthouse Authority
GLF	-	General Lighthouse Fund
GNSS	-	Global Navigation Satellite System
GPS	-	Global Positioning Satellite
GRT	-	Gross Registered Tons
IALA	-	International Association of Marine Aids to Navigation & Lighthouse Authorities
IFRS	-	International Financial Reporting Standards
IGC	-	Inter-GLA Committee
ILDF	-	Independent Light Dues Forum
ILV	-	Irish Lights Vessel
IMO	-	International Maritime Organisation
ISM	-	International Safety Management Code
JCG	-	Joint Consultative Group
JSB	-	Joint Strategic Board
LAC	-	Lights Advisory Committee
LFC	-	Lights Finance Committee
LLA	-	Local Lighthouse Authority
MANT	-	Medium Aids to Navigation Tender
MCA	-	Maritime and Coastguard Agency (UK)
MFT	-	Multi-Function Tender
MNB	-	Marine Navigation Bill
MSA	-	Merchant Shipping Act(s)
NLB	-	Northern Lighthouse Board
NLV	-	Northern Lights Vessel
NRT	-	Net Registered Tons
ORF	-	Operating Reserve Fund (GLF)
PAYG	-	Pay As You Go
PCF	-	Pension Contribution Fund (GLF)
PPM	-	Pension Planning Model (GLF)
PRP	-	Performance Related Pay
R&RNAV	-	Research and Radio Navigation
RNLI	-	Royal National Lifeboat Institution
RoI	-	Republic of Ireland
RYA	-	Royal Yachting Association
SOLAS	-	Safety of Life at Sea Convention (1974)
STCW95	-	Standards of Training, Certification and Watchkeeping
TH	-	Trinity House
THV	-	Trinity House Vessel
TSS	-	Traffic Separation Scheme
TUPE	-	Transfer of Undertakings (Protection of Employment)
VfM	-	Value for Money

Flannan Isles by Peter Christmas

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Executive Summary and Acknowledgements
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Executive Summary

Introduction

In September 2009, the Department for Transport (DfT) and the Republic of Ireland Department of Transport (DoT) appointed Atkins to undertake an independent Assessment of the Provision of Marine Aids to Navigation (AtoN) around the UK and Ireland.

The focus of the Assessment is on the three General Lighthouse Authorities (GLAs) which have responsibilities for the provision of AtoN for general navigation, the superintendence and management of all AtoN within their respective areas and the marking, removal or dispersal, of wrecks considered to be a danger to navigation outside harbour and local port areas. The GLAs effectively assume responsibility for the discharge of their respective Governments' obligations under the Safety of Life at Sea (SOLAS) Convention 1974. Discharge of these obligations must comply with standards set by the International Association of Marine Aids to Navigation and Lighthouse Authorities (IALA).

The GLAs are Trinity House (TH) for England, Wales, the Channel Isles and Gibraltar; the Northern Lighthouse Board (NLB) for Scotland and Isle of Man; and the Commissioners of Irish Lights (CIL) for the Island of Ireland.

The activities of the GLAs are funded by a system known as Light Dues, a system of payments levied on commercial vessels calling at UK and Irish ports. Light Dues are paid into the General Lighthouse Fund (GLF) which is administered by the UK Secretary of State for Transport. The Secretary of State consults the Lights Advisory Committee (LAC), which represents the views of ship owners and port operators, on key decisions in relation to Light Dues and the GLF.

The provision of AtoN in Ireland is significantly funded through the GLF. However, the Irish Government also makes a contribution whose specific purpose is partially to cover costs in the Republic; the Irish Government also sets the level of Light Dues for shipping using Irish ports.

These arrangements are long-standing. The GLF was created in 1898; the GLAs predate the Fund by over 350 years.

This Assessment

The overall aim of this Assessment is to ensure that the GLAs continue to be "European and World Leaders in delivering a reliable, efficient and cost effective AtoN service for the benefit and safety of all mariners in the medium- to longer-term with the economic and international prestige that this provides."

The Assessment has been undertaken against five inter-related themes:

- the legal basis, management and technological development for AtoN provision, including GLA frontline operations;
- governance, efficiency and synergy within, and between, the GLAs, including high level decision-making structures, executive arrangements and scope for cost reductions across a range of operational and support functions;
- the management of the GLF, including what level of reserves is necessary to sustain the activities of the GLAs, meet pension liabilities and produce investment returns;
- charging, in particular options for the future level and structure of Light Dues; and
- relations between the UK and Ireland for AtoN provision in relation to the Republic and Northern Ireland.

The focus of the Assessment is on specific actionable and evidence-based recommendations against these thematic areas in the short to medium term. However, the Assessment also considers options for longer-term structural change.

Executive Summary

Overview

The evidence shows that the provision of marine Aids to Navigation around the UK and Ireland is undertaken to first class standards. The three General Lighthouse Authorities have an impressive track record of technological innovation, excellence in operational practice, and investment in skills in order to serve some of the most challenging waters in the World. This enables both the UK and Irish Governments to meet their international obligations under the SOLAS Convention with confidence, and provides for the protection of human life, preservation of the marine environment and the maintenance of maritime trade on which the British Isles depends for its economic prosperity.

The current arrangements work – and work well – in their basic objective of ensuring mariner safety. However, they also come at a price – around £75 million a year – which is borne primarily by owners of ships calling into UK and Irish ports. Despite over a decade of absolute of reductions in real terms, ship owners object to recent increases in Light Dues at the height of a global economic recession, when revenue is falling and profit margins have been significantly eroded.

Some aspects of AtoN provision are based on past decisions and conventions; this is, by almost universal agreement, not a system which would be designed if implemented from scratch in the twenty-first century. In this respect, the tri-GLA structure within which each Authority determines its own operations, board structures and support functions, and the provision of AtoN around Ireland, largely paid for by a Fund administered by another sovereign state, are two particular anomalies which, whilst having no detriment to maritime safety, are seen as inefficient and increasing overall cost burdens.

The current arrangements can claim a number of strengths and achievements. However, some policies, practices and structures are open to constructive challenge and articulation of a case for change. Our overall conclusion is that, while we recognise the benefits of building on the strengths which clearly exist, there is a need to address specific areas where improvements can be made; while not a call to dismantle the current system in its entirety, some major structural changes are required, especially in relation to the funding of AtoN in the Republic of Ireland.

Our Assessment concludes with 52 specific areas of recommendation to the UK and Irish Governments, the GLAs and wider maritime community. These recommendations are structured under each of the five themes.

Technical and Operational Aspects of AtoN Specification, Provision, Superintendence and Inspection

We make recommendations on the process through which AtoN requirements are reviewed including the development of a fit for purpose cost benefit appraisal system, and the longer-term implications of E-Navigation. We also comment on the more efficient use of a number of the GLAs' operational assets, systems and processes, including centralised management of vessels, monitoring centres and potential rationalisation of buoy yard capacity. We consider the GLAs' role with respect to the superintendence and inspection of Local and Third Party AtoN and whether this role should either be charged for or should be replaced by a new system of self-certification.

GLA Corporate Governance

Although the GLAs carry out largely similar tasks, the structure, corporate governance and staffing arrangements of each organisation are different. We make a number of recommendations through which executive decision making could be made more efficient, effective and open to support, scrutiny and challenge. In particular, we propose the creation of a new Joint Strategic Board to drive the benefits of a truly integrated system of AtoN provision across the three GLAs.

Executive Summary

GLA Efficiencies and Synergies

The GLAs have made substantial progress in achieving a range of efficiencies and cost savings within their operations and support functions. We recognise that the GLAs are strongly committed to continuing this, and we put forward a number of recommendations which will assist, either in relation to one-off efficiencies or ongoing changes to corporate behaviours or processes. The setting of joint corporate targets for headcount and cost reduction in support services, and a focus on shared activities will be particularly important, alongside operational efficiencies. Some of our proposals will secure immediate or short-term reductions in GLA costs whilst others will have an effect over a number of years. We examine the potential for the GLAs to secure additional commercial income under the Draft Marine Navigation Bill.

Charging and the Structure of Light Dues

The current structure of Light Dues, through which ship owners support the provision of AtoN in the British Isles, has evolved over many years. Whilst this structure has the support of the LAC and generally delivers income to the General Lighthouse Fund which is sufficient to cover GLA activities, our Terms of Reference have required us to consider other options. In this context, we believe moving towards a flat structure for Light Dues, with a lower headline rate and removal of the current tonnage and voyage caps, would represent a more proportionate approach. We recommend that this be implemented gradually through a system with bands of days of operation and discounts for ships that operate at high frequencies. We also make recommendations on widening collection to groups of marine users who do not currently pay Light Dues.

The General Lighthouse Fund

The financial performance of the General Lighthouse Fund has varied significantly over the last five years, through a combination of the decline in income from Light Dues, increasing liabilities and poor performance of investment funds. We make a number of recommendations which, in combination with reductions in GLA costs and changes to Light Dues, will ensure the stability of the GLF over time, improve its capacity to support GLA activities and provide a solution to increasing pension liabilities separately from operational requirements. This will yield benefits for all stakeholders.

Relations between the UK and Ireland

Covering the costs of Irish Lights from the GLF administered principally in the UK has been one of the most intractable aspects of our Assessment. Discussions have been ongoing between the UK and Irish Governments in parallel with our work and we propose they develop a "road map" which will allow CIL's costs within the Republic of Ireland to be covered wholly by Irish sources within an agreed time period whist retaining the benefits of the tri-GLA structure, within which we recognise the importance of CIL's role as an all-Ireland body. We have also set out an incentivised financial model which will remove the somewhat open ended liabilities on the GLF to contribute to Irish Lights.

Longer-Term Issues

The short term proposals will provide the basis for starting to address the charging and cost recovery system and raising revenues in Ireland. Other issues remain for longer-term consideration, including:

- the existence of a single GLF covering expenditure in two sovereign states;
- further developments in inter-GLA working and the case for structural re-organisation, at least in Great Britain;
- the role of the GLF with regard to pensions as well as the main source of finance for AtoN;
- whether the GLAs' roles as AtoN providers, quasi-regulators and specifiers should be more clearly separated; and
- the future role in AtoN provision of the European Union and its Member States.

Acknowledgements

The Assessment of the Provision of Marine Aids to Navigation around the United Kingdom and Ireland has been undertaken by a team led by Atkins on behalf of the Department for Transport (UK) and Department of Transport (Republic of Ireland).

The Assessment has been supported by a Steering Group chaired by the DfT and comprising representatives of the DfT, DoT, Trinity House, Northern Lighthouse Board, Commissioners of Irish Lights and the Lights Advisory Committee. The Group has from time to time been supported by the GLA Commissioners and Non-Executive Directors.

The Assessment has been undertaken with the active engagement of a wide range of stakeholders who make a financial contribution to, benefit from, or have a close interest in, the provision of marine Aids to Navigation.

The Assessment team is grateful for the ongoing advice of the Steering Group and the responses to requests for evidence from all three General Lighthouse Authorities which were promptly, professionally and fully met at all times. We are also very grateful for the contributions of the Lights Advisory Committee and the views and time of all those stakeholders who chose to contribute to the Assessment.

Nevertheless, we have endeavoured to carry out an Assessment which is based on a wide range of evidence, convictions and views, and which is informed by our own professional judgement. The findings, proposals and recommendations contained in this Report are therefore ours as independent consultants and in no way represent agreed policy of either the UK or Irish Governments, the General Lighthouse Authorities, the Lights Advisory Committee or any other stakeholder group until officially endorsed as such.

Atkins March 2010


AB VALENCIA
ST. JOHN'S

Foreword
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Photo courtesy of TH

Foreword

In order to meet international obligations under the Safety of Life at Sea (SOLAS) Convention, the UK and the Republic of Ireland operate an integrated system for the provision of Marine Aids to Navigation (AtoN) for the British Isles. They do this through three General Lighthouse Authorities (GLAs) which are largely funded from a levy – Light Dues – on commercial shipping calling at UK and Irish ports. This supports a General Lighthouse Fund which is administered by the UK Secretary of State. The GLAs have a Mission to ensure the benefit and safety of the Mariner through a reliable, efficient and cost-effective AtoN service, operating to the highest international standards.

All three GLAs have very long and proud histories and over the last 350 years they have delivered a first class system of maritime safety. The GLAs have not merely followed, but have driven, operational and technological change in the provision of AtoN. Their advances have enabled costs to be reduced, so that they are now much leaner organisations compared with recent times. Nonetheless, in many ways this is not a system that one would devise now if starting with a blank page, especially with regard to the primary cost recovery via Light Dues and with regard to the inclusion of Ireland within the overall funding system.

Underpinning the Terms of Reference for this Assessment is the desire to ensure that the GLAs continue to be European and World leaders in providing AtoN services to the Mariner in the medium to longer term "with the economic and international prestige that this provides." Yet, the genesis of our appointment is primarily financial, principally the UK Government's announcement in June 2009, followed by that of the Irish Government, that Light Dues would be increased for the first time in over a decade. At a time when the global recession has all but eliminated profit margins in much of the shipping industry, ship owners are rightly looking at any opportunity to reduce costs. Whilst Light Dues are a relatively small element in total industry costs, they can be significant in absolute terms and ship owners point out that many other countries do not operate a full cost recovery system. They also question payments made in the UK being used to fund what they see as high costs of AtoN in Ireland, and in an age of satellite positioning systems, the need for so many conventional Aids.

This Assessment is not therefore principally about marine safety per se; it is about identifying the scope for using the current arrangements more efficiently, identifying the scope for cost savings and additional revenues, and for addressing coverage of AtoN provision in relation to Ireland in a sustainable manner.

The Assessment seeks to consider three short-term challenges:

- GLA costs are increasing against a recent decline in shipping, so costs per user increase;
- under current arrangements, Ireland has high costs of AtoN provision but low revenues to support the General Lighthouse Fund: this gives rise to a cross subsidy from Light Due payments made in the UK, to which many in the UK shipping industry are opposed; and
- the shipping industry perceives there are insufficient benefits of tri-GLA integration within the current system, and inadequate challenge on the GLAs themselves to bring these about.

There is a need to address cost issues and sources of additional revenues: the focus is on areas where no or limited legislation beyond current commitments would be required. As our starting point:

- we agree this is not an ideal, simple or modern structure or system: in particular the UK role in Ireland is an anomaly, but there is a need to work towards more rather than fewer all-Ireland bodies;
- there is an imperative to address the cost of AtoN provision, and to reduce and potentially eliminate the Irish "cross subsidy" such that the concerns of ship owners, who pay Light Dues, are addressed;
- there is an immediate need and scope to secure more efficient use of resources and reductions in cost across the GLAs and reduce the burden on the General Lighthouse Fund; and
- at the same time, there is an opportunity to consider options for amending the level and structure of Light Dues, and to address a number of accounting issues within the General Lighthouse Fund.

Beyond this, the Assessment has developed proposals for a longer term solution; these proposals involve more fundamental structural changes; some of which will require primary legislation.

1. Background to this Assessment
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1. Background to this Assessment

1.1 Introduction

The Department for Transport (UK) (DfT) and the Department of Transport (RoI) (DoT) have appointed Atkins to undertake a comprehensive 'Assessment of the Provision of Marine Aids to Navigation (AtoN) around the United Kingdom and Ireland'.

The focus of the Assessment is on the three General Lighthouse Authorities (GLAs) which have responsibilities under the Merchant Shipping Act 1995 (Merchant Shipping Act 1894 for the Republic of Ireland), as subsequently amended, for the provision of Aids to Navigation (AtoN) for general navigation, the superintendence and management of all AtoN within their respective areas and the marking, and the removal or dispersal, of wrecks considered to be a danger to navigation outside harbour and local port areas. The GLAs effectively assume responsibility for the discharge of their respective Governments' obligations in terms of AtoN under the Safety of Life at Sea (SOLAS) Convention 1974. Discharge of these obligations must comply with standards set by the International Association of Marine Aids to Navigation and Lighthouse Authorities (IALA).

The three GLAs are:

- Trinity House (TH) for England, Wales, the Channel Isles and Gibraltar;
- The Northern Lighthouse Board (NLB) for Scotland and the Isle of Man; and
- Commissioners of Irish Lights (CIL) for the Republic of Ireland and for Northern Ireland.

The respective territories of each GLA for the coastlines and seas around the British Isles are shown in Figure 1.1.

The activities of the GLAs are funded by a system of payments known as Light Dues, levied on commercial vessels calling at UK and Irish ports. Light Dues are paid into the General Lighthouse Fund (GLF) which is administered by the UK Secretary of State for Transport. The Secretary of State and his Officials are answerable to the UK Parliament for the resources allocated to the GLAs for their activities and the overall management of the GLF. He is required to sanction GLA expenditure and any proposals to establish new AtoN in the three GLA territories.

In addition, the Secretary of State consults the Lights Advisory Committee (LAC), which represents the views of ship owners and port operators, in making decisions in relation to GLA activities, the level of Light Dues and management of the GLF.

The provision of AtoN in Ireland is significantly funded through the GLF. However, the Irish Government also makes a direct contribution specifically towards the costs of AtoN in the Republic and also sets the level of Light Dues for commercial vessels calling into Irish ports.

These arrangements are long-standing. The GLF was created by statute in 1898, although the GLAs themselves predate the Fund by over 350 years.

1. Background to this Assessment

1.2 Context and Aims of the Assessment

The overall aim of this Assessment is to ensure that the GLAs continue to be "European and World Leaders in delivering a reliable, efficient and cost effective AtoN service for the benefit and safety of all mariners in the medium- to longer-term with the economic and international prestige that this provides."

The GLAs' leadership is not in question; however, it should be maintained where possible through closer synergies, reduced costs, additional commercial income from the use of spare GLA assets and with an examination of the arrangements whereby AtoN provision is substantially supported by Light Dues paid into the GLF. The relationship between the UK and Ireland is an important cross-cutting dimension, with the Assessment considering the scope for a sustainable funding arrangement for AtoN provision in the Republic.

The Assessment is considered, and this Report is structured, around five inter-related themes covering different aspects of AtoN provision:

- the legal framework, management and technological development of the specification and provision of AtoN, including GLA frontline operations;
- governance, efficiency and synergy within, and between, the GLAs, including high level decision-making structures, executive arrangements and scope for efficiencies and cost reduction across a range of operational and support functions;
- the management of the GLF, including what level of reserves is necessary to sustain the activities of the GLAs, meet pension liabilities and produce investment returns;
- charging, in particular options for future arrangements around the level and structure of Light Dues and the users who pay them; and
- relations between the UK and Ireland in relation to the activities of CIL and funding AtoN provision in relation to the Republic and Northern Ireland.

The focus of the Assessment is on specific actionable evidence and recommendations against these thematic areas in the short - to medium-term, which we take as up to and including 2013/14. These largely presume a continuation of the current tri-GLA structure for AtoN provision within the bounds of existing and planned primary legislation in the UK and Ireland.

However, the Assessment also considers, in less detail, options for longer-term structural change up to 2019/2020 which would almost certainly require primary legislation if the two Governments wish to take them further.

1. Background to this Assessment

1.3 Committed Changes

The Assessment is being carried out within the context of two recent or committed changes to the financial and legislative arena in which AtoN are provided across the British Isles:

- the recent increase in the rate of UK Lights Dues from £0.35 per Net Registered Ton (NRT) to £0.39 in July 2009, with an increase in the voyage cap to 9 and with a further planned increase from April 2010 to £0.41 (amended from a planned rise to £0.43) per NRT and an increase in the tonnage cap from 35,000 NRT to 40,000 NRT*. This has been paralleled by an equivalent increase in the level of Light Dues paid in the Republic of Ireland from €0.52 to €0.57 with a 35,000 NRT cap from August 2009; and
- the proposals within the Draft Marine Navigation Bill, and proposed equivalent legislation in the Republic of Ireland, which include changes to GLA powers regarding Local Lighthouse Authorities, ability to raise commercial income and pension arrangements.

It is not within the scope of the Assessment to revisit the proposals contained in either of these developments, although they do provide a broad context for our recommendations. It is also the case that UK and Irish Government policy in this area remains that users, rather than taxpayers, should pay for the benefits of an integrated system of AtoN provision. This is not open to challenge as part of this Assessment.

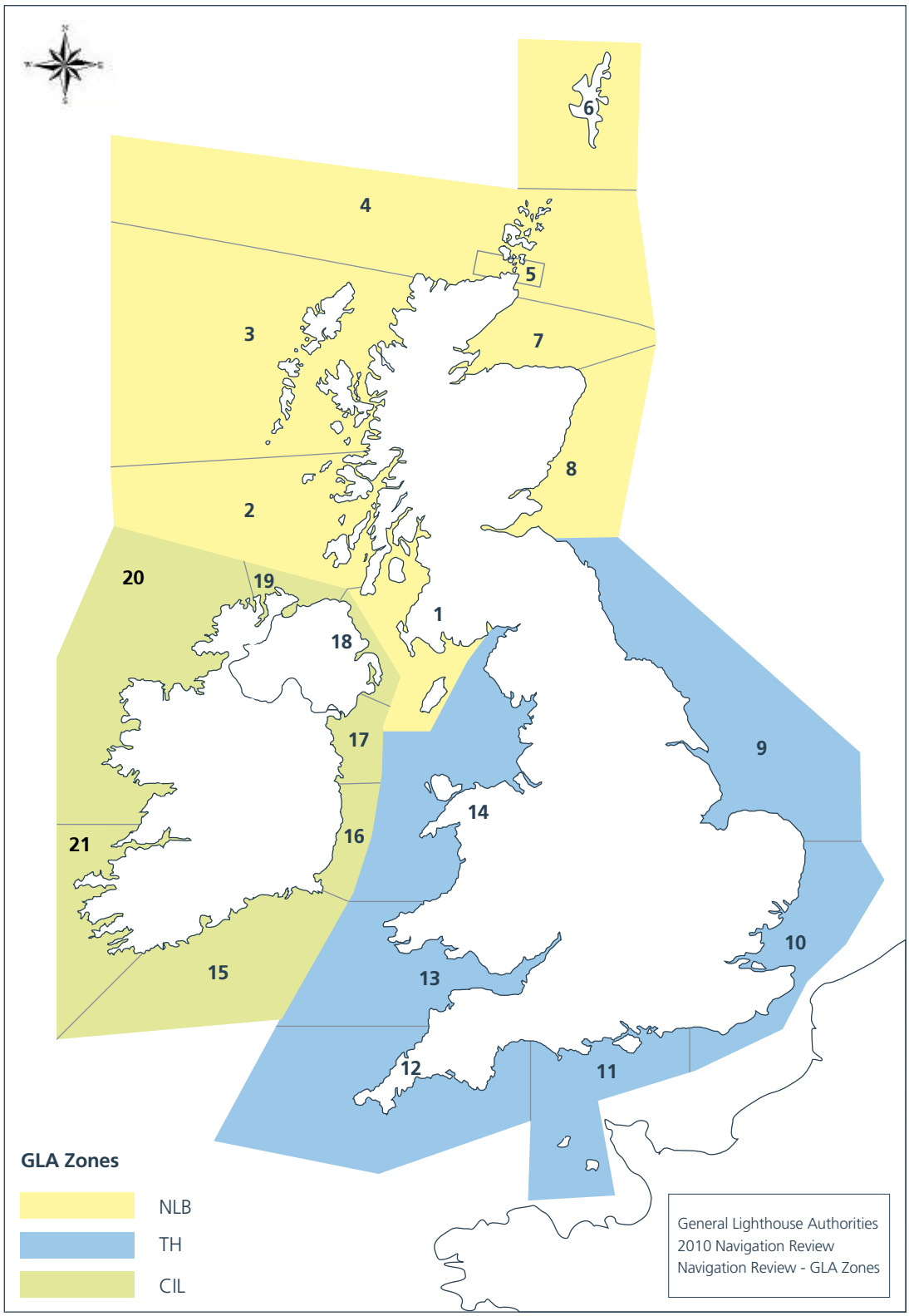
1.4 Structure of this Report

The structure of this Report is as follows:

- Chapter 2 briefly describes the current arrangements for the provision of AtoN in the British Isles, including a description of the three GLAs, the arrangements for the setting and collection of Light Dues and the management of the GLF;
- Chapter 3 considers a range of stakeholder views on these arrangements from the shipping industry, ports sector, users of AtoN and others;
- Chapter 4 compares the arrangements for AtoN in the British Isles with those applying in a range of overseas examples;
- Chapters 5 to 9 consider the key issues, and relevant evidence and proposals for short-to medium-term change to current arrangements which may be deliverable by 2013/2014 against each of the five thematic areas;
- Chapter 10 sets out a range of more fundamental options for changes which might be considered in the longer-term; and
- Chapter 11 summarises our principal conclusions and recommendations to the UK and Irish Governments.

*Immediately prior to the finalisation of this Report it was announced that the rate from April 1st would be 41p and not 43p.

Figure 1.1 – Territorial Coverage of the GLAs for the UK and Ireland



Source: Trinity House

Note: The GLA areas of jurisdiction have been split into zones to make more detailed defined areas for assessment between the GLAs and with outside stakeholders with formal reviews. The zones are also used for internal database referencing and work between departments. The zones are numbered as follows: 1 to 8 for NLB, 9 to 14 for TH and 15 to 21 for CIL.

NLV Pharos by Norman Burniston ©

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2. Overview of Arrangements for Provisionof Aids to Navigation in the United Kingdom & Ireland
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2. Overview of Arrangements for Provision of Aids to Navigation in the United Kingdom & Ireland

2.1 The Current Structure

The present system by which AtoN are specified, funded, provided and sponsored in and around the UK and Ireland is set out in Figure 2.1 together with the key organisations involved or with an interest in maritime safety.

These arrangements are complex. The current structure is almost certainly not one that would have been invented if starting afresh; rather, it reflects the history of lights provision over the centuries and of British and Irish relations.

In particular, there are several elements of the present system we would probably not devise now; these include:

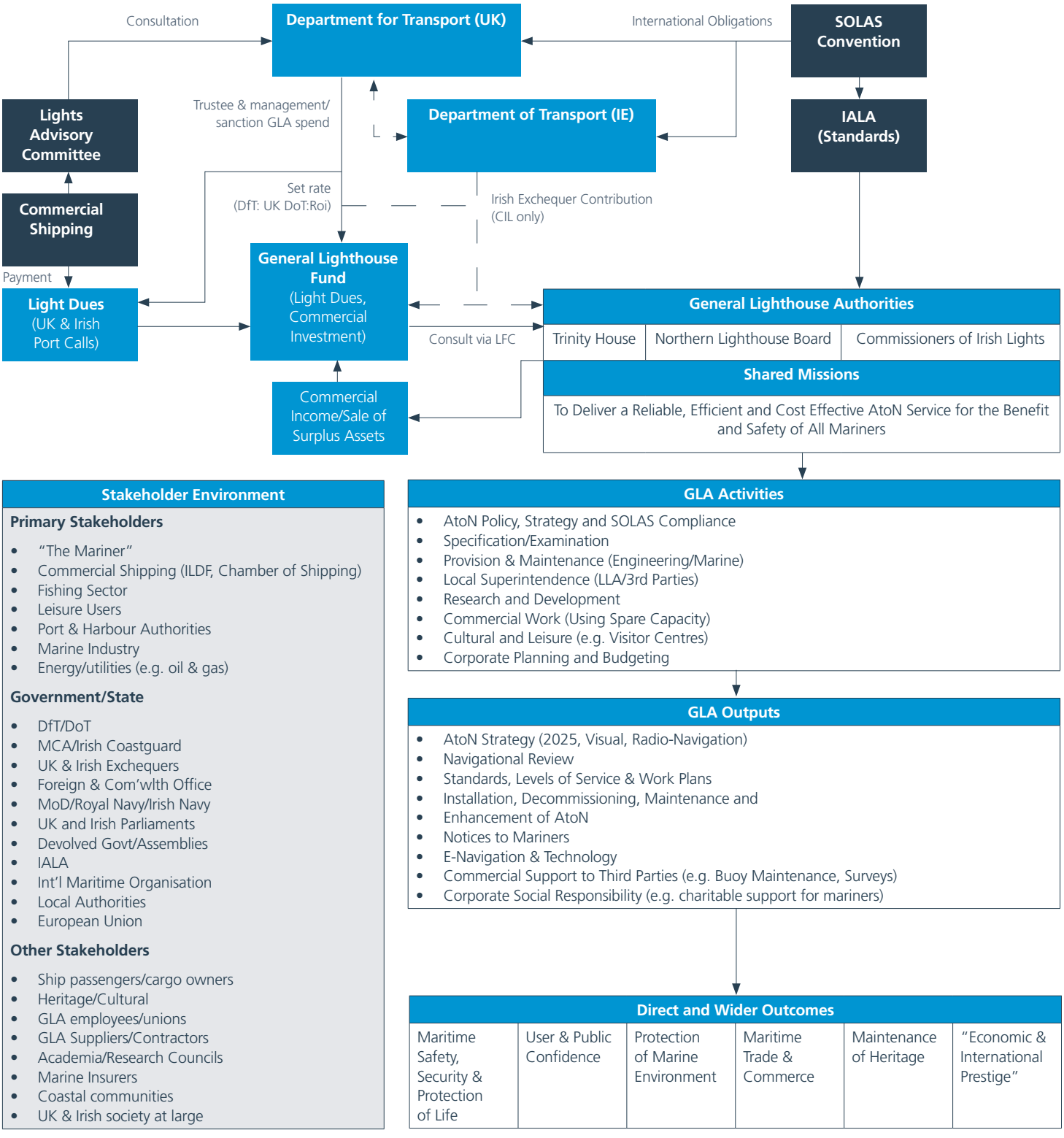
- the existence of three separate GLAs covering the British Isles with their own (differently specified) Boards, executive arrangements, assets and operations, in their areas;
- the GLF and the ways flows of funds take place between the GLAs and the GLF and the lack of separation between operational requirements and significant (and increasing) pension liabilities;
- the role of the DfT with regard to Ireland, where the Irish Government is responsible for its obligations under SOLAS, but through funding arrangements which are effectively sponsored by another sovereign state;
- the nature and structure of Light Dues, the way in which payments are attributed on the basis of where payments are made rather than by use or route, and the imperfect application of the "user pays" principles in practice; and
- the lack of separation of the role of "specifier" of lights and other aids, and that of provider.

There is no doubt the current arrangements work in terms of their basic objective of ensuring the safety of the Mariner and providing for the comprehensive and integrated cross-border specification, funding and provision of AtoN around the British Isles to a high quality and level of service. As a result, major marine accidents are thankfully rare in UK and Irish waters, and even rarer in the case of accidents involving failure of AtoN. The present structure also allows for co-operation where appropriate, in the case of common challenges facing all three GLA territories, and for differing approaches where local issues dominate. There is already a degree of integration in a number of areas where the UK and Irish Governments and the three GLAs have agreed this is appropriate. There is also flexible cooperation in relation to the specification of standards, and the planning and use of GLA assets which are increasingly output orientated.

However, it is not clear that the present system is sustainable: major changes may be needed, but it is expected that some will be strongly resisted by payers and others by providers.

This Chapter briefly provides further details on the current arrangements before subsequent chapters present analysis, options and proposals against the key themes of this Assessment.

Figure 2.1 – Overview of the Provision of Aids to Navigation in the UK and Ireland



2. Overview of Arrangements for Provision of Aids to Navigation in the United Kingdom & Ireland

2.2 The General Lighthouse Authorities

The GLAs are central to any understanding of the specification and provision of AtoN around the UK and Ireland. They have statutory responsibilities for the provision of AtoN for general navigation, the superintendence and management of all AtoN within their respective areas and the marking, and the removal or dispersal, of wrecks considered to be a danger to navigation outside harbour and local port areas.

The GLAs effectively assume responsibility for the discharge of their respective Governments' obligations in terms of AtoN under Regulation 13 of Chapter V of the SOLAS Convention, given legislative force under the Merchant Shipping Act 1995 for the UK and the 1894 Merchant Shipping Act for the Republic of Ireland, as subsequently amended.

As noted in Chapter 1, the three GLAs are:

- Trinity House (TH) for England, Wales, the Channel Isles and Gibraltar;
- the Northern Lighthouse Board (NLB) for Scotland and the Isle of Man; and
- Commissioners of Irish Lights (CIL) for the Republic of Ireland and for Northern Ireland.

The GLAs predate the statutory creation of the General Lighthouse Fund (GLF), in the case of Trinity House by over 350 years. They have evolved over that extensive period, not least in terms of technology and operational practice, but the principle of non-governmental public bodies providing a service for the safety of all mariners, funded by a charge on those who are deemed to benefit from that service remains. In this context, the common GLA Mission Statement is:

"To deliver a reliable, efficient and cost-effective Aids to Navigation service for the benefit and safety of all mariners."

Together the GLAs service some 20,000 miles of coastline and around 510,810 square miles of sea. The GLAs have a worldwide reputation for achieving and exceeding international standards for availability of AtoN and leading on developments in technology and operational practice.

The GLAs aim to work together in order to provide an integrated service across the UK and Ireland. However, each GLA remains a separate legal entity with its own responsibilities and liabilities under SOLAS and undertakes its own AtoN specification and provisions, including operating its own vessels and depot facilities, as well as maintaining separate head office and support functions.

The following sections set out a brief description of each GLA.

2. Overview of Arrangements for Provision of Aids to Navigation in the United Kingdom & Ireland

2.2.1 Trinity House

The Corporation of Trinity House was constituted by Royal Charter in 1514 and has, since then, received a number of such charters or grants. Within the scope envisaged by its Charters, Trinity House is entrusted by Parliament, under the Merchant Shipping Act 1995, as the GLA for the superintendence and management of all lighthouses, buoys and beacons in England, Wales, the Channel Islands and at Gibraltar. The Corporation has delegated its duties to the Trinity House Lighthouse Service (THLS) which is managed by a Board; this currently comprises an Executive Chairman, 3 Executive Directors and 4 Non-Executive Directors.

Trinity House currently maintains some 69 lighthouses, 13 Light Vessels[1], over 400 buoys, radar and radio AtoN and, in conjunction with the other GLAs, a Differential Global Positioning System (DGPS), and a trial e-Loran station in Cumbria. Trinity House marks some of the busiest waters in the World, including the Dover Straits, large parts of the North Sea, the approaches to a number of major UK ports along the East and South Coasts of England, the Bristol Channel and the Western Approaches.

Under its powers and duties of the superintendence and management of all lighthouses, buoys and beacons, Trinity House annually inspects over 10,000 local AtoN provided by ports, harbours and other third parties. It also manages the collection of Light Dues from ships calling at UK ports on behalf of all the GLAs and hosts the tri-GLA Research and Radionavigation service (R&RNAV).

Trinity House currently employs 306 people, including tri-GLA functions, at sites in Harwich (Essex), Tower Hill (London), Swansea and St Just, as well as on its three buoy maintenance and wreck response vessels, THV Patricia, THV Galatea and THV Alert. A 24/7 Operations and Planning Centre is located in Harwich.

Trinity House is the largest of the GLAs in terms of total number of AtoN deployed (53%) but it has the smallest proportion of major AtoN (21%); it has by far the greatest number of minor AtoN (57% of the total) and floating aids. It is also largest in terms of staff (40%)[2]. Its running costs, at around £23.6 million in 2007/08 account for 41% of the total for all three GLAs[3].

[1] 10 at sea and three as spares.

[2] Full-Time Equivalents, excluding tri-GLA activities, specifically Light Due collection and R&RNAV.

[3] GLF Accounts 2007-2008. Running costs exclude depreciation and pension liabilities.

2. Overview of Arrangements for Provision of Aids to Navigation in the United Kingdom & Ireland

2.2.2 Northern Lighthouse Board

The Commissioners of Northern Lighthouses were established in 1786 and are a corporate body known as the Northern Lighthouse Board. The Board is vested with the superintendence and management of all lighthouses, buoys and beacons throughout Scotland and the adjacent seas and islands and the Isle of Man. This area covers half the waters and coastline of the United Kingdom, together with a significant proportion of offshore manned oil installations in the North Sea.

The Board consists of the Lord Advocate and the Solicitor General for Scotland; the six Sheriffs Principal of Scotland; the Lords Provost of Edinburgh, Glasgow and Aberdeen; the Convenors of Highland Council and of Argyll & Bute Council; a nominee of the Isle of Man and a further 5 co-opted Commissioners; the latter six serve for one , two, or exceptionally three, terms. Day to day management is vested in a Managing Board.

NLB currently maintains over 200 lighthouses and over 240 buoys, radar and radio AtoN. These mark some of the most treacherous sections of coastline and hostile seas in the UK, including Orkney, Shetland and the Western Isles, with some of the strongest tidal streams found anywhere in the UK being experienced in the Pentland Firth. The NLB covers seas contributing most of the UK's oil and gas production.

NLB currently employs around 260 people. The NLB Head Office is located in George Street, Edinburgh, with a Chief Executive and three Directorates. There is a main operating base at Oban on the West Coast of Scotland and two small leased support facilities in Orkney and Shetland. NLB Edinburgh also provides a 24/7 Monitoring Centre. NLB operates two ships, NLV Pole Star and NLV Pharos, as well as helicopter support under contract.

The NLB is the second largest of the GLAs with 28% of AtoN deployed and 28% of staff. NLB has, however, by far the largest share of AtoN classed as major, with 56% of these Aids. Its running costs were £15.0 million in 2007-2008, accounting for 26% of the total for all three GLAs.

Within the Scottish legislative system, AtoN and other marine affairs are a reserved matter, and NLB is therefore subject to legislation passed by the UK Parliament and sponsorship and scrutiny of the DfT rather than the Scottish Government; however, the Board does work with the Scottish Government and a range of other bodies on issues of Scottish interest and concern.

2. Overview of Arrangements for Provision of Aids to Navigation in the United Kingdom & Ireland

2.2.3 Commissioners of Irish Lights

The Commissioners of Irish Lights (Irish Lights) is the GLA for all of Ireland, its adjacent seas and islands. CIL carry out the obligations of the British & Irish Governments in relation to the provision of AtoN around the coast of Ireland.

The legal basis for the operations of the Commissioners of Irish Lights dates back to an Act passed by the Irish Parliament sitting in Dublin in 1786 which set up a body called "The Corporation for Preserving and Improving the Port of Dublin". Various Acts were passed over the years and in 1867 a new Act separated the Port of Dublin Corporation from the Corporation for Preserving and Improving the Port of Dublin. A key piece of legislation still on the statute books in Ireland is the Merchant Shipping Act 1894, which vests in the Commissioners responsibility for the superintendence and management of all lighthouses and other marine aids to navigation in respect of Ireland. The Merchant Shipping Act 1995 empowers the Commissioners with the same function for Northern Ireland.

CIL comprises a Board with a maximum of 21 co-opted or ex-officio Commissioners. It is currently governed by 12 Commissioners, 4 Aldermen from Dublin City Council (including the Lord Mayor of Dublin), the Chief Executive and 4 Executive Heads of Department. Co-opted Commissioners are appointed by public application.

CIL currently maintains some 80 lighthouses, and around 200 buoys, radar and radio AtoN. These responsibilities include 13 lighthouses and 32 buoys and beacons in Northern Ireland. A particular focus is on marking the way for shipping lanes between the UK and Ireland across the Irish Sea, together with offshore gas and renewable energy developments.

Under its powers and duties of the superintendence and management of all lighthouses, buoys and beacons, there is an obligation on CIL to inspect and approve all AtoN systems and to audit the subsequent management of AtoN provided by Ports and Local Lighthouse Authorities, of which there are around 4,200 across Ireland.

Irish Lights is based at Dun Laoghaire on Dublin Bay, where the workshops, buoy yard and administration are all located on the same site. There is a 24/7 Monitoring and Control Centre for all AtoN from this site. A contracted helicopter is used to transfer maintenance teams to and from offshore lighthouses. The ILV Granuaile, launched in 2000 and the model for other Multi-Function Tenders developed for the GLAs, is deployed to maintain and service AtoN, mainly buoyage. It is also engaged in project support, lighthouse replenishment, and wreck marking or removal. The vessel is also a declared strategic asset of the Irish Coastguard, for marine training, exercises and emergencies.

CIL is the smallest of the GLAs with 19% of AtoN deployed, although it does have 22.2% of major AtoN, a similar proportion to Trinity House. However, it has 29% of all GLA employees[4] and its running costs in 2007-2008 were € 21.1 million (£19.7 million), accounting for 34% of the total for the three GLAs. This apparent high cost is significantly influenced by the recent change in exchange rate between Sterling and the Euro and is discussed elsewhere in this Report.

The cost of CIL is partially met from the General Lighthouse Fund. In addition, the Irish Government contributes to the Fund under the terms of an agreed formula. CIL is unusual in that it has continued as a cross-border body since the establishment of the Irish Free State, the success of which was confirmed by both Governments by inclusion of CIL as a model of all-Ireland cooperation within the 1998 Belfast Agreement. It therefore operates all AtoN in Northern Ireland.

[4] This includes a significant proportion of part time Coastal Tradesmen who carry out painting and maintenance work on an in-house basis. In contrast these roles are contracted out by TH and NLB.

2. Overview of Arrangements for Provision of Aids to Navigation in the United Kingdom & Ireland

2.2.4 Inter-GLA Structures

Although the GLAs are separate legal entities, and have their own obligations and liabilities, there is significant commonality between their activities and the resources deployed to undertake these.

The GLAs also seek to deliver an "integrated system" of AtoN provision for the British Isles. In recent years they have worked more closely in a number of areas, securing a more strategic approach to the specification and provision of AtoN, and economies of scale and synergies in their operational and management systems and processes.

There are a range of specific examples of this. The GLAs now undertake joint strategic reviews of future challenges and requirements for AtoN. Trinity House carries out the collection of Light Dues in the UK on behalf of all three GLAs (Customs collect Light Dues in the Republic of Ireland as they have powers to enforce payment) and TH and NLB have worked closely on the joint procurement of their three new vessels – Pharos, Galatea and Alert – realising synergies and cost savings in the design, project management and legal advice relating to the ships. Marine and liability insurance is achieved through a joint policy, securing a lower premium than the sum of each GLA insuring its own risks.

In order to further strengthen cooperation in terms of sharing knowledge, practical experience and identifying and developing best professional practice, the GLAs have an established structure of Inter-GLA Committees (IGCs) which cover 10 areas of co-ordinated or shared activity, based around a range of themes and professionalisms. Since 2006, the IGCs have replaced arrangements around Information Exchange Groups (IEGs), having greater authority and empowerment to take and implement decisions, whilst promoting the cross-cultural exchange of information. The coverage of the IGCs reflects almost all aspects of GLA activity and includes the following:

- IGC 1 Human Resources;
- IGC 2 Finance;
- IGC 3 Aids to Navigation;
- IGC 4 Operations;
- IGC 5 Engineering;
- IGC 6 Legal & Risk;
- IGC 7 Radio Navigation;
- IGC 8 Health & Safety;
- IGC 9 Information Technology;
- IGC 10 Procurement;
- DGPS System Management; and
- GLA Spectrum Working Group.

The IGCs report to a Chief Executives Group which, in turn, reports to a Joint Consultative Group (JCG) consisting of the Chairmen, Vice Chairmen and Chief Executives of NLB and CIL and the Executive Chairman and two Executive Directors of TH. Both Groups meet twice a year, although with informal discussions and engagement more frequently throughout the year.

2. Overview of Arrangements for Provision of Aids to Navigation in the United Kingdom & Ireland

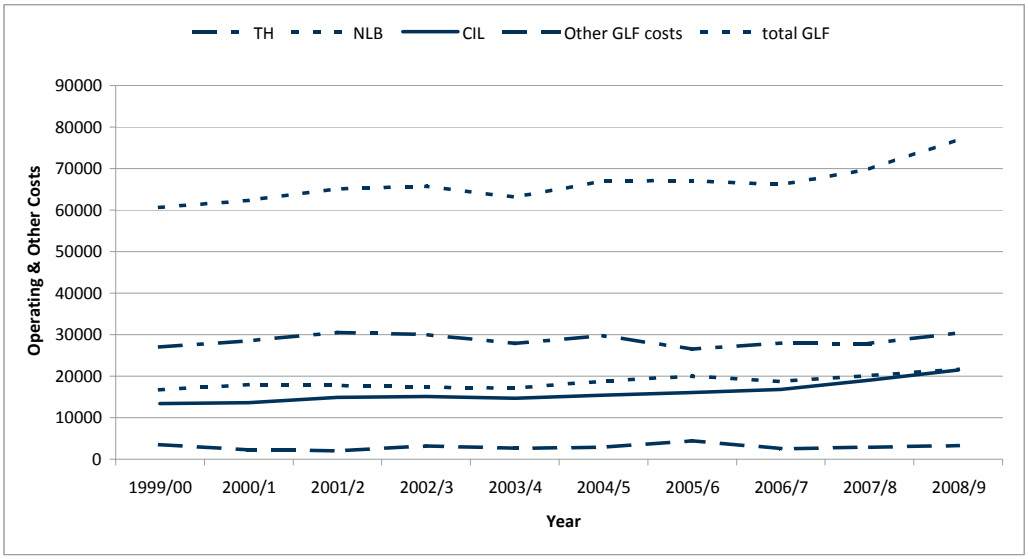
2.3 An Overview of the Costs of Providing AtoN

The costs of the services provided by the GLAs, especially the costs in Ireland and the fact that the GLF contributes to costs in another sovereign state, is a matter of concern to ship owners and has been a major factor behind the commissioning of this Assessment.

In fact, the GLAs have, over the last 10 years, held operating costs steady in current prices, compensating for the effects of wage and other inflation through staff reductions and savings in other costs. They have taken a wide range of steps in operational efficiency, technology improvement and business reorganisation with direct benefits in terms of reduced operating and capital costs; this has allowed the real-terms level of Light Dues to be reduced over time, as set out in Section 2.4 below.

It is really only since 2005/06 that costs in total (but excluding capital costs) have shown a more marked upward trend at a period when inflation in the UK at least has been low by the standards of the last 50 years. The appreciation of the Euro has also had an impact on how the costs in Ireland appear when converted into Sterling, and as can be seen from Figure 2.2, CIL's costs show a steeper upward trend since 2004/05 than either NLB or TH. The trend line is however sensitive to the base year chosen, and TH's costs would show the same upward trend as CIL's from 2005/06 even though TH's costs are in Sterling and have not therefore had the adverse effects of the appreciation of the Euro.

Figure 2.2 – GLA Operating and Other Costs 1998/99 to 2008/09



2. Overview of Arrangements for Provision of Aids to Navigation in the United Kingdom & Ireland

It must be noted that the impact of the Euro is not limited to the conversion of CIL's costs to Sterling. A wider consequence of Ireland's membership of the Euro at a time when the economy was already expanding rapidly was to cause strong upward movements in wages and asset prices, more difficult to control because monetary policy was controlled across the Euro Zone from the European Central Bank in Frankfurt and not Dublin.

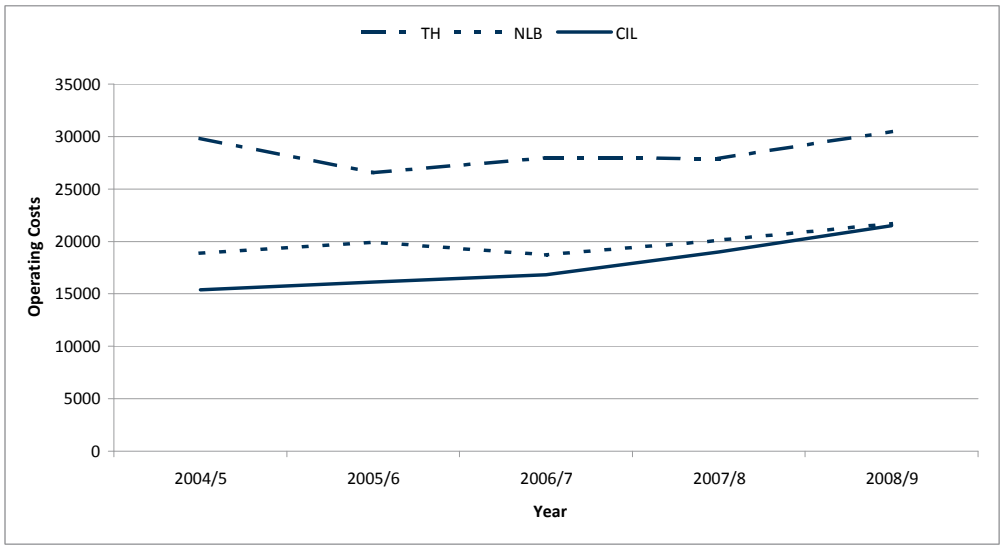
As a consequence, wages increased more rapidly in Ireland than in the UK. Irish Civil Service wages, to which CIL pay awards are directly linked, saw a sharp uplift in order to retain staff while the private sector had a huge appetite for recruitment, including the attraction back to Ireland of skilled people who had previously left to work abroad. An analysis using purchasing power data suggests that in terms of what CIL salaries will buy in Ireland, pay levels are less generous than the headline figures would indicate.

Therefore while CIL's costs are certainly high when expressed in Sterling terms, account needs to be taken of these wider factors. In such cases, a better comparison is based on headcount in relation to activities. However, all three GLAs have very different sets of assets and therefore demands on their staff. Whilst we did attempt an analysis based on attaching weights to different types of aids and then looking at staff in relation to a weighted total count of aids, this did not enable us to reach any firm conclusions.

Turning to capital spend, Figure 2.4 shows capital spend as reported in the annual accounts in current prices and a smoothed series using a three year moving average. The sums shown for capital expenditure are from the published accounts and are not annual cash flow expenditure; in reality expenditure is less subject to peaks. Additionally the sums are not net, and do not therefore show receipts including the sale of CIL's Dublin premises, or former TH depots at East Cowes and Great Yarmouth. The peaks therefore represent large and irregular items such as depot and HQ rationalisation and tender replacements.

Inflation affects capital spend and is therefore reflected here. While the rate of inflation for capital works has typically been at a higher rate than the retail price index, the GLAs have indicated that the trend in expenditure is flat, even in current prices.

Figure 2.3 – Trends in GLA Operating Costs 2004/05 to 2008/09



2. Overview of Arrangements for Provision of Aids to Navigation in the United Kingdom & Ireland

Therefore, looking at historical data, it is possible to conclude:

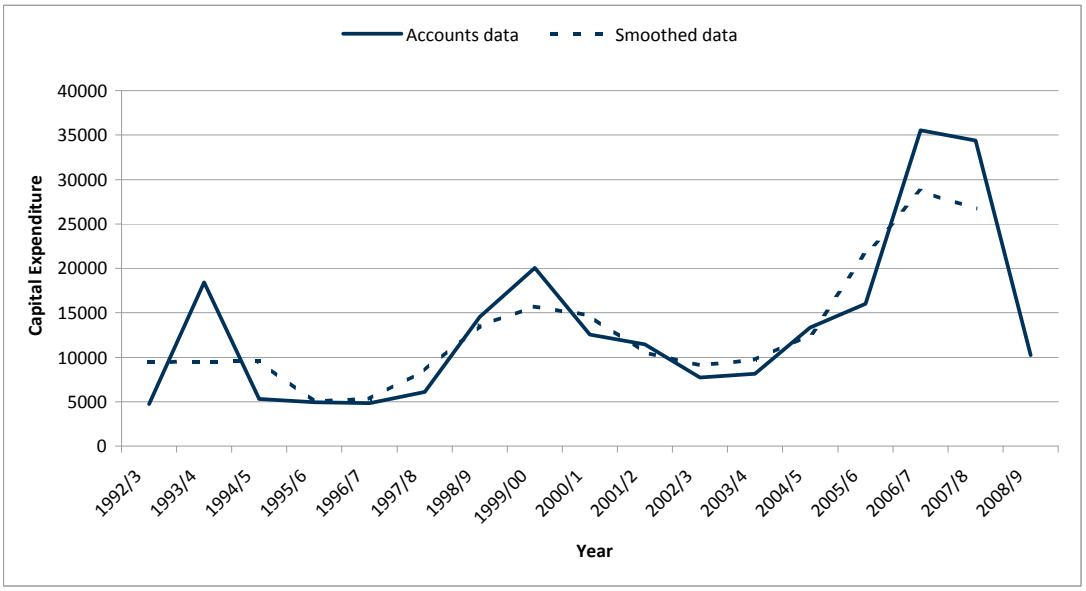
- operating costs have been contained, but trends in current prices are upwards, especially at CIL where local economic circumstances and exchange rate changes strongly affect the Sterling value of costs, and especially so in the last two years; and
- capital cost trends have been flat when an allowance is made for exceptional items.

There is of course no guarantee that capital cost inflation will not return, or that there will be no large but irregular items in future. We would also point out that while some GLA capital expenditure may be deferred in the short term, it cannot be deferred indefinitely, and deferral may add to future costs, including any impact from inflation in the costs of capital works.

Some elements of capital expenditure are undertaken to reduce operating costs, of which the lighthouse automation and solarisation programme have been major contributors to keeping operating costs down. Other elements of capital are essential works or major renewals, including the ship leases.

Ship owners are concerned about future large items of capital expenditure and commitments to items such as e-navigation research programmes which may deliver long term benefits and lower operating costs but which, in a severe recession and with a view to short term commercial survival, they see as items that could be eliminated, slimmed back or deferred until the economy and the level of shipping activity recover.

Figure 2.4 – GLA Capital Expenditure (Current Prices) 1991/92 to 2008/09



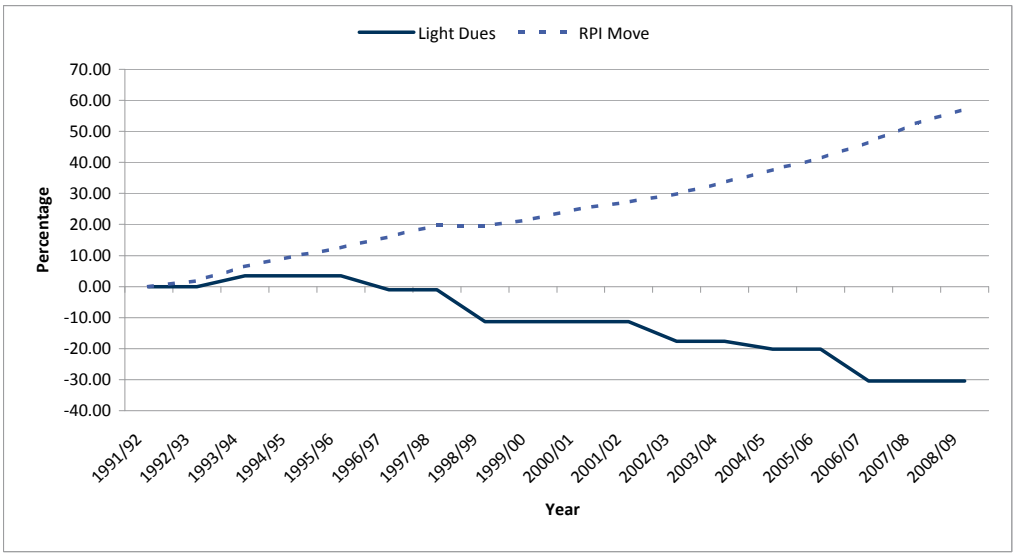
2. Overview of Arrangements for Provision of Aids to Navigation in the United Kingdom & Ireland

2.4 Light Dues

Light Dues in the British Isles are charged on a per ton basis, based on a vessel's NRT. There has been a drop in the level of Light Dues in the last ten years representing a 50% reduction in real terms, with an absolute decrease to a level of £0.35 per NRT in 2006. Before 2009, there had not been an absolute increase in Light Dues since 1993 representing a long-term real decline as shown in Figure 2.5.

As is well known the Government announced in July 2009 that in order to ensure that the GLAs have sufficient funds to enable them to carry out their statutory duties and to protect the commitments of the General Lighthouse Fund, including the pension contributions of GLA staff, it would be necessary to increase Light Dues. This is being done through a two-stage increase with the Government's intention of avoiding some of the immediate impact on the shipping industry at a time when it is suffering from the economic recession and downturn in trade, and helping the GLAs to focus on the need to keep their costs to an absolute minimum consistent with maintaining safety standards. The new rates are shown in Table 2.1.

Figure 2.5 – UK Light Dues Compared to Retail Price Index 1991/92 to 2008/09



2. Overview of Arrangements for Provision of Aids to Navigation in the United Kingdom & Ireland

Table 2.1 – Recent and Future Changes in Light Dues

	Light Dues per Net Registered Ton (Pence per NRT)	Maximum Number of Chargeable Voyages per Year (Rolling Months)	Maximum Chargeable Tonnage (NRT)
April 2006 – June 2009	35	7	35,000
From 1 July 2009	39	9	35,000
From 1 April 2010	41	9	40,000

In the Republic of Ireland, Light Dues increased in August 2009 from €0.52 to €0.57 with a 35,000 NRT tonnage cap.

Light Dues are therefore subject to two "caps", namely a tonnage cap currently set at 35,000 NRT and due to rise to 40,000 NRT in April 2010 (in the UK), and a voyage cap currently set at 9 voyages. Payments are made on the first port call and a certificate is issued: the certificate is valid for a rolling month and for any port within the British Isles.

This system has evolved over time through the interaction between Governments and the shipping industry. The effect of current arrangements is that vessels making substantially more than 9 calls into UK or Irish ports, for example ferries, and which are substantially larger than 40,000 NRT, pay substantially less per call compared to a system of "flat rates" where voyage and tonnage caps were not in place.

As will be shown in Chapter 4 of this Assessment, most other countries in Europe do not have a full cost recovery system and many pay for AtoN from general taxation; unsurprisingly shipping interests would prefer such a system for the UK and Ireland.

The system of Light Dues also allows payment on UK - Ireland shipping to pay in either UK or Ireland. At current exchange rates, there is an economic advantage for such payments to be made in the UK. This, together with Ireland's relatively high volume of ferry traffic and smaller cargo ships, causes the Light Due revenues collected in Ireland to fall short, significantly, of the costs of AtoN provision there.

2. Overview of Arrangements for Provision of Aids to Navigation in the United Kingdom & Ireland

2.5 The General Lighthouse Fund

The Secretary of State administers the GLF, which derives most of its income from Light Dues charged on ships calling at UK and Irish ports, together with lesser levels of GLA commercial income and investment in the stock market. The GLF finances the GLAs and must generate sufficient regular income to sustain their short, medium and long term operations. It also supports substantial pension liabilities of current and former GLA employees.

The GLF's investment objectives can be summarised as follows:

- achieve a reasonable rate of return over the medium to long term;
- investment risks should be controlled and not excessive; and
- maintain adequate levels of liquidity.

In recent years, the general objective has been to maintain a stable Investment Fund of about £70 million, including adequate protection of members' pension contributions. Nevertheless, the Fund is exposed to a number of risks, namely:

- significant fall in Light Dues revenue, due to decline in maritime trade and a delay in increasing shipping charges;
- excess operating and/or capital expenditure resulting in a draw-down on the operating reserve; and
- poor management and returns on the reserve funds.

As a result, the financial performance of the GLF over the last 5 years has varied significantly from year to year. Specifically:

- direct operating surplus has declined by 89% over the last three years, from £10.5 million in 2006/07 to £1.1 million in 2008/09; and
- net operating performance indicates an even weaker position with the reported deficit reaching £24.5 million in 2008/09.

The operating surplus or deficit in each instance is largely driven by the income from Light Dues balanced by operating and capital expenditure, pension payments and depreciation provisions.

In general, the reported absolute performance of the GLF Investment Funds has been poor, and exacerbated by the financial crisis and the significant decline in stock market values, especially in 2007, 2008 and early 2009.

The GLF meets the cost of GLA statutory pension obligations on a "Pay As You Go" (PAYG) basis. In 2008/09, pension payments amounted to £15.3 million, which is about 4.5% of reported pension liability, or 19% of direct annual expenditure. Total reported pension obligations have risen by 29% over the last five years, from £256 million in 2004/05 to £330 million in 2008/09.

2. Overview of Arrangements for Provision of Aids to Navigation in the United Kingdom & Ireland

2.6 The Draft Marine Navigation Bill

The Draft Marine Navigation Bill was published for consultation in May 2008 and includes provisions of interest to the GLAs, especially in respect of increased flexibility for commercial opportunities using irreducible spare capacity and management of GLF pension liabilities separately from other activities. These proposals are strongly supported by the GLAs themselves and command substantial cross-party support, although provisions on commercial income are supported more equivocally by the shipping industry. It should be emphasised that the Bill applies only to the UK, although equivalent legislation is planned for the Republic of Ireland.

The Bill has not yet been formally introduced into the Parliamentary process in either the UK or Ireland. In the UK, it has, however, completed pre-legislative scrutiny through a public consultation and examination by the House of Commons Transport Committee. The Bill could, in principle, be introduced later in 2010 subject to the outcome of the General Election and the priorities of the resulting Government.

Assuming that the legislation clears the UK and Irish Parliaments during 2010-11, the GLAs should be in a position to benefit from these new powers from 2011/12.

2.6.1 Commercial Opportunities

Under existing UK and Irish legislation, the GLAs have powers to enter into commercial contracts with third parties in the public and private sectors with the intention of raising additional income for the GLF from the exploitation of spare capacity within their operations. Since 1997, they have developed their commercial offer and built up a portfolio of services and clients, including local port and harbour authorities, marine and offshore oil and gas and renewable energy companies.

Looking ahead, the GLAs have long argued that their potential to secure additional commercial opportunities has been limited by restrictions within existing legislation such as inability to "buy in" additional resources to undertake contracts, or use their staff and skills flexibly on a consultancy basis. This anomaly has been recognised by the two Governments and clauses have been included in the Draft Marine Navigation Bill to ease these restrictions.

2.6.2 Pension Arrangements

The Draft Marine Navigation Bill includes enabling powers for the GLAs to manage their own pension arrangements in line with best commercial practice. Under the existing statutory structure, there is no provision to "ring fence", within the GLF, pension contributions made by GLA employees. Therefore, pension contributions cannot be solely applied for the benefit of former GLA staff and may be used for other GLF financial commitments. The Bill therefore proposes to protect pensions from all other GLF liabilities and obligations, and create new powers to create separately funded pension schemes for the GLAs operating in the UK. The Secretary of State will also be permitted to provide orders to facilitate payments from the GLF to third party pension funds.

3. **Views from Stakeholders**
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3. Views from Stakeholders

3.1 Introduction

In the course of this Assessment we have met or communicated with many of the key stakeholders with an interest in the provision of AtoN across the British Isles. A summary of people and organisations with whom we have held discussions is included in Appendix B.

On a condition of anonymity, these stakeholders have spoken freely about what they like – and don't like – about the current arrangements, including the specification and provision of AtoN, the performance and responsiveness of the GLAs, and the level and structure of Light Dues. There have also been many suggestions for improvements to future arrangements.

3.2 Shipping Lines

The shipping lines and their UK agents are the major payers of Light Dues and hence finance the GLF. For many years those calling only at UK ports have objected to the revenue from their Light Dues being used to support the operations of CIL in the Republic of Ireland.

The recent increases in Light Dues – at a time when the shipping industry is in crisis - have added weight to this objection. The increases have impacted differently on different types of shipping service. Shipping lines calling infrequently at UK ports with large ships (e.g. from South America) with relatively small amounts of cargo have seen their Light Dues costs increase by over 40%.

The increase in costs for the shipping lines, at a difficult time economically, has focused their attention on the services they are paying for. Thus much comment was made to us about the operating and investment costs of the GLAs, and their forward plans. Most in the industry do not understand why the GLAs' real costs (i.e. ignoring inflation) have failed to fall in recent years, given automation and new technology. Many we have spoken to suspect the GLAs do not focus on reducing costs. Many also commented that the GLAs were going too far, too fast in the area of e-Navigation, and particularly e-Loran.

Additionally, most shipping lines are unhappy about the fact that leisure users of AtoN get a perceived 'free ride' at their expense.

3.2.1 Lights Advisory Committee

Many of the large shipping lines are represented on the LAC. Their view, as expressed to us during this Assessment, is generally that the DfT has taken insufficient account of industry views in the past and this has resulted in poor decisions about the GLF, the level of Light Dues and the scrutiny of GLA operating and capital costs.

LAC members, and most of those we have spoken with, have not actively argued for the recently announced increases to Light Dues, including those to be introduced in the UK from April 2010, to be rescinded, although this in no way implies acceptance of these increases or indeed the Light Dues system itself. What ship owners particularly do not want, however, is a fundamental 'sea change' in the charging structure of Light Dues, including dismantling of the current voyage and tonnage caps, as they believe all possible options have been identified in the past and the current system is probably as fair as can be achieved. However, with a reduction in GLA costs, they expect that the tonnage cap could be lowered – helping the operators of large ships, who pay a substantial part of the total Light Dues revenue.

3.2.2 Independent Light Dues Forum

The Independent Light Dues Forum represents many of the largest international shipping lines. It restates the general points made by the LAC, but more forcefully, and the Forum has consistently used the shipping media and Parliamentary Questions to convey its views. The Forum's views are in the public domain and need not be repeated in detail here, but essentially they include:

- no support for any of CIL's costs being covered from UK Light Dues revenue;
- more efficiency by the GLAs, resulting in lower costs;
- introduction of an Independent Regulator in place of the role currently taken by DfT; and
- consideration of the amalgamation of TH and NLB into a UK Lighthouse Authority, with substantial potential savings in central management and support costs.

3. Views from Stakeholders

3.3 Ports

Ports have a different perspective from ship owners, as they are not usually major payers of Light Dues, but are often providers of Local AtoN and must try to recover these costs from port conservancy charges or integrated port charges. In many cases these local conservancy charges can be greater than Light Dues, and in contrast to Light Dues port charges are per Gross Registered Ton (GRT) and per port call. There are, in addition to conservancy charges, berthing charges for loading and / or unloading, which are higher than Light Dues and are also charged per ton and per port call. Annually therefore, under the present system, costs of using ports exceeds payments of Light Dues. Ship owners would like to see these costs reduced, but they also see ports as service providers, while General AtoN are not viewed as a service in the same way.

Ports argue that significant levels or increases in Light Dues would affect the level of port business. They are also aware that they compete in many cases with others in Mainland Europe and worry that increasing the costs of shipping lines will drive away 'main line' services (such as 'round the world' strings by the major container lines) and result in more feeder services[5] . As their port conservancy charges are often based on Gross Tonnage, this would reduce their income; in addition feeder services might also use other ports, such as those with shallower drafts that can offer a cheaper service.

The GLAs inspect local lights on a programme of between one and three years. This provides a good opportunity for the interchange of information and views. The feedback from Harbour Masters is generally positive; they cite good relations with the GLAs and say that the GLAs are responsive to their requests. The main issue that they identify is the fact that the ports have no control or sanction over third parties who own AtoN within the ports. Proposals within the Draft Marine Navigation Bill are expected to resolve this situation.

Major UK ports are represented on the LAC and are able to use that platform to defend their interests.

[5]See, for example, the letter from the Chief Executive of Harwich Haven Authority to Lloyds List on 20th January 2010 which cites the loss of four container services in the last two months of 2009 as a result of the increase in Light Dues.

3. Views from Stakeholders

3.4 Users

This group includes a wide range of stakeholders with an interest in the provision or direct use of AtoN, including those represented on GLA User Groups, Master Mariners and Pilots.

The majority of users regard the GLAs as efficient, responsive, well organised and doing a good job with the resources available. Some identify the GLAs' independence from Government as an advantage, allowing AtoN to be specified and provided to consistent standards without political "interference," changing policy initiatives and peaks and troughs in public spending. A minority perceive a downside of this in regarding the GLAs as having limited accountability, with insufficient external challenge and scrutiny, especially on setting their budgets.

Users identify few specific examples of under- or over-provision of AtoN in their experience, and it is felt that the GLAs are generally sensible in balancing statutory standards with the introduction of new technology and pressures for a higher level provision from local interests. The decommissioning and closure of lighthouses can be a particularly emotive issue in some communities irrespective of whether an AtoN is required or not. There is a widespread feeling, however, that General AtoN increasingly provide mainly a safety back-up to GPS. Whilst the latter provides significant benefits, there was suggestion from some that electronic forms of navigation can engender a false sense of security and "make people lazy." For example, many leisure users now sail without paper charts. There are also some concerns that the increasing use of Automatic Identification Systems (AIS) by the GLAs to assess AtoN need may not reflect use by leisure mariners who may be more likely to fall back on traditional AtoN when in trouble than larger commercial ships.

Whilst praising their overall performance, some users regard some aspects of the GLAs' organisational arrangements as outdated and "lacking in commercial realism." Aspects mentioned include the large number of Commissioners for NLB and CIL, "unnecessary" inspection regimes for local and third party lights, and some GLA activities which are seen as not linked to the "core business" of specifying and maintaining AtoN. The perceived limited financial accountability of the GLAs is seen, by a minority, as encouraging the latter.

Some users also recognise as an issue the continuation of separate organisations – and processes and systems - for three territories across the British Isles. There are, however, differing views on what should be done about this, including whether the GLAs should be merged or their roles transferred into another agency such as the MCA. A minority see the potential for economies of scale and cost savings in such proposals, whilst a greater proportion perceive risks of reduced local knowledge, understanding and consultation, and possible reductions to the statutory provision for AtoN. Parallels are drawn by some with RNLI which has central management and control, but with regional operations, as a possible way forward.

Compared to the shipping lines and their owners, users are less overtly concerned about the level of Light Dues per se, although there is recognition of the increased burden of the recent and planned increase at a time of a downturn in profits in the maritime sector. Some are also concerned about the impact of Light Dues on the overall competitive position of UK ports and the wider economy. There are a range of views on whether the payment base for Light Dues should be extended to those who do not currently pay, although with a majority broadly in favour or at least unable to argue strongly against such a course, provided the level of charge is "modest," and if practical and economic methods of fee collection can be developed.

3. Views from Stakeholders

3.4.1 Leisure Users

As a sub-set of AtoN users, we have spoken to the Royal Yachting Association, representatives of marinas and moorings and those involved in yacht cruising. All are complimentary about the services delivered by the GLAs and their responsiveness to any requests for improvements to AtoN.

The reaction to the notion of Light Dues for leisure users is mixed. Several stakeholders accept the logic of contributing but question how these charges can be collected in a cost-effective manner; there is no compulsory registration of leisure craft (except for international voyages) and, although the Crown Estate nominally controls the sea bed, there appear to be many moorings that are not registered. Despite these comments, this Report considers (Chapter 7) cost-effective and practical methods by which fees could be collected from leisure users.

3.5 Summary of Stakeholder Engagement

The outcome of our discussions with stakeholders may be summarised as follows:

- there has generally been satisfaction about the quality of service that the GLAs provide and the degree to which they consult widely about their plans and respond to requests for improvements to AtoN;
- there is little evidence of stakeholders identifying examples of gross over- or under-provision of AtoN;
- the scale of the recent increases in Light Dues – substantial for some shipping lines, at a time of crisis in the shipping industry – has given rise to calls for a reduction in the operating costs of the GLAs and a halt to the support by the GLF to CIL's costs of operation in the Republic of Ireland. Not surprisingly, such calls are less vocal from those who use – rather than pay for - AtoN;
- the lack of contribution of leisure users towards the costs of AtoN (and the burden shouldered by the shipping lines) is recognised by most stakeholders with some acceptance of the need to address this position provided practical and cost-effective means of fee collection can be developed; and
- some stakeholders identify some of the GLAs' institutional arrangements as outdated and in need of reform. There are some calls from a minority to restructure the GLAs, potentially through amalgamation and the creation of an Independent Regulator, although others are concerned about the costs of change, disruption and risks to mariner safety of such proposals.

Photo courtesy of CIL

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4. **Experience Elsewhere**
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4. Experience Elsewhere

4.1 Overview

International experience demonstrates that there is a wide range of approaches to funding AtoN across the World, from systems supported entirely from the public purse to those supported wholly through a levy on those who use and benefit from AtoN provision. The range, from those states which are members of IALA, is summarised in Table 4.1.

As part of this Assessment, we have contacted organisations in a number of countries that are responsible for the provision of AtoN[6]. The objective was to understand better how they go about providing this service, what they provide, what resources this requires and how they ensure they are efficient.

The case studies have been selected to include examples that illustrate:

- a range of funding approaches;
- a similar complexity of coastline to the UK and Ireland; and
- a range of administrative structures in the provision of AtoN in a wider context of maritime safety.

The case studies selected were: Canada, Denmark, France, India, Norway, Spain, and the USA. The key features of AtoN Provision in each are identified below.

Table 4.1 – AtoN Funding Regimes across IALA Member States

Method of Funding	Countries
Private (Funded wholly by Levy)	Australia, Belgium, Chile, Cyprus, Ghana, Greece, India, Malaysia, MENAS (Arabian Gulf), Panama, Peru, Spain, South Africa, Sudan, United Kingdom, Vietnam
Public (Exchequer funded)	Argentina, China, Denmark, Ecuador, Egypt, Estonia, France, Germany, Indonesia, Italy, Latvia, Korea, Mozambique, Netherlands, Pakistan, Philippines, Poland, Saudi Arabia, USA
Combination (Public & Private)	Bermuda, Brazil, Canada, Croatia, Finland, Equatorial Guinea, Iceland, Iran, Ireland, Jamaica, Japan, Kenya, New Zealand, Norway, Portugal, Romania, Sweden, Thailand

Source: IALA

[6] The assistance of Trinity House is gratefully acknowledged in advising on suitable contacts.

4. Experience Elsewhere

4.1.1 Canada

Responsibility for AtoN lies with the Canadian Coast Guard (CCG), which is a Special Operating Agency of Fisheries and Oceans Canada (FOA). CCG operates an integrated maritime service, with a proportion of cost-recovery from users, based on a range of charges.

The CCG Aids to Navigation function is part of the Navigation Systems branch, which consists of two other major functions: Waterways Development and Icebreaking.

The CCG provides 17,300 AtoN across Canada with 3,900 FTE employees, of which 800 are dedicated to AtoN provision at a cost of around £54.8 million. Approximately 25% of the cost of delivering AtoN is recovered through a Maritime Services Fee, paid by certified commercial vessels (depending on size and the region of travel) which also contributes to the cost of icebreaking. The remainder is funded by the Federal Government. Users do not pay for long-range Aids such as DGPS and LORAN-C.

4.1.2 Denmark

Denmark is a small country serving a high proportion of passing traffic accessing the Baltic. AtoN are funded wholly from government revenues.

AtoN provision lies with the Danish Maritime Safety Administration (DaMSA), partly funded by the Government and partly by private or commercial stakeholders. The guiding principle is that the Government provides AtoN related to traffic transiting through Danish waters and to a safe harbour or anchorage, while other stakeholders provide the remaining aids (ports, yacht clubs, offshore entrepreneurs).

DaMSA provides around 1,700 AtoN at a cost of approximately £12 million; the annual cost of providing Maritime Safety Information (NAVTEX, VTS etc.) is approximately £3 million. DaMSA is also involved in Search & Rescue and the provision of Pilots.

4.1.3 France

France is typical of the European 'continental' approach to AtoN provision with the cost of provision being paid for by the Government.

AtoN in France are regulated by the Department of Maritime Affairs (DAM), an agency of the Maritime Directorate of the Ministry of Ecology, Energy, Sustainable Development and the Sea. The Department is responsible for providing a beaconing system that enables navigators to locate their position and avoid hazards. It also maintains the lighthouses, buoys and beacons and manages the facilities for preventing oil pollution, prepares plans for protecting sensitive sites and is capable of laying inshore anti-pollution booms.

DAM also controls the occupational regime of seamen, provides training for civil navigating officers, and is responsible for sea fisheries policing, navigation surveillance, search, rescue and assistance at sea and the search for and identification of pollution incidents.

4.1.4 India

India has an AtoN system broadly similar to that in the UK and Ireland, wholly funded from revenue from Light Dues, based on Net Tonnage of commercial shipping.

Similarly, Indian legislation makes a distinction between local and general AtoN. The upkeep and maintenance of general AtoN is the responsibility of the Directorate General of Lighthouses and Lightships (DGLL), an agency of the Ministry of Shipping, Road Transport & Highways.

India has only about 200 major AtoN, including 178 still-manned lighthouses, as well as DGPS and Racon transmitters. The cost of provision is around £15 million, with the annual cost of a manned AtoN being £31,000. In India almost all the AtoN stations are manned but a programme of automation is reducing the manning levels.

In the larger Indian ports, the collection of Light Dues has been extended to include a charge on containers carried above-deck, a measure which has been opposed by the shipping lines.

4. Experience Elsewhere

4.1.5 Norway

Norway has a long, dangerous coastline and recovers a proportion of costs for AtoN from users, although not without political opposition.

AtoN in Norway is the responsibility of the Norwegian Coastal Administration (NCA), an agency of the Ministry of Fisheries and Coastal Affairs which is responsible for sea transport, maritime safety, ports and emergency response to acute pollution. The NCA is responsible for the operation and maintenance of approximately 20,000 aids to navigation, including around 5,000 lights, 14,500 fixed and floating aids and more than 100 lighthouses.

The NCA has about 1000 employees within the overall coastal administration and an annual budget of about EUR 150 million. Pilotage and the operation of the Vessel Traffic Services (VTS) are 100% financed by user fees, whereas the costs related to sea-marks and lighthouses are 34% covered by user fees.

The Government recovers approximately two-thirds of the expenses related to the lighthouse and navigation mark services through the General Coastal Fee. In 2008, the planned income from this source amounted to around £10 million, rising to £11 million in 2009. However, under the National Transport Plan 2010-2019 the Government plans to abolish the Coastal Fee as well as reducing pilotage charges in order to support the transfer of traffic from road to short-sea shipping.

4.1.6 Spain

Spain is an example of devolution in the provision of AtoN. Both general and local AtoN are provided by regional and local agencies and organisations, who cover their costs – as far as they can - through charges on port users at the larger ports.

The Spanish AtoN Service reports to the Ministry of Development (Transport and Public Works). Also in the same Ministry but acting as an independent body, the Maritime Administration (General Direction of the Merchant Marine) deals with safety at sea, navigation, coastal-VTS, Search & Rescue and pollution matters.

The AtoN service is a National Competence, and Puertos del Estado (State Ports of Spain) is the national authority, but there is a Lighthouse Commission, representing the marine sector. Puertos del Estado is the "regulator" at the national level, but the service providers are other agencies:

- port authorities (state body): Coastal AtoN and State ports AtoN;
- regional governments: Regional ports AtoN; and
- private entities: aquiculture, and man-made shore and offshore structures.

There are a total of 3,500 AtoN provided by:

- port authorities: 1,700 (including 600 coastal AtoN network; and
- other providers: 1900.

There is no national budget only an allocation from the State Port System to cover the coastal network. The annual expenditure of the State Port System is estimated at Euro 12 million, of which 50% is salaries, 35% depreciation and 15% maintenance.

Staff are provided by each Port Authority, with a total of 125 technical staff. The administration of AtoN by Puertos del Estado is carried out by 5 staff.

4. Experience Elsewhere

4.1.7 USA

In the United States the US Coast Guard (USCG) has the responsibility for the establishment and maintenance of all AtoN, including general, coastal, inland waterways or harbours. This responsibility is affected in conjunction with NOAA, National Ocean Service and other Federal Government agencies, State and Local Government elements and private entities.

All USCG funding comes direct from the Federal Government, although the latter collects substantial revenues for AtoN through the Harbour Maintenance Fee levied on ships supporting imports. This is levied at a rate of 0.125% of the cargo value. There is, however, a second charge called a Harbour Fee applied by the local port authority which is based on the ship's gross registered tonnage.

The Harbour Maintenance Fee currently has a surplus of $4.6 billion, as currently only 43.7% of the funding is being appropriated.

4.2 Observations from the Case Studies

The case studies represent a relatively small sample of maritime states around the world, so any observations drawn are indicative only. However, based on this sample, it is possible to make the following observations:

- even within the small sample there are a wide range of approaches in relation to administrative structure and financing for AtoN provision;
- within the sample there is more emphasis on integrated administration of maritime safety: e.g. Denmark, Canada, France, Spain, although the overall responsibility varies between the Navy (US), Public Works (Spain), Fisheries (Canada);
- the approach to charging users for AtoN varies – from no charges in Denmark to full-cost charging in India. In the US the Harbour Maintenance Tax generates a substantial surplus;
- where user charges exist, they are unpopular and there are calls to abolish them;
- the responsibility for 'local' lights varies – in India and Denmark it is similar to the UK; in the US, the State is responsible; and
- the degree of devolution varies: in Canada and the USA, the Federal Government takes a lead; in Spain, regulation is done at the national level, but provision is regional/local.

Photo courtesy of TH

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5. The Technical Basis for the Specification and Provision of Aids to Navigation >

5. The Technical Basis for the Specification and Provision of Aids to Navigation

5.1 Introduction

This Chapter covers technical aspects of how the GLAs specify and provide AtoN through a range of navigational and operational practices and covers a number of key lines of enquiry identified as being within scope of the Assessment. There is a degree of overlap between technical and operational issues and the wider question of GLA costs and efficiencies and these are considered further in Chapter 6.

This Chapter considers:

- the legislative background against which the GLAs undertake their activities;
- current and future challenges in terms of the demand for AtoN, the AtoN Review process and evolving technologies and practices;
- the "whole supply chain" for AtoN provision from determining and specifying need, to deployment, ongoing inspection and maintenance;
- the areas where we believe tri-GLA working is effective and those where current arrangements could be developed further; and
- the availability and use of spare capacity in terms of GLA assets and staff.

The Chapter also considers the particular statutory duties of the GLAs in relation to inspection and certification of Local and Third Party AtoN and whether alternatives to current arrangements should be considered.

5.2 The Legislative Background

The cornerstones of the GLAs' role with respect to AtoN lie in:

- IMO SOLAS Resolution Chapter V, Regulation 13, to which the UK and the Republic of Ireland are signatories; and
- the nationally enacted legislation through which the two Governments give effect to the above Resolution, namely the Merchant Shipping Act 1995 for the UK and the Merchant Shipping Act 1894 for the RoI[7].

It is not necessary to reproduce the wording of these statutes here, but it is an opportunity to highlight a core element of the way that the GLAs' functions have evolved against a legal background that has not changed substantially. This Assessment provides an opportunity to constructively challenge what is done within each organisation and why it is done in a particular way.

In this context, it is evident to us that the SOLAS Resolution is, of necessity, very general in its nature. There is no prescriptive template for AtoN provision, so that the onus, rightly in our view, is for each Contracting Government, either individually or in co-operation with other Contracting Governments, to define how its own AtoN needs are met. It is therefore for each Government, taking account of international recommendations and guidelines set down by IALA, to enact national legislation and discharge its international obligations according to the characteristics and needs of its own statutory waters.

In interpreting these obligations, the key drivers that are used to determine AtoN provision are volume of traffic; degree of risk, and uniformity between AtoN areas (be they nation to nation; GLA to GLA; or GLA to LLA). The GLAs are also required to mark IMO approved Traffic Separation Schemes (TSS). These drivers are expressly stated in SOLAS Regulation 13.

[7]This legislation pre-dates the establishment of the Irish Free State and subsequently the Republic of Ireland, but has been adopted as Irish legislation.

5. The Technical Basis for the Specification and Provision of Aids to Navigation

Given the requirement for AtoN provision under international obligations and UK and Irish legislation, but with no specific legal upper or lower level or standard, whilst some provision is fixed, there therefore exists the potential for AtoN provision to increase or decrease according to a wide range of factors. These factors are essentially local within each Contracting Government or legal jurisdiction and include interpretation and tolerance of risk, understanding and interpretation of the needs of the Mariner, wider social and economic considerations and affordability[8].

This, in turn, has the potential to influence the culture, expectations and needs of the stakeholders under a Contracting Government in different ways. The GLAs have a clearly stated and deeply held belief that their role is to provide AtoN to a level that is simply of the very highest order, reflecting the risk (as assessed) and the technological solutions available at any given time. Indeed, we note Counsel's advice to the GLAs that their activities would "likely be measured against the very highest international standards of expertise and efficiency."

This focus on the highest levels of service is further evidenced by the tri-GLA Mission Statement and the priorities stated in the Joint Navigational Requirements Policies document, which are:

- the safety of life at sea;
- the safe passage of shipping;
- the protection of the marine environment for our own and future generations; and
- the maintenance of trade.

These beliefs and priorities cannot be criticised, as the GLAs are doing exactly what they believe they are mandated and obligated to do under the SOLAS Convention. However we do believe, considering a range of evidence and stakeholder views, that there is at least the appearance of potential for the GLAs to interpret their statutory obligations in ways that may be overly conservative and risk-averse in some instances, and for some AtoN provision to be such that the costs exceed the potential benefits or reduction in risks to mariners[9].

It is worth summarising the core statutory requirements that are vested in all the GLAs. These are:

- to identify the need for AtoN for general navigational purposes;
- to provide AtoN where required for general navigation;
- to superintend all AtoN within their respective areas, including LLA and third party AtoN; and
- to mark, raise, remove or relocate wrecks which lie outside a harbour or conservancy authority area, where that wreck is causing, or is likely cause, a navigation hazard.

[8] The International Maritime Organisation has introduced an auditing system to validate that signatory states are complying with their own domestic legislation enacted to fulfil IMO Conventions such as SOLAS. This is intended to ensure that Contracting Governments actively apply the international requirements. Although the impact of the auditing system has yet to be assessed, it is likely to result in some narrowing of standards of AtoN provision over time.

[9] This has to be weighed against the costs of a wide range of incidents when they do occur as, although accidents which are wholly attributable to AtoN provision are very rare, each incident has the potential to result in a wreck and damage to the marine environment. The range of potential incidents (which, in total, inform the AtoN specification process) varies from a small yacht running aground on a sandbank with limited material and environmental cost but possibly with fatalities; to the grounding of MSC "Napoli" in 2007 and the wreck of MV "Tricolour" in 2003 with no fatalities but with insurance claims of approximately £120 million and $200 million respectively.

5. The Technical Basis for the Specification and Provision of Aids to Navigation

It is also the case that the legislative background for AtoN provision is not always sufficiently flexible when set against the changing use of UK and Irish waters. For example, the GLAs currently inspect a large (and increasing) number of third party AtoN marking offshore oil and gas and offshore renewable energy generation sites. The GLAs do this because:

- these sites represent a navigation hazard where, previously, no such hazard existed; and
- they have a statutory duty under existing legislation to superintend them, and are unable to opt out of this obligation, despite it having cost implications and burdens on the GLF.

To fulfil these statutory requirements there is a range of policies, resources and activities such as:

- the definition of AtoN needs is based, in part, on consultation with users at different levels. Since not all users pay Light Dues, a consultation policy and procedure is needed[10];
- deciding on AtoN provision is partly an analytical and evidence based process, and partly a process based on subjectivity and experience. In our view this indicates a need for a common assessment methodology where possible and some form of checks and balances in the parts which are subjective or based on judgement; and
- inter GLA co-operation to ensure that things that are best done jointly are carried out in the most appropriate and efficient manner.

Having set the scene from a legislative viewpoint, the remainder of this Chapter describes the technical functionality of the GLAs and our understanding of the strengths and weakness embedded within the current tri-GLA system from a specification, engineering and operational perspective.

[10] This also introduces a tension into the process since some users may press for the provision of AtoN when they themselves do not have the responsibility of paying for that provision.

5. The Technical Basis for the Specification and Provision of Aids to Navigation

5.3 IALA Standards

IALA[11] is the IMO recognised body for all matters relating to AtoN and, increasingly, VTS. Based in Paris, IALA undertakes a number of important functions including defining:

- the system(s) for AtoN for general navigation, hazard marking and wreck marking;
- the standards for AtoN type, construction and usage;
- the navigational requirements of the future through e-navigation;
- the categorisation of AtoN in terms of its priority / importance to shipping; and
- the reliability and availability standards that each different category of AtoN must meet in order to be IALA compliant.

The current IALA standards are set out in Table 5.1.

Table 5.1- IALA Standards for AtoN Availability

AtoN Category	Availability Objective	Calculation
1. Vital Navigational Significance	99.8%	Availability Objectives are calculated over a three-year continuous period, unless otherwise specified.
2. Important Navigational Significance	99.0%	
3. Necessary Navigational Significance	97.0%	

Source IALA

IALA operates through a structure of committees and the GLAs participate fully in IALA affairs. The IALA publications list is extensive and all of the engineering solutions adopted by the GLAs are based on guidance and recommendations contained within IALA publications.

All of the GLAs:

- follow IALA requirements in terms of buoyage systems and hazard marking;
- deploy AtoN which are constructed in accordance with IALA standards;
- have categorised their AtoN in accordance with IALA priorities; and
- have exceeded the IALA availability criteria, as shown in Table 5.1.

It can be concluded that the GLAs fully meet all of the UK and RoI obligations with respect to IALA compliance. In particular, the GLA Annual Reports and Corporate Plans contain substantial evidence that all three organisations consistently meet and exceed the IALA standards and are clear about the absolute priority in continuing to maintain the highest standards of service for the benefit of the Mariner.

[11] International Association of Marine Aids to Navigation and Lighthouse Authorities.

5. The Technical Basis for the Specification and Provision of Aids to Navigation

5.4 Defining AtoN Needs and the Role of AIS

This Assessment has been commissioned at a fortunate time, as it coincides with the five year AtoN Review, scheduled for publication later in 2010. Although each Review is a process that continues between formal publications, the way that it is compiled in 2010 has provided an ideal opportunity to understand the process being used, so as to take a view as to its effectiveness and credibility.

The basic methodology for assessment of AtoN needs has been evolved by Trinity House based on principles published by IALA in its publications on risk assessment guidance. The methodology has been adopted by the other GLAs although there are, for the time being, some minor differences in the use of the basic methodology.

The adoption of this AtoN Review Process by all the GLAs was an outcome of Inter GLA Committee No 3 (IGC3 Navigation) and is used for all AtoN assessments, whether as an input to the five year AtoN Review or in response to a specific AtoN change resulting from, say, a need for a buoy move due to shoaling, user consultation or some other factor.

The key elements of the review process are as follows:

- it is risk based and has its roots in IALA published guidance. It can therefore be regarded as compliant with best international practice;
- the process is formalised and incorporated as policy by each GLA. Also, as a key part of the process is to have each decision properly documented, it is an auditable process;
- the process poses a set of 13 questions which must be considered by the reviewer. The outcome of that process results in either a No Change (in AtoN provision) result, or a Change (in AtoN provision) recommendation;
- the process can be applied to a single AtoN or to a group of AtoN;
- the review process is conducted by the Navigation Department within each GLA, although the detailed operational structures are not the same in all GLAs; and
- if, by following the agreed process, the Navigation Department concludes that a Change is required, it is for that Navigation Department to make a recommendation as to what that change will be. In arriving at their recommendation, the Navigation Department takes account of a number of things including:

  - IALA guidelines on AtoN specification;

  - policies on AtoN adopted at tri-GLA level through IGC3;

  - inputs from other departments within the host GLA and from other IGCs such as IGC4 (Marine Operations); IGC5 (Engineering) and IGC7 (Radionavigation); and

  - cost, feasibility and urgency of the proposed change.

The process includes provision for a level of peer review as part of the overall decision. In TH this is via the Examiners Committee, in NLB it is via the Navigation Committee, and via the Examiners, Navigation and Special Sub-Committee within CIL. The fact that they have different names is immaterial – they all have the same function, which is to check, from a navigational effectiveness perspective, the change being proposed by the originating Navigation Department, irrespective of how and by whom the change is actually implemented.

The process has an in-built consultation loop to obtain the views of maritime users[12]; there is also a cross checking requirement whereby the change(s) proposed by one GLA for their area is/are reviewed by another GLA before adoption, and the process includes a disputes resolution mechanism.

[12] The User consultation process has regional differences based on past custom and practice. Whilst these differences in consultation are not regarded as material in the overall decision making process, we do have some concern that extending consultation to parties who have no requirement to pay for AtoN provision can lead to a culture of "vote for anything because we're not paying" amongst some Users.

5. The Technical Basis for the Specification and Provision of Aids to Navigation

When the AtoN review process concludes that Change is required, the relevant GLA must decide what that change will be. In order to ensure uniformity between the GLAs when specifying which AtoN should be introduced, IGC3 has adopted the following principles:

- generally, the lights system should be considered a complementary but secondary system to Global Navigation Satellite System (GNSS) (see below on e-navigation);
- generally, having one light in view is acceptable;
- generally, a maximum range of 18 miles is considered sufficient for most lights;
- generally, rotating optics are no longer a requirement;
- if practical, there can be a reduction in the amount and diversity of flash characters on lighthouse lights;
- leading lights remain important;
- sectored lights remain important;
- fog signals are no longer considered to be AtoN and will only be used as hazard warning signals;
- generally, Major Floating AtoN, including light vessels, can have the same characteristic if not in close proximity; and
- sequential or synchronised buoy lights should be utilised more.

In discussions with each GLA, it is clear that the process is regarded with confidence and is fit-for-purpose. However, it is also clear that there is a key element in the 2010 AtoN Review which each GLA is embracing in a unified way only for the first time, namely track analysis through marine AIS.

One of the 13 "must answer" questions in the overall risk assessment relates to traffic levels in the vicinity of the AtoN area. Indeed this "must answer" question has been included specifically to ensure that the host Navigation Department does draw on AIS data and uses it to its full potential when defining AtoN needs. This potentially enables the provision of AtoN to be more closely linked to actual demand from commercial and other shipping and therefore the actual risk of collision or other incident involving a vessel[13].

The GLAs are therefore fully aware of, and in agreement with, the potential of AIS track analysis in informing the AtoN Review process. None of the GLAs speak of AIS data in other than very positive terms when discussing its potential for defining the right AtoN in a given area (bearing in mind that the AIS data can indicate a need for up-scaling, down-scaling, or no change to existing AtoN provision).

However, at this point in time, there are several factors that influence the ways that each GLA is using AIS data in its AtoN review process. Currently TH makes most use of AIS track analysis and its potential to inform the AtoN needs process. This is based on its early adoption of the technology and probably has its origins in the fact that it presides over the coastal area of highest traffic density and complexity[14].

Based on the benefits being derived from AIS, TH has championed its use through IGC3 with agreement that the three GLAs should source a common AIS analysis solution in order to strengthen the shared AtoN assessment process. A review of solutions available within the market has concluded that a product supplied by a Canadian company, I-Can, is the most appropriate for GLA needs in a world where AIS data is expected to play an increasingly important role in many aspects of navigation, including AtoN needs assessment; planning for offshore developments; wreck marking, and damage to AtoN.

[13] It should be noted that AIS is only mandatory for ships over 300 gross tonnage (international), 500 (non-international) and for all passenger ships.

[14] TH took a decision in 2006 to obtain raw AIS data from the UK Maritime and Coastguard Agency and to purchase some proprietary software to enable analysis of shipping to be undertaken to a very detailed level for its own AtoN review needs. The AIS data is provided by MCA to NLB initially and then passed to TH and CIL.

5. The Technical Basis for the Specification and Provision of Aids to Navigation

The I-Can software has now been ordered but is not yet available to the GLAs for the purposes of the 2010 AtoN Review. The immediate results of this are that:

- TH has used its existing AIS track analysis solution as central to its review;
- NLB initiated its Review on a subjective basis, in consultation with users, but has checked each recommendation using AIS traffic analysis via TH's Anatec software; and
- CIL has an arrangement with the Irish Coastguard to receive AIS data for some areas of importance, and therefore is able to factor the information into the overall decision making process. Whilst in-depth analysis of data and examination of live and recent data is not currently available, IRCG undertakes AIS track analysis as requested.

The use of AIS is therefore patchy, but improving. Each GLA is aware of, and accepts, the role that it has to play in AtoN needs assessment and has factored the use of AIS into the commonly adopted assessment methodology. From 2010, once the I-Can software is in place, the GLAs will all be applying the same approach in terms of methodology and AIS analysis capability.

With the commonly adopted tri-GLA methodology and the benefit of AIS, the 2010 AtoN Review can therefore be regarded as the product of a more robust and analytical process compared to the 2000 and the 2005 Reviews. However, for the reasons described, the 2010 AtoN Review will still contain some minor differences in terms of how each proposed change is derived.

By 2015, it can reasonably be assumed that the methodology and the source data for assessing AtoN needs will be well "bedded in" and that a more considered view on the potential of AIS can be gained.

Against this picture of an improving and harmonising AtoN needs assessment, we have considered additional conclusions that may be drawn for the future. In this respect, we remain concerned that the process described above is primarily a qualitative one, albeit partially and increasingly informed by the quantitative information from AIS. Were AtoN requirements to be considered across the UK and Ireland in a fully consistent way, using AIS data to its full potential within a more quantitative approach to risk assessment, we consider that there may be scope for reducing the overall number of physical AtoN provided across the three GLA territories without compromising marine safety or duties under the SOLAS Convention. This has implications for the costs of maintaining, enhancing or renewing a range of AtoN, with reduced capital and running costs for the GLAs and ultimately reduced burdens on the GLF.

For example, within the current 2010 AtoN Review, and following consideration by the Examiners' Committee, TH is currently out to consultation on the decommissioning or revision of AtoN arrangements for, and around, six of its lighthouses[15]. The capital costs and the revenue cost savings of these proposals are forecast to break even by Year 5 from commencement, and thereafter generate a net benefit for the GLF, excluding any benefit from selling the surplus assets or transferring their ongoing maintenance liabilities. Similarly, NLB closed five lighthouses as a result of its previous AtoN Review and is currently out to consultation on a further seven, whilst CIL is considering transferring 14 lighthouses to Local Lighthouse Authorities and decommissioning two sites.

Quantitative risk analysis is more focused on the implementation of established safety measures, in order to protect against defined risks. By using a quantitative approach, it may be possible to create a more precise analytical interpretation that can clearly represent which risk-based measures are best suited to various AtoN needs.

The GLAs and other IALA members are aware of the ongoing debate over qualitative and quantitative evidence and accept many of the arguments made in favour of the latter. Through IALA, a quantitative Risk Assessment Tool known as IWRAP[16] is under development and whilst quantification of the AtoN assessment process is potentially complex, the principle of a combined qualitative and quantitative approach is gaining momentum internationally.

[15] Inclusion in this Report in no way implies that the current Examiners' Committee recommendations will proceed. This is subject to the outcome of consultation and a final decision from the TH Board. The example does, however, illustrate the considerable ongoing savings which can be made in AtoN provision resulting from a application of the Review process without substantial increase in risk to the safety of the Mariner.

[16] International Waterways Risk Assessment Programme.

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5.5 Developing Systematic Methods for Appraisal

As noted above, SOLAS Resolution Chapter V, Regulation 13, is very general in nature and does not provide a prescriptive template for AtoN provision. Within IALA Guidelines, each Contracting Government may define how its own AtoN needs are met.

In the UK and Ireland the specifiers of AtoN are the GLAs, who are also the providers[17]. The DfT and DoT, in consultation with the LAC, have an oversight role. All parties, but especially the GLAs, have a clear interest in ensuring safety, but the GLAs are in a strong position of knowledge and influence, and in effect largely determine what will be provided as well as how it will be provided within the standards laid down by IALA.

The GLAs internal assessment process is strongly focussed on risk avoidance, and, as already noted the GLAs believe that their role is to provide AtoN to a level that is simply of the very highest order, reflecting the risk (as assessed) and the technological solutions available at any given time. A Value for Money (VfM) appraisal is carried out once the decision to change an AtoN has been made, but this omits a quantification or valuation of the final outcomes and as a result there is an insufficiently robust assessment of benefits against cost; as discussed below, a more robust Cost Benefit Analysis (CBA) approach is warranted at the stage when an AtoN need is being assessed. This is in marked contrast to safety on other modes for which DfT and DoT are responsible where the value of human life is weighed against the financial and economic costs of provision through well-established principles and methodologies.

Cost Benefit Analysis is a systematic approach to assessing and as far as possible quantifying the costs and benefits of investment proposals in money terms. The benefits of adopting this approach is that CBA encourages an organisation to state specific objectives, to consider options and to weigh up advantages and disadvantages of each option in a transparent and systematic manner. In the case of AtoN, use of CBA would require a quantitative assessment of the value of potential losses under different investment options (including the do-nothing option), which would be set against the costs. Properly applied, this would supplement the statement of risk in the AtoN Review Process (unacceptable level of risk / acceptable level of risk with caution / acceptable level of risk) with a value of loss derived from analysis which would be set against costs of investment.

It is, in our view, valid to question how much additional risk is created by any reduction in AtoN provision, and how much risk is reduced not only by additional AtoN but also through changes in technology[18]. Marine accidents that are due to lack or failure of aids to navigation as provided by the GLAs are extremely rare, a fact evidenced by the insurance provisions of the GLAs. Whilst some of this is undoubtedly down to the quality of the GLAs' work, the majority of maritime accidents appear to be due principally to human error in some form; accordingly, the use of scarce resources to provide more or better Aids when mariners do not use them or do not know how to use them effectively is a valid question, and one which should be addressed through appraisal processes.

[17] The GLAs contend that their internal structures separate these roles and objectives.

[18] There is a need to distinguish between changes in technology that will reduce the costs of doing something from those changes which change the nature or scale of what is done.

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While accepting that a safe system has to be maintained, we believe there is a need for a more rigorous appraisal approach for expenditure, especially in relation to large capital items, as well as structural change in order to provide a greater overall challenge to expenditure plans. At the same time we fully recognise the value of investing where this will deliver financial savings in maintaining the system as it is, but we believe both the UK and Irish Governments need to question the costs and benefits of expenditure which is intended to improve an already very robust system.

Assessment of and quantification of risk is one element in a process which should arrive at rational and auditable decisions on AtoN provision. However, risks may be accepted where the costs of mitigation are excessively high. Where it is thoroughly clear that the provision of an AtoN or a linked group of AtoN must be undertaken to meet defined legal requirements, and where such provision is unavoidable on statutory grounds, the correct approach to appraisal is to use Cost- Effectiveness Analysis (CEA), to identify the least cost provision that will achieve the specific objectives, that is, to meet the legal requirement for provision. CEA is beginning to be adopted by the GLAs; when developed and properly applied in the assessment of options, such analysis will enable value for money to be much more central to decision making. This Assessment has shown that the GLAs have some discretion in provision when looking at adding, upgrading, or removing an AtoN. Where that discretion exists the issue is not how to deliver an AtoN at least cost, but whether the benefits of one or more options for provision (including the option of non provision) exceed the costs. HM Treasury has set out guidance on the required approach to appraisal in the UK, which is based on CBA principles; equivalent guidance is available from the Irish Department of Finance.

We propose that the use of CBA/CEA should be introduced into GLA decision making, including key aspects of the AtoN Review and all significant capital and revenue expenditure. The DfT and DoT should provide assistance in establishing a CBA/CE methodology for the GLAs, linked to the AtoN Review process, which would include preparation of appraisal guidance specifically written for use with investments of the types made by the GLAs. Initially this should be developed for all capital projects over £500,000 and then extended to lower and other forms of expenditure as appropriate.

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5.6 AtoN Needs in the Context of E-Navigation

The description of the AtoN review process above was intended to show that the AtoN which is ultimately provided for use by the Mariner has been specified following a logical process which has been properly thought through by all the GLAs. We do, however, advocate the use of more formal and quantitative appraisal methods which give due weight to the values of outcomes and the costs of achieving those outcomes, especially for larger capital items where the GLAs have discretion with regard to whether or not to provide and/or the level of provision.

Looking ahead any approach to appraisal also needs to reflect all the emerging technologies available for both AtoN and for shipboard navigational systems, not least because the need for and ultimate value of conventional aids is a function of the scale, quality and reliability of alternative electronic Aids. This section therefore considers the GLAs' approach to the range of factors which, when considered in their totality, combine to determine the mix of AtoN provision between conventional and electronic approaches.

From their published documents, it is clear that the GLAs recognise that the world is in a state of rapid transition in terms of technologies which can be used for navigation at sea. The publications all recognise the potential of emerging technologies:

- 2020 The Vision, and 2025 & Beyond (currently in draft);
- GLA Joint Navigational Requirement Policies;
- GLA Visual Aids to Navigation Plan; and
- GLA Radio Navigation Plan.

It is also clear that, collectively, the GLAs are putting a great deal of effort and resource into understanding, influencing and being prepared for new technologies and e-navigation. Indeed, they consider themselves to be World Leaders in this field, and believe that this provides a high degree of economic and international prestige.

With such a focus on electronic approaches, it is necessary to consider if it is currently realistic to contemplate a future where physical AtoN would not be required. If so, and given the provision of electronic aids, the value attached to investment in a conventional aid will often be low, possibly too low to justify investment in a maintenance or renewal programme relative to the risks for marine safety.

The GLAs are clear on the matter and other maritime organisations, including the Nautical Institute, are too: traditional AtoN will always be required in port and port approach areas, as the navigation of vessels is based much more on a sense of spatial awareness that can be best derived from visual reference points including AtoN[19].

We share this view. However, this focuses questions on other parts of the debate such as:

- where "general" navigation ends and where "port entry" navigation begins;
- what this means in terms of who should provide and maintain any particular AtoN; and
- the basis of charging for port and port approach AtoN, given that many of the regular users of these AtoN do not currently pay Light Dues: this includes ships such as some ferries and pleasure craft which navigate mainly within a port and its approaches.

Whilst many of these points are specified in Part VIII of the Merchant Shipping Act, there are questions over whether this is necessarily the most effective legislative framework going forward. This is discussed further in Section 5.10.

[19] Such a requirement may also be valid in locations with the characteristics of port approaches, such as restricted channels, shallows and high traffic densities, for example the Dover Straits, Pentland Firth or the Minches.

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Any area of new technology presents potential difficulties and the very real danger of investing heavily in what ultimately proves to be the wrong approach from a commercial standpoint. There is also considerable prestige in being a leader, as the GLAs themselves recognise, but there is also a price to be paid for this as well as scope for wasted time, effort and cost if that technology ultimately does not emerge as the market leader; supersonic air travel is a good example of the seductive power of technology.

The GLAs remain convinced of the need to be at the forefront of the e-Navigation concept. However, this view is not shared by a range of other stakeholders who believe that investment in technical excellence is being met at ship owners' expense. For them, whilst leadership has its appeal, the safer option is to wait until the largest players have settled on a technology and then to adopt a policy of "adapt and improve". In the case of passenger aircraft, for example, US manufacturers stole a considerable early march in mass market conventional aircraft, while Europe pursued cutting edge technology whose appeal was arguably limited to a niche market. Applied to some technologies of interest to the GLAs, the lessons of leadership suggest a combination of healthy scepticism and rigorous appraisal of different approaches, all with due regard to optimism bias on both costs and benefits.

Despite the requirements of STWC95 for ship officers to be able to navigate using traditional AtoN, the Nautical Institute confirms the GLA view that today's generation of mariners are increasingly reliant on GPS based shipboard navigational systems, which provide position fixing in real time. This has two main consequences:

- a poor level of appreciation to understand when GPS vulnerabilities are affecting navigational accuracy; and
- a general inability to switch from GPS / Integrated Bridge System of navigation to traditional chart based navigation methods.

The International Chamber of Shipping, which represents ship owners, is also on record as acknowledging that position-fixing is increasingly reliant on GPS such that a terrestrial alternative is required as a back-up system in the event of system failure. We accept these views which, in turn, confirm the GLAs policy of the need for some form of a terrestrial based radio back up to GPS. Whilst the current tri-GLA Differential Global Navigation Satellite Service (DGNSS) provides a limited element of back-up to guard against GPS vulnerabilities, the longer term e-Loran service currently being trialled by the GLAs may emerge as the technology of choice.

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However, if the source need for this service is based on the previously described standards of navigation aboard international shipping in UK and Irish waters, the question must be asked who should be responsible for providing that back up or, at the very least, paying for it. For example, the Chamber of Shipping contend that if such a back up is required (and they are not necessarily opposed to this), then it should be regarded as an international solution to an international problem and therefore funded at sovereign state level instead of being added to the cost burden of the GLF.

This is a persuasive argument which we support. If the technical case is made, it makes sense that the GLAs be the provider of the backup system; however, funding it is a valid topic for debate which is best considered alongside other emerging e-Navigation issues.

Of the options available as a GPS back-up, e-Loran is potentially a high cost development programme whose value could be huge, especially if adopted globally and its use extended to, for example, container tracking. On the other hand, decisions by others, and especially by the US Government, could possibly render e-Loran unmarketable in the maritime sector. It has been beyond the scope of this Assessment to undertake even a preliminary appraisal of any of these technologies, although we understand that a preliminary business case was carried out in 2006/07, based in part on the decommissioning of some conventional Aids with resulting reduced maintenance and operating costs[20].

However, alongside our proposal to introduce more rigorous appraisal methods to AtoN requirements, based on CBA and CEA, we propose that all GLA technology-based spending where there is scope to spend more than £500,000 in total over the next 3 years should be subjected to a pause while a full appraisal is undertaken and a view taken on whether the costs and benefits should be funded from the GLF.

We are aware that our proposals in this area will impact, in particular, on the work undertaken by R&RNAV, and we discuss further aspects of the current and future role and structure of this tri- GLA body in the next Chapter.

[20] It was this business case, approved by DfT, which provided the justification for the current e-Loran trials at Anthorn.

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5.7 GLA Fleet Requirements and Operations

All three GLAs operate their own vessels to support their core functions for the placing, removal, maintenance and enhancement of sea-based AtoN. As noted, these vessels are:

- Trinity House: THV Galatea and THV Patricia. In addition, TH operates one rapid response vessel, THV Alert, for use in the English Channel;
- NLB: NLV Pole Star and NLV Pharos; and
- CIL: ILV Granuaile.

Following the construction of ILV Granuaile in 2000, considerable investment has gone into the fleet in recent years, focused on modern Multi-Function Tenders (MFTs) with benefits to the GLAs in terms of operational efficiency, reduced crew requirements, increased safety and improved suitability for commercial work. The exception is THV Patricia which is near the end of her operational life and for which TH has made proposals for replacement to the DfT. The question of whether, and how, THV Patricia should be replaced is outside the scope of this Assessment and is being considered by DfT separately, but could benefit from the application of CBA/CEA techniques defined in Section 5.5 above.

The key area for examination as part of the Assessment has been the effectiveness and efficiency with which this GLA fleet of six vessels is operated, within and across all three organisations.

The primary sources of data in this area have been the 2009 Fleet Review undertaken by independent consultants, C-MAR, on behalf of the GLAs, the Supplementary Report by C-MAR on Centralised Fleet Management and Offshore Marine Manning, and interviews with relevant senior managers within each GLA.

Taking the C-MAR Fleet Review at face value, and given that we understand its intended outcomes have been accepted by the GLAs, we have only some limited observations to make on fleet requirements. In particular, the GLAs have confirmed that some of the recommendations in the Fleet Review have already been actioned by the GLAs. These include:

- harmonisation of Tender Utilisation Data Sheets (TUDS), so that all GLAs are now recording vessel utilisation on a truly like-for-like basis. This is to be welcomed, and may result in management information which can lead to future efficiencies, although it will take a while for a true utilisation picture to emerge; and
- pursuing centralised fleet planning, but with IGC4 now taking a closer look at how the combined vessel assets can be optimised to best cover the statutory obligations and maximise commercial earnings potential.

We understand that the GLAs have considered the C-MAR recommendations for a strong centralised management approach. They believe that forming a centralised fleet at this stage may be a false economy as, at present, shore based fleet support personnel within each GLA often have other tasks within their host organisation which would have to be covered if staff were taken out and dedicated to a centralised role. There would also be start-up office and operating costs. Consequently, the GLAs have instead proposed coordinated working, but retaining ultimate management within their respective organisations, which they claim would deliver additional cost savings over the C-MAR proposal. Depending on whether the C-MAR or GLA revised proposals are adopted, direct cost savings to the GLAs from central or co-ordinated fleet management lie in the range of £160,000 to £190,000 per annum.

It is difficult to fully assess the potential benefits of the GLAs' revised approach; while it would save up-front set up costs that would be incurred in implementing the C-MAR scheme, it has the drawback of there being no single line of command or responsibility. Each GLA could potentially therefore remain free to put its own immediate priorities ahead of those of the three GLAs as a whole.

Without re-doing the C-MAR analysis, we are unable to comment in detail on these concerns. However, both the C-MAR and GLA models should be thoroughly tested in a way which balances the benefits of central management of all GLA vessels with other potential synergies in other aspects of GLA operations (such as buoy yard capacity) and ongoing reduction in operating cost. We believe the DfT and DoT should subject both options to an operational, financial and economic appraisal so that the advantages and disadvantages can be assessed, before a final decision is taken.

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5.8 Shore Support and Infrastructure

Although each GLA carries out essentially the same function, the technical standards, method of provision and organisational structures differ between each organisation. In many cases, there are valid reasons for this, including the need for infrastructure and operations which reflect geography, marine and coastal conditions, inherited working practices and the need for local knowledge. In other instances, the case for different approaches may be less obvious, and this has efficiency and cost implications through reduced potential in such areas as joint training, sharing and exchange of operational staff, and common procurement of similar infrastructure and assets.

At present, each GLA maintains its own AtoN Monitoring and Control Centre, based respectively in Harwich, Edinburgh and Dun Laoghaire and manned 24 hours a day 365 days of the year. This is logical given that they currently look after their own assets. However, whilst precise technology and working practices do vary across the three sites, the basic monitoring and control function is common to each. If the tri-GLA structure becomes more integrated in the future there is potential to combine these facilities into two or a single site.

Were such a course to be taken there are a number of practical, technological and governance issues to be resolved. For example, in the short-term, the quickest and cheapest approach might be to retain three separate servers across the GLAs, but to centralise the monitoring and use of the data in one location. In the longer-term, full systems integration into a single location would be a more effective, but more costly, solution. Whichever technology solution is adopted, a review should be undertaken of the costs and benefits of locating a facility at existing GLA premises or a new site operated by a third party service provider. There should also be an assumption that the centralised AtoN facility would be a two person facility out of hours, based on increased workload and a need to expand local knowledge, compared to the current lone worker practice undertaken in each individual GLA Monitoring and Control Centre.

If robustly project managed, we see no reason why centralisation cannot be achieved within one year, resulting in operating cost reductions within a short period, and a sufficient pay-back period to justify the investment from the GLF. We propose that alongside closer collaboration over management of their fleet, the GLAs progress options and a business case for such a project through the relevant IGC(s).

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5.9 Shore Capacity

An important cost item for each GLA is the operational costs of its buoy yards. There is also an economic cost associated with such land holdings, in that each site has an opportunity cost: a basic appraisal / business case principle is that if a site has a high alternative use value, consideration should be given to selling it and using a site with a low alternative use value. If there is spare capacity in the system as a whole, the case for realising the worth of a high value site and slimming down on land use may be compelling.

Table 5.2 - Utilised and Spare Capacity within GLA Buoy Yard

Utilisation/ Capacity	Harwich & Swansea (3)	Oban	Dun Laoghaire
Buoy Yard Populations			
Type 1	74	1	7
Type 2	354	121	78
Type 3	84	47	63
Type 4	-	4	10
Commercial	103	49	19
Current Capacity			
Average Time at Sea For Each Class of Buoy (1)	4-8	4-8	4-8
Average Buoys Cleaned/Repaired Annually	108	49	30
Spare Capacity (2)	34	29	14

Source: GLAs

Note 1: Class 1 & 2: 6 years. Class 3 and 4: 8 years. Commercial: 4 years

Note 2: Subject to resource availability

Note 3: The Swansea buoy yard is located within an enclosed tidal lock facility. Whilst the base is accessible at any state of the tide, entry and exit may be affected by movements of other shipping using the lock.

Our Assessment has therefore considered whether there is evidence of spare capacity across the GLA buoy yards and has outlined options for consideration. Table 5.2 provides a summary of the current buoy populations, current capacity and expected spare capacity for all three GLAs; this is based on discussions and background information received during the study period.

The evidence shows that there is spare capacity across all three GLAs. Consideration has been given, in principle, to whether one of the current four buoy yards could potentially be decommissioned if the remaining three were operated in a co-ordinated manner.

Geography alone suggests that there is a need for at least two centres on the west coast of Great Britain, to service work in the Western Approaches, Bristol Channel, the Irish Sea and around Ireland, and along the West coast of Scotland. Oban (or an equivalent location on the west coast of Scotland) is arguably essential for the northern part of this area, but we do question whether there exists irrefutable evidence of the need for facilities at both Swansea and Dun Laoghaire for the southern waters.

The strength of Swansea is its level of available capacity, and recent investment by TH to modernise operational capability. The facility is important for AtoN provision and emergency response for the Bristol Channel which has a concentration of buoys to facilitate passage of ships to a number of large and active UK ports, including Milford Haven, Bristol, Avonmouth and Swansea.

Swansea also lies within the Sterling zone, so its costs (and burdens on the GLF) will be low compared to the Euro zone at foreseeable values of Sterling. Against this, the nature of the enclosed tidal lock facility at Swansea means that 24 hour access may not be possible for GLA vessels, due to other shipping movements in the lock. However, closure would incur decommissioning and redundancy costs, a potential loss of commercial income, and a need for additional investment at Harwich and the current market value[21] would secure limited income for the GLF.

[21] £200,000 in the TH 2008-2009 Annual Report.

5. The Technical Basis for the Specification and Provision of Aids to Navigation

The strength of Dun Laoghaire is that it is a modern purpose built facility with 24 hour access. CIL also believe strongly that the buoy yard is central to its current operations. Its closure would change the actual role of CIL, which would largely become a specifier, procurer and manager of AtoN provision for the whole of Ireland: given the strength of the Euro and the availability of capability in a nearby "low cost" country, this should not be ruled out as a strategy in Ireland given the need to address cost issues.

Against this, Dun Laoghaire's ability to absorb additional work, for example from the closure of Swansea, is we believe limited. In addition, as will be explored in Chapter 6, the current exchange rate makes use of Dun Laoghaire expensive from within the Sterling zone, while the strength of the Euro means that CIL can buy services cheaply from the UK (Oban and/or Swansea) if paying in Euros[22]. As with Swansea, closure would incur decommissioning and redundancy costs, and a potential loss of commercial income. However, the site is potentially of greater commercial value[23] which, subject to further evaluation, may provide a net benefit for the GLF once the Irish property market improves[24].

Therefore, whilst there is undoubtedly spare buoy yard capacity across the GLAs, we make no firm recommendation on whether this should result in the closure of an individual facility, and, if so, which one. It is clear that CIL operations at Dun Laoghaire do impose a higher burden on the GLF when their costs in Euros are converted into Sterling and this is an important finding for the two Governments to consider in determining any way forward. However, the issues, particularly those relating to Swansea and Dun Laoghaire, are multi-faceted and would require further quantitative analysis with regard to capacity, costs and site values, as well as wider economic and political considerations. It may be the case that neither location is ideal, but the costs of moving to a lower cost and larger 24 hour access site are prohibitive. However, this is an area where investment appraisal is useful and we recommend that further work be undertaken to establish a suitable way forward. This issue is addressed further in Chapter 10 of this Report.

In the meantime, our examination of operational, efficiency and synergy issues (Chapter 6) and UK-Irish relations (Chapter 9) set out in the remainder of this Report assumes that there will be no change to the current number and location of GLA buoy yards and this assumption should be incorporated into the GLAs' Corporate Plans until further work and decisions by the GLAs themselves, DfT and DoT determine otherwise.

[22] Under current arrangements a proportion of this comes back to the GLF which has to provide funds in Sterling.

[23] Subject to land use zoning and planning restrictions.

[24] Assuming that the operational elements of the site could be separated from CIL's Head Office, navigation and planning functions. The benefits of the current operation is that all operations and support functions are integrated on one site.

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5.10 Local and Third Party Aids to Navigation

A number of the provisions of the Draft Marine Navigation Bill, and equivalent proposals in the Republic of Ireland, are intended to free up the GLAs to undertake more commercial work to offset their core costs and reduce the overall burden on the GLF. However, this can be undertaken only in relation to "irreducible spare capacity" (of shore assets, vessels and staff), which implies that spare capacity has to be reduced to a point where further reduction would add more to costs than it would save, taking one year with another. Depending on how this is interpreted and applied, the scope for commercial income from assets may therefore remain constrained. However, the potential for additional commercial income as a result of current GLA activities and those enabled by the Marine Navigation Bill is discussed in more detail in Chapter 6.

One potential area for commercial income is the work that the GLAs currently do inspecting and checking that AtoN on and around offshore structures are fit for purpose. At present THV Galatea and NLV Pharos spend time in the North Sea undertaking such work, with the costs met by the GLF. With a change in legislation, this activity could incur a charge on the developers and operators of these structures and therefore benefit, rather than cost, the payers of Light Dues.

However, if the GLAs seek to charge fees for providing a service this may lead to a legal challenge under EU competition laws, based on the fact that the GLAs would be in effect monopoly providers of this service. To avoid such a challenge the normal course of action has been to open provision up in order to ensure there are alternative providers within a competitive market. It is unlikely that enabling competition between the GLAs would be sufficient, and it would probably therefore be necessary to open up inspections to the private sector, as well as establishing some form of regulation of charges. In turn, this might give rise to a more root and branch review of introducing a regulatory regime for AtoN provision. It is therefore possible that pursuing the income generation route in this area might be less rewarding than a route which focuses on where there are opportunities for cost reduction. Further investigation and legal opinion is needed on this point.

An alternative to charging for Third Party AtoN would be to remove the responsibility, and therefore the cost, of such inspections from the GLAs, limiting their role to:

- advising the relevant Governmental Departments as to which AtoN must be fitted as part of the consents process for the offshore installation; and
- acting as the advisors in the event of a prosecution under relevant statutes in the event of a failure in the AtoN aboard that offshore structure.

In our view, verification that the AtoN are, in all respects, fit for purpose, could be done by a self certification procedure being placed upon the operators of the structure. Operators could be made subject to unannounced inspections and to "whistle blowing" by third parties, and failures could be made subject to penalties.

The owner and operator of an offshore structure has a long list of safety and environmental aspects that must be satisfied before the appropriate Government Department will grant the relevant consents for that structure. Existing legislation could be extended to make it clear that, once that consent is given, the operator has an irrevocable responsibility in law to self certify that the AtoN (as required by the host GLA) has been operable for the full period of the certification period. Failure to make such a self certification, or failure to maintain AtoN in accordance with the relevant IALA availability criteria would give rise to prosecution; the available sanctions include a closure order under existing Health and Safety infringement protocols.

To make this work, there would have to be a clear asset register to define which AtoN are for General Navigation (and therefore the GLAs' responsibility); which are for Local Navigation (and are therefore for LLA/Port Authority responsibility); and which are Third Party AtoN (and therefore the responsibility of the relevant owner and operator). This process itself might usefully lead to a gap analysis, in terms of what legislation applies to whom and why.

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In our view, the GLAs should continue to have a role in defining what AtoN must be fitted to offshore structures, and should continue to have an advisory role in defining what AtoN LLAs have. With regard to an enforcement regime, there is a need for the clear identification of the prosecuting authority for non compliance with self certification requirements.

This proposal would require consultation and legislative changes, but it would relieve the GLAs from some of their current workload and therefore cost base. This would include savings in ship time as well as administrative costs, and could apply to offshore renewable sites and offshore oil and gas structures.

From the Tender Utilisation Data Sheets (TUDS) which informed the C-MAR Fleet Review, all Tender activities have been summarised as a percentage of overall time. The summary of all GLA Tenders shows that for a 12 month period:

- 1.6% of Tender Time was utilised for Local Lights Inspections; and
- 31.4% of Tender time was utilised in steaming, with a proportion of this related directly to the inspection of Third Party Lights.

Whilst it is not itemised separately in the TUDS, the GLAs advise that the amount of steaming time attributable to Local Lights inspections is between 1% and 2%. When added to the actual inspection time, this amounts to a potential reduction in activity of approximately 2.2%. Whilst relatively minor in terms of overall Tender Time, we question the extent to which these inspections are an effective use of GLA resources. Whilst it is certainly proper that offshore oil and gas platforms have a legal obligation to display lights and maintain them to a required IALA standard, it is a fact that manned structures have a high level of conspicuousness to mariners. Indeed, it is often difficult for a passing mariner to identify the statutory AtoN on an operational structure because of the way that floodlights dominate the area. Additionally, in the event of power failure to the platform, such AtoN have alternative, independent power sources.

Any alternative arrangements in this area must be tailored to the operational status of each offshore structure. Unlike operational structures, decommissioned, and therefore 'dark' platforms will only have a lighted AtoN as its recognition. However, these are still the responsibility of the operator and, in view of their night time conspicuousness being wholly AtoN dependant, these structures would require a higher level redundancy of power supply and remote alarming as part of their self certification regime.

5. The Technical Basis for the Specification and Provision of Aids to Navigation

In essence, we raise this as an example of the difference between statutory obligations under SOLAS and the discretionary perception and response to risk taken by the GLAs and cited in Section 5.2. Indeed, during the course of this Assessment, the GLAs have raised significant concerns to the proposal of self-certification on the basis that the regime will result in an inferior standard of AtoN provision and risk to mariner safety. This relates to a perceived poor track record of self-certification regimes overall, a significant level of AtoN defects detected under the existing inspection regime[25] and a belief that this will worsen with self-certification, and Counsel's opinion that GLA effectiveness in this area will be measured against the highest international standards.

Having fully noted these concerns, we continue to believe that a self certification regime is a suitable option for further consultation, analysis and development of detailed proposals. This might commence with clarification of the precise statutory requirements on the GLAs under the Merchant Shipping Act in respect of the superintendence and inspection of Local and Third Party AtoN. Under Section 195 of the Act, the GLAs interpret their responsibility of superintendence of Third Party AtoN as an obligation to physically inspect them. However the duty of inspection appears more closely specified in Section 198 and this exists only in relation to Local AtoN.

We are appreciative that, subject to the clarification above, a proposal of self-certification will require primary legislation and that until and unless this is enacted the existing inspection regime must remain. In determining any way forward, consultation with a wide range of stakeholders, including the offshore oil and gas industry, will be essential, and evidence must be compiled and assessed to demonstrate that any self-certification regime will not result in a standard of AtoN provision which is inferior to the current arrangements. This includes the provision of real and punitive penalties on the operators of offshore structures for non-compliance or falsification, backed up by fines or charges for subsequent inspections to check faults have been rectified.

Similarly, each GLA spends time and effort superintending AtoN that lie within the published limits of a Competent Harbour Authority (CHA). With the advent of the Port Marine Safety Code and its reporting and record keeping requirements, it seems that a similar role for the GLAs for Local AtoN can be defined, with a similar potential cost saving[26].

[25] In 2008, TH found 17% of Local AtoN inspected to be in less than a good and efficient condition. NLB's 2009 inspections of offshore structures found 43% of AtoN as having failed in some way.

[26] Whilst the Port Marine Safety Code is not mandatory, there is a clear onus on ports to monitor the AtoN in their area and maintain records on availability. These records are currently reported to the GLAs through an agreed format known as PANAR (Port Aid to Navigation Availability Reporting).

Bell Rock by Ian Cowe ©

6. **Governance, Efficiency and Synergy**
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6. Governance, Efficiency and Synergy

6.1 Overview

During the past few years, the GLAs have experienced substantial organisational and culture change which has transformed them from labour-intensive and traditional organisations to more technologically complex, multi-skilled and automated services better suited to the challenges of the 21st Century. This process has resulted in a range of efficiencies and cost savings which have supported real-term cuts in the rate of Light Dues over a number of years.

Specifically, operating costs have fallen by 25% in real terms over the last decade and, as has been well documented and shown in Chapter 2, the rate per NRT in Light Dues fell from £0.43 per ton in 1993 to £0.35 in 2006 with the increase consulted on and announced in 2009 being the first for many years. Indeed prior to the increase, the real terms cost of Light Dues had fallen by around 50% since 1998 against a backdrop of significant changes in shipping in UK and Irish waters. Even with the second increase in Light Dues, to £0.41 in April 2010, the rate will still be 35% lower in real terms compared to 1993.

Research by Asteris (2004)[27] partly attributes the drive for efficiency to the system whereby the costs of providing AtoN are largely met (imperfectly) by users of the lighthouse services paying Light Dues into the GLF. It can be argued that this system provides greater incentive to restrain costs, compared to one supported by general taxation, due to continuous scrutiny of ship owners who are acutely aware that they meet the costs of the service provided. They undertake this scrutiny through the LAC and its representation on the LFC. There are differing views over whether this scrutiny role has been applied to its maximum extent, but nevertheless, we believe that under a system funded through taxation the GLAs would have less incentive to justify and minimise their costs whilst meeting their statutory duties.

Key initiatives underlying the real-terms fall in Light Dues over the last decade include:

- automation of lighthouses and lightvessels with a major reduction in staff costs;
- solarisation of all lighted buoys, most lighthouses and lightvessels;
- reductions in the number of lighthouses, lightvessels stations and maintenance vessels, and reductions in manning levels;
- reductions in operations depots, rationalisation onto a smaller number of sites and improvements in central control and monitoring;
- development of multi-skilled technicians to reduce restrictive practices, make best use of human resources and provide greater career progression opportunities;
- increasing use of modern business systems and communications to monitor operations and manage back office functions; and
- commercial business initiatives to exploit spare capacity of GLA assets.

In the medium- to long-term, the progressive shift to electronic forms of AtoN and the replacement of traditional physical methods offers more flexible, and potentially more cost-effective, means of meeting the GLAs' statutory responsibilities, although as noted in Chapter 5 a clearer view of the costs and benefits of technological research in certain directions would be a welcome development.

[27] The Funding of Marine Aids to Navigation in the European Union. Asteris, M. (2004) Department of Economics. University of Portsmouth.

www.uofaweb.ualberta.ca/ipe//pdfs/TransportPaper-Asteris.pdf

6. Governance, Efficiency and Synergy

As well as becoming more efficient within their own operations, the GLAs are also working more closely together in a number of technical and administrative areas, securing closer sharing of best practice, economies of scale and in some areas a division of skill and expertise within individual organisations which is then available for use by all. These are the so-called "benefits of an integrated system of AtoN provision" which the GLAs argue provides a consistent and high standard of mariner safety whilst recognising regional variations in geography, operational and working practices and accountability to local stakeholders and users. Trinity House, for example, carries out the collection of Light Dues within the UK on behalf of all three GLAs (and has introduced efficiencies into this process). Around half of all GLA procurement by value is undertaken in common. Research, technology development and radio navigation is a shared activity, and the GLAs undertake joint strategic reviews of future challenges and requirements for AtoN.

The benefits and costs of the current tri-GLA structure are summarised in Table 6.1.

Looking ahead, all the GLAs provide some evidence, in their most recent Annual Reports and Corporate Plans, of ongoing efforts to achieve further efficiencies and reductions in costs. Some of these are "strategic" in that they have been driven through internal process reviews and the five-yearly AtoN Review process. These include decommissioning or modification of some physical AtoN, and more co-ordinated management of their vessel fleet. Other cost reductions are more tactical reactions of the recent economic downturn, declines in shipping in UK and Irish ports, and pressures from the DfT and DoT to limit the 2009 and 2010 increases in Light Dues. These include recruitment embargos, bans on overtime, reductions in professional training, and cuts in travel and subsistence rates. In some cases, capital investment has also been deferred, and this accounts for a significant proportion of cost reductions within Corporate Plan forecasts.

As a result, the GLAs were able to identify over 5% additional cost savings for 2009-2010, allowing DfT to modify its original proposals for Light Due increases. The GLAs were subsequently asked to identify a further 5% saving in operating costs for 2010-2011 from their Corporate Plans; work on this target has been completed or is ongoing in parallel with this Assessment.

Beyond this, all the GLAs are committed in principle – and are working – towards greater levels of joint working and seeking synergies and economies of scale. However, representatives of ship owners we spoke to as part of this Assessment believe that cost savings can be achieved which are higher than those identified by the GLAs themselves through the introduction of more commercial and cost-sensitive forms of management, and the reduction or redeployment of staff and assets. They believe this can be accomplished without statutory duties being compromised.

This Chapter therefore examines the extent to which the GLAs have historically controlled their cost base and how they aim to project this into future years. Whilst we fully acknowledge the considerable gains made by the GLAs in promoting efficiencies in recent years, we also identify a number of specific areas, and a range of planning practices and behaviours, through which we believe that further savings may be possible over and above those set out in published Corporate Plans.

We are encouraged that all three GLAs have engaged closely with us in discussing the way forward against this theme of the Assessment, and indeed have accepted the need for action in some key aspects of their operations and support services. In some cases, they have already commenced implementation of a number of our recommendations ahead of the publication of this Report. This is to be strongly acknowledged and welcomed.

Our discussion commences, however, with an examination of the GLAs' corporate governance arrangements and whether these are effective to meet current and future challenges and allow decisions to be made efficiently, transparently and with appropriate mechanisms for internal and external scrutiny and challenge.

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Table 6.1 – Benefits and Costs of the Tri-GLA Structure for the UK and Ireland

Strengths and Benefits	Weaknesses and Costs
• The tri-GLA structure works in its basic objective: a comprehensive and integrated cross-border provision of AtoN around the British Isles to a high quality and level of service meeting SOLAS/IALA standards. • Single/consistent level of service for the Mariner throughout UK and Irish waters providing certainty & confidence. • Economies of scale (e.g. shared procurement) in service planning and provision. • Allowance for local knowledge and expertise focused on differing navigation challenges and economic, political, social and environmental conditions around the British Isles coast. • The tri-GLA structure is recognised as the basis for provision of AtoN across the British Isles for many years and reflects co-operation between different parts of the UK and RoI. There would be risks and costs in radical change to these arrangements. • CIL is recognised as a successful cross-border body between RoI and Northern Ireland under the Good Friday Agreement. • The structure allows for co-operation where appropriate and cost-effective, and differing approaches where local issues dominate. • A degree of integration where the GLAs have agreed this is appropriate in a number of areas including R&RNAV, the collection of Light Dues, insurance, buoy moorings and risk assessment. There is also flexible co-operation through JCG and IGCs which is increasingly output orientated. • The corporate planning process allows for consistent comparisons, scrutiny and pressures on costs across all three GLAs. • The structure allows regional variations in such areas as legal codes, employment terms and conditions, and currencies to be dealt with flexibly within each GLA which would otherwise be difficult to "centralise."	• The current tri-GLA structure is not one which would likely be created if starting with a blank page ("We wouldn't start from here"). • The greatest use of AtoN and the majority of Light Dues are collected in TH waters, but with a perception from some that the GLF has to "subsidise" the other two GLAs. (Scotland as well as Ireland). • Issue of covering costs of CIL from GLF if Light Dues maintain their current structure is problematic (and probably unsustainable). • It is inherently less efficient to have three parallel organisations carrying out largely similar tasks, even allowing for efficiencies and savings in operating costs and differing regional circumstances. There are for example, three Chief Executives and sets of Executive Directors, and back office functions. • Fleet management, AtoN monitoring, buoy yard management and capital programme are carried out separately which increases costs and has the potential to reduce operational flexibility and use of spare capacity. • Limited comparison and benchmarking of costs and evidence of variable costs and efficiency. • The three GLAs are constructed to meet local requirements and conditions rather than strategic and collective goals. • Potential for local priorities and professional pride within each "host" GLA to take precedence over activities for the strategic or greater good. • All GLAs are "equal" despite differing scales of operation, technical capability, efficiency and scope for innovation. • The structure is perceived as wasteful and inefficient by many ship owners and some users.

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6.2 GLA Organisational Structures

Although the three GLAs carry out similar tasks, the structure and staffing arrangements for each organisation are different, reflecting variations in histories, different regional geographies, legal jurisdictions and management approaches. Whilst our Assessment presents some comparisons, based on discussions and data obtained, it is important that the GLAs develop ongoing processes for continually benchmarking themselves, not only against each other, but with relevant organisations elsewhere in the public and private sectors in order to ensure they take on and reflect best practice and provide maximum value for money in their calls on the GLF.

6.2.1 Organisational Structures

Table 6.2 presents benchmarks of organisational structures and staff across the GLAs, based on analysis led by Trinity House. This provides a useful, but preliminary, comparison of current GLA resourcing levels for the 700 staff directly employed, discussed more fully in Section 6.3 below.

Table 6.2 – Comparison of GLA Staffing and Structures 2009/10

Benchmark	TH	NLB	CIL
Total number of Staff (1)	306	199	181
Lighthouses	69	209	80
Buoys	442	164	145
Beacons	22	34	48
DGPS Stations	7	4	3
Radar Stations	51	27	24
Total Aids to Navigation Deployes	591	438	300
Vessels	3	2	1
Number of LH Attendants (1)	3	1	15
Number of Directorates (2)	3	3	4
Number of Board Members (plus advisors) per GLA	8	23	20
Number of Non Executive Directors per GLA (3)	4	19	15
Number of Employees per Director	95	67	44
Number of Employees per Head of Department	29	17	23
Number of Operational Staff per 1 FTE Support	4.4	3.8	5
Number of Staff per Aid to Navigation	0.52 (4)	0.45	0.60 (5)
Ratio of Managers to Staff	1 to 4.2	1 to 4.5	1 to 4

Source: Trinity House, with input from NLB and CIL, plus Atkins estimates.

Note 1: Expressed as Full Time Equivalents.
Note 2: CIL have an ICT Directorate.
Note 3: Only 6 NLB Commissioners receive payment. CIL Commissioners do not receive remuneration.
Note 4: Reduces to 0.48 if R&RNAV and Light Due Collection staff excluded.
Note 5: Reduces to 0.50 if 6 Lighthouse Technicians and 24 Coastal Tradesmen excluded.

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Table 6.2 indicates a number of interesting ratios, including the relative scale of the different GLA operations in terms of staff, vessels and AtoN assets. For example, CIL has one more Directorate than the other GLAs and therefore fewer staff per Director. CIL also has the highest level of operational staff in relation to support staff.

NLB has the fewest staff per AtoN overall whilst CIL has the most. However, this ratio needs to be treated with caution since it partially reflects the mix of AtoN[28] and the balance of functions which are undertaken in-house and outsourced to external providers. The GLAs themselves have committed to developing a more detailed set of metrics in this area.

6.2.2 Board Structures

Both NLB and CIL run Boards including a large number of Commissioners, up to 21 at CIL and 19 at NLB. Both reflect their establishment as corporate bodies in the eighteenth and nineteenth centuries and no longer reflect the standards and requirements of modern governance, although the actual costs of operating such Boards are limited since the Commissioners receive no or a modest allowance for their contributions. Both have also taken practical steps to improve the effectiveness of their day-to-day governance arrangements.

The NLB Board includes a mix of ex-officio and co-opted Commissioners, with only the latter receiving remuneration for their contributions. The effectiveness of the structure is improved through a nomination for election from the Secretary of State for Transport[29], and the delegation of overall responsibility for management activities to a Managing Board made up of the Chairman, Vice Chairman, four Commissioners, Chief Executive and three Executive Directors. The Board has also adopted a Code of Practice based on Treasury Guidance and informed by the (Nolan) Seven Principles of Public Life.

The CIL Board includes a large number of ex-officio and appointed Commissioners, with perpetual succession, although the number of co-opted members was reduced from 17 to 12 in the mid-1990s. Unlike NLB, there is no Managing Board or equivalent combining a smaller group of Commissioners and Executive Directors, and key decisions are made through a series of Committees. CIL has recently reviewed these arrangements, for example making changes to the membership and operating practices of a number of Committees, and believes they work effectively, although it has no objection in principle to further reductions in the number of Commissioners if this is demonstrated as improving decision making.

Other stakeholders we spoke to as part of this Assessment question CIL's governance arrangements and believe improvements could be made. For example, whilst the Irish Prime Minister can veto Commissioner appointments, accountability after those appointments is less clear; for example, there is no formal nomination on behalf of the Department of Transport, giving the Irish Government less direct influence over the decisions of the CIL Board or its support or challenge of the Chief Executive and his Directors. Indeed, until the increase in Light Dues in 2009, we understand that DoT contact and involvement with CIL has been extremely limited. There is also limited representation and challenge on behalf of DfT in respect of the AtoN provision in Northern Ireland, although 3 of the current 12 Commissioners fulfil this representation in geographical terms.

Since the 1980s, in contrast, Trinity House has adopted more of a corporate structure with an Executive Chairman, 3 Executive Directors and 4 non-Executives. Three of the Non-Executive Directors are nominated by the Secretary of State for Transport to consider key issues of governance such as risk and control, and nominations and remuneration of the Executive Directors in an independent, efficient and cost effective manner. This seems to us to represent a more effective governance structure, although active interest and support from DfT is required to ensure their Non-Executive Directors exert the strongest support and constructive challenge on the Executive Board.

[28] If the staff to AtoN ratio is adjusted to take account of Major AtoN requiring more resources (and staff) than Minor AtoN then CIL's position improves relative to TH and NLB. However, wage and exchange rates in Ireland relative to the UK are significantly higher, meaning that the same number of staff under CIL would result in a substantial higher burden on the GLF compared to TH and NLB.

[29] Currently the Chairman.

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NLB's and CIL's format has virtues in that the Commissioners are independent of senior management and bring varied expertise and experience into their role. Both also follow the Combined Code on Corporate Governance in clearly separating the roles of Chairman and Chief Executive. CIL believes that its arrangements give it access to a wide range of expertise; NLB's implementation of an internal Management Board also improves the effectiveness of its structure in practice.

However, the fact remains that both organisations have unusual governance structures in comparison with either the public or private sector. It is hard to see a need for so many Commissioners, especially those in ex-officio positions[30], and with limited Government representation, especially in the RoI; arrangements more in line with Trinity House may potentially deliver value for money as well as making the decision-making process quicker and easier, as there are fewer people to consult at a strategic level.

We therefore believe that NLB and CIL should review their corporate governance arrangements with a view to moving to a Board comprising the Executive and a small number of Non-Executive Directors, or an equivalent structure. In the case of CIL, a number of the Non-Executive Directors should be nominated as representatives of the DoT and be in position to raise concerns and issues directly with Irish Ministers. The DfT should also have a role, alongside DoT, in nominating at least one Non-Executive Director with responsibility for Northern Ireland.

We are aware that implementation of the reforms to NLB and CIL will require legislation in both the UK and Ireland. Since this will take some time to draft and progress through both Parliaments, we recommend that both GLAs develop and adopt transitional governance arrangements in the interim period. In the case of NLB, this is likely to be based on little change from the Management Board to which the Commissioners have already delegated responsibility for key activities; more substantial change may be required within CIL, especially with regards to DoT and DfT input into the nomination of Commissioners, but could be progressed quickly subject to the agreement of the Board.

The effectiveness of existing and future DfT and DoT nominations for Non-Executive Directors and Commissioners in supporting, scrutinising and challenging the decisions of the GLA Executives will, of course, be maximised only if the two Departments appoint candidates with the experience, skills, time and energy to fulfil the role, provide clear guidance and advice and allow easy access to senior Officials and Ministers in the event of raising issues of concern. We are encouraged that this is now the case for TH Non-Executive Directors and the current Chair of NLB[31] in respect of DfT, but it has not always been so, and the Department should ensure that current good practice is continued and extended to new arrangements focused on Non-Executive Directors for NLB and CIL.

The effect of these changes will not be to result in direct cost savings in themselves. They will, however, we believe, improve non-executive support to NLB and CIL senior management, and provide stronger and more transparent mechanisms for scrutiny and constructive challenge of executive decisions. With the appropriate guidance and advice from DfT and DoT, this is more likely to result in management decisions which promote cost effectiveness and efficiency in the discharge of GLA statutory obligations.

[30]One argument put to us is that ex-officio Commissioners often provide a degree of democratic accountability in account of their holding elected public office. Whilst we agree with this to some extent, the appointment of Board Members as representatives of the relevant Government Departments, with Ministers accountable to the UK and Irish Parliaments, would also fulfil this role.

[31]The Secretary of State's nominated Commissioner on NLB is not necessarily appointed as the Chair, but is a decision for the Commissioners themselves.

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6.2.3 Executive Arrangements

Turning to the executive management arrangements, both TH and NLB have a Chief Executive plus three Directors ("Executive Chairman" in the case of TH). CIL has a different structure with a Chief Executive plus four Directors, including a Directorate specifically for ICT compared to TH and NLB where all support services are under a single Director (Director of Finance & Administration at NLB, Director of Finance & Support Services at TH).

This arrangement reflects CIL's strong belief in the value of ICT in modernising its operational and business processes and ultimately resulting in lower costs to the organisation. Whilst we do not question this belief per se, it does slightly increase the cost of management overheads and could therefore represent an opportunity for some marginal cost savings. If the current structure continues, we suggest that CIL seeks to get maximum value out of it by using the Directorate to promote stronger ICT development across all three GLAs in a more co-ordinated manner. This issue is discussed further below.

Whilst TH has a more compact governance structure overall, it is unusual in combining the role of Chairman and Chief Executive. Although the Combined Code on Corporate Governance advocates separation of these two roles, there is a principle of "comply or explain" which provides some flexibility in light of individual organisational circumstances. In this context, the current Non-Executive Directors consider the Executive Chairman role to be offset by a range of internal checks and balances and to provide an efficient and effective use of resources without compromising principles of good governance. This position is reviewed on an annual basis and validated periodically by DfT Internal Audit.

Whilst best practice in corporate governance would therefore ordinarily be for the positions of Chief Executive and Chairman to be split, there is no evidence that combination of roles has weakened good governance of Trinity House in practice and we see limited case for reform provided the Non-Executive Directors continue to review the position each year and report any concerns to the Secretary of State.

In any defining any future governance arrangements, NLB and CIL should start with the presumption of separating the roles of Chairman and Chief Executive (as they currently do) and seek to depart from this only if they believe – and can demonstrate – that a combination of the roles is effective, efficient and offset by clear checks and balances within the overall structure.

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6.2.4 Tri-GLA Working – Current Arrangements

The GLAs seek to deliver an "integrated system" for AtoN provision for the British Isles. They are therefore working more closely together in a number of areas, securing a more strategic approach to the specification and provision of AtoN, economies of scale and synergies in their operational and management systems and processes.

There is a range of specific examples of this. The GLAs undertake joint strategic reviews of future challenges and requirements for AtoN. Trinity House carries out the collection of Light Dues within the UK on behalf of all three GLAs (and has introduced efficiencies into this process) and TH and NLB have worked closely on the joint procurement of their three new vessels – Pharos, Galatea and Alert – realising synergies and cost savings in the design, project management and legal advice relating to the ships. Marine and liability insurance is achieved through a joint policy, securing a lower premium than the sum of each GLA insuring its own risks.

There is also evidence that tri-GLA working relationships have improved in recent years with a commitment from all three Boards that this should continue. As already noted in Chapter 2, the Chief Executives, Chairmen, Vice Chairmen and a number of Directors meet twice a year within the Joint Consultative Group and within the scope of areas delegated by the JCG, Senior Managers and Directors work together on Inter-GLA Committees (IGCs) which are based around a range of themes and professionalisms. Since 2006, these have replaced arrangements around Information Exchange Groups (IEGs), having greater empowerment to take and implement decisions, whilst promoting the cross-cultural exchange of information.

We have no doubt that these arrangements, centred on the JCG and re-invigorated IGCs, have promoted closer exchange of information, sharing of good practice and some joint activities, with resulting savings to the GLF. In principle, they also provide the benefits of an integrated system of AtoN provision whilst allowing flexibility of each GLA to reflect its different geography, operational challenges, legal and financial codes and corporate culture.

However, there is evidence that in many instances each Authority continues to set and maintain standards, implement operating procedures and working practices, or make planning and procurement decisions, which are more related to its own individual objectives, priorities and professional pride than a full acceptance of the benefits of shared activities within a strategic framework. In this context, the primary accountability is to support local operations and activities within each GLA territory, rather than fully articulating and working towards achieving the systems and processes – and crucially the behaviours and culture – necessary to bring about a genuinely integrated, but regionally responsive, system.

The JCG, for example, only meets twice a year and does not have a track record of setting, monitoring and reporting specific tri-GLA targets or strongly holding individual GLAs to account for their achievement. Its decisions remain subject to the approval of each individual GLA Board and strategic decisions reached collectively by the Chief Executives are not binding, or necessarily subject to follow-up through the IGCs in practice. The recent procurement of helicopter services is an example of a lost opportunity to secure economies of scale and value for the GLF resulting from the weaknesses of the current arrangements [32].

[32] The chance for a tri-GLA contract, with lower costs, will not now occur again until 2015. By contrast, the joint TH-NLB project to procure the Pharos, Galatea and Alert into the GLA Fleet provides an example where joint working in design and procurement did produce tangible efficiency and cost benefits.

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6.2.5 Tri-GLA Working – A New Approach

The response to this, in the view of a number of stakeholders, is for the formal amalgamation of the GLAs into two organisations covering Great Britain and Ireland, or even a single statutory body for the whole of the British Isles. Such an arrangement would accelerate – and indeed necessitate – the development and adoption of common standards and procedures (potentially with regional variations) and would drive substantial cashable efficiency savings, not least through the rationalisation of central office and senior management functions. However, such a course would require primary legislation in the UK and Ireland, involve substantial costs of change and also pose risks to business continuity in AtoN provision over an extended period. This proposal remains as a long-term option, and is considered later in this Report; however, we believe incremental reform should be introduced and tested across the existing tri-GLA structure in the short-term before more radical options are seriously considered.

Central to this incremental change is a significant strengthening of tri-GLA governance and a stronger collective accountability of the GLAs to the two Governments. We propose this is achieved through the creation of a new Joint Strategic Board (JSB) in place of the existing JCG as the overarching decision making and accountable body for AtoN specification and provision across the British Isles.

Whilst each GLA would remain a separate legal entity, the JSB would have the formal delegated authority from the three Boards to:

- set tri-GLA policy and strategy, agree common standards and processes and define specific measurable joint targets to achieve these outcomes across the British Isles as a whole;
- provide guidance and direction to the Chief Executives and their Executive Directors in implementing the key actions required to achieve the targets and other agreed outcomes, and to hold them to account for their performance in so doing;
- provide a framework within which the work of the IGCs can be explicitly defined, directed and monitored against key milestones;
- set tri-GLA metrics, benchmark performance and agree subsequent actions for improvement;
- provide the principal interface with the DfT and DoT on strategic issues and matters of common GLA interest;
- provide advice on the level of funds required from the GLF to meet minimum reserve requirements and agreed GLA expenditure plans, and the rate of Light Dues (or equivalent charges) to secure this level;
- prepare a Joint GLA Strategic Plan setting out specific proposals for undertaking the above tasks, agreeing this Plan with the two Governments and the LAC and ensuring that the key actions and targets are driven down through each GLA structure; and
- where appropriate, raising and resolving differences between agreed tri-GLA policy and strategy and the local interests of individual GLAs.

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We do not propose a specific structure, constitution or modus operandi for the JSB. This is for the GLAs themselves to determine and subsequently agree with the two Governments. Indeed, they have already commenced work to develop proposals in these areas. However, in order for the Board to be effective in maximising the extent of integration across the GLAs, we are reasonably clear that:

- the two Governments should clearly define their expectations and desired outcomes from more integrated GLA decision making structures and processes and indicate how these will be kept under review through the JSB;
- the JSB should be provided with sufficient administrative and technical support, data and analysis in order to inform effective joint decision making, monitoring and follow-up. At the same time, it should avoid duplicating the established Board and management arrangements within each GLA and "micro-managing" its decisions at the local level;
- each GLA – and its Chief Executives and Executive Directors – should be accountable to the JSB in the agreed areas of joint policy, strategy and targets, and should have a duty, where instructed, to act on its behalf;
- targets should be specific, measurable and explicitly designed to drive action within the GLAs, as well as being kept under regular review;
- the JSB should meet as regularly as necessary to review, monitor and take remedial steps on agreed targets and actions. This probably requires a greater frequency than the current JCG meetings of twice a year[33];
- the proposed Joint GLA Strategic Plan should be subject to the same degree of scrutiny and challenge from the two Governments, and consultation through the LFC, as the individual GLA Corporate Plans (with which it should be aligned). There should also be a requirement for a Joint Annual Report, produced over the same time period as the GLF Accounts, so that progress can be tracked and demonstrated; and
- arrangements for resolving disagreements between JSB members should be proportionate, transparent and efficient.

We believe that under any arrangements, membership of the JSB should include strong representation from Non-Executives (including NLB and CIL Chairs and Commissioners before and after any changes to corporate governance) alongside the three Chief Executives. The proposals for appointment and strong advice and guidance of Non-Executives from the two Governments should increase transparency and accountability of JSB decisions in this context. Appropriate arrangements should also be agreed to appoint a (Non-Executive) Chair who will then act as the representative of all three GLAs for the purposes of reporting or seeking approvals from the two Governments. One option is that the Chair rotates annually between the three GLAs, subject to DfT/DoT approval.

In the short-term, the JSB could be established voluntarily without the need for legislation and should be given time to work on this basis. In principle, this could be early in 2010/11. However, the Governments should monitor the effectiveness of initial changes, the level of buy-in and engagement demonstrated by all three GLAs, and the effectiveness of arrangements in relation to the Non-Executives; if voluntary arrangements do not deliver a step towards a set of integrated behaviours, systems and processes, they should consider whether there is a case for strengthening arrangements on a statutory basis, or more significant structural reform to the continuation of three GLAs.

A number of the specific recommendations arising from this Assessment should be taken forward by the JSB as the accountable body, reporting progress to the two Governments.

[33]At least initially, with possibly four meetings a year being an appropriate number. Use of video-conferencing could be used for more frequent meetings and to keep travel and subsistence costs down.

6. Governance, Efficiency and Synergy

6.2.6 The Development of Tri-GLA Measures of Performance

A recurring issue of this Assessment has been the availability of comparable data across all three GLAs in terms of common, consistent measurements of performance. Whilst a range of indicators are collected and reported in individual GLA Annual Reports and Corporate Plans[34], these are not comprehensive and apparent variations in performance can be influenced by differing definitions, categories and operating practices within each organisation. This can make analysis difficult and weakens the evidence base on which the GLAs, two Governments and the LAC can consider key issues of operational effectiveness, staffing, costs and the use of resources. It may also limit the role of the proposed Joint Strategic Board, set out above, and its ability to set, monitor and report meaningful targets linked to more integrated GLA operations and support functions.

It is clear that early action is needed in this area as a priority. Without comparable data, the point of departure for the integrated system for the provision of AtoN cannot be defined, progress cannot be fully measured and key management decisions – and Government deliberations – cannot be fully informed.

We therefore recommend that the GLAs develop an appropriate set of metrics for key aspects of their operations, staffing, costs and resources and performance, and seek agreement from the two Governments and the LAC for these measures to be collected, analysed and reported in a consistent manner. Data reported against these metrics should be subject to periodic validation and audit, as well as allowing benchmarking against comparable organisations in other sectors.

Potential areas for the development of indicators might include, for example:

- AtoN availability and operating statistics (developing current metrics);
- GLA Fleet availability and operating statistics (developing current metrics);
- buoy yard availability and use of capacity;
- number of staff/cost per AtoN (total and by AtoN category);
- FTEs/total FTEs in defined operational roles (total and by function);
- FTEs/total FTEs in defined support services (total and by function);
- cost/total cost in defined operational roles (total and by function);
- cost/total cost in defined support roles (total and by function);
- procurement spend/procurement FTEs and/or operating costs;
- commercial income/marketing and business development cost;
- GLA systems and processes operating to a common standard (total and by function); and
- proportion/value of GLA procurement carried out through common/co-ordinated contracts.

There are likely to be a range of practical issues in developing such measures across all three GLAs. Reporting costs, for example, will require the allocation of items such as overheads and expenses to individual groups of employees on a consistent basis. Similarly, established practices around job sharing, where individuals undertake work in more than one functional area, provide an area of complexity which may not be reflected in current accounting records. Such issues would have to be resolved to produce comparable data across the GLAs.

The GLAs should endeavour to have the new set of metrics developed, agreed and with population of the baseline data for the commencement of the 2011/12 financial year. The JSB should also work to set a number of strategic performance targets against the metrics with suitable milestones, so that progress can be monitored at appropriate intervals.

[34] For example, AtoN availability, accident statistics, Light Dues collection costs, and operating costs in cash and constant prices.

6. Governance, Efficiency and Synergy

6.3 GLA Staffing

6.3.1 Staff Numbers

Table 6.3 sets out headcount numbers for the GLAs between 2007/08 and 2008/09. These consist of full-time and part-time staff, plus temporary employees. A consistent approach is to report staff numbers in terms of Full Time Equivalents (FTE) and on this basis the GLAs employed 701 FTEs in 2008/09, a decrease of 2% from 717 in 2007/08 on the basis of staff reductions in TH and CIL.

Table 6.3 – GLA Headcount – Full-Time Equivalent – 2007/08 and 2008/09

	2008/09	%	2007/08	%
Trinity House	284	40.6	296	41.2
Northern Lighthouse Board	197	28.1	193	26.9
Commissioners of Irish Lights	201	28.6	211	29.4
Sub Total	682	97.2	700	97.6
Inter GLA				
Research & Radio Navigation	14	2.0	11	1.5
Light Dues Collections	5	0.7	6	0.8
Total	701	100:00	717	

Source: GLF Annual Report & Accounts, 'Resources'

Table 6.4 shows total GLA headcount split between full time and part time employees over a longer timescale between 2004/05 and 2008/09. The evidence shows that all the GLAs have managed to reduce headcount over the period. The best performer in this regard is TH which has reduced its number of FT employees by 18 %, reflecting the centralisation of most operations to Harwich[35].

Looking ahead, based on the GLA Corporate Plans, TH forecasts that its FTE headcount will fall from 309 in 2008/09 to 305 in 2012/13, in effect remaining more or less constant. NLB is proposing to go from 201 FTE in 2008/09 to 193 in 2012/13. However, CIL is most ambitious in forecasting a reduction in full time staff numbers from 186 in 2008/09 to 169 in 2012/13. In combination with a fall in staff pay in 2010/11, this is likely to result in significant cost savings.

Table 6.4 – GLA Headcount, 2004/05-2008/09

Year	TH (1)		NLB		CIL	
	FT	PT	FT	PT	FT	PT
2004/05	377	12	206	89	193	16
2005/06	333	10	206	79	201	16
2006/07	321	10	194	78	201	17
2007/08	310	11	185	76	196	15
2008/09	309	11	190	73	186	15

Source: Annual Reports for TH, NLB, and CIL
Note 1: TH figures include those employed on "inter-GLA" duties.

The overall conclusion is that following a decade of major reductions in staff numbers, linked to automation, rationalisation of vessel and depot capacity and internal business process reorganisation, the GLAs are proposing further reductions in workforce to 2012/13, but these are far less substantial, with the exception of CIL's proposed cuts to address its high cost base. In other words, most of the easy gains have already been made, and the GLAs now appear to have reached or be approaching what they believe is the floor before much tougher choices in staffing need to be made.

[35] We note that NLB achieved equivalent reductions in staffing with the closure of depots at Leith, Granton and Stromness and the concentration of operations at Oban before 2001.

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6.3.2 Support Services

"Support services" include Finance, Information Technology, Human Resources, Facilities Management, and procurement. Legal services and Public Relations may also be counted, but are not included in the analysis below[36].

The GLAs produce no figures for operating costs of their support services, but the number of employees engaged in these activities can be counted and compared. There are problems in making such comparisons, even between organisations of similar size and performing similar functions. Particular functions may be classified differently and the degree of outsourcing can vary, so distorting the headcount figures. The extent to which a service is devolved to front-line staff can also vary – procurement often poses a problem because it can be completely centralised within a professional procurement function or decentralised to front-line staff or some mixture of the two. The balance between full-time and part-time staff will also influence the figures.

Nonetheless it is worth examining the figures and comparing them to external benchmarks. Table 6.5 sets out the GLAs' current position based on their estimates of Full-Time Equivalents for selected functions.

Table 6.5 – GLA Support Services Headcount – Full-Time Equivalent 2009/10

Headcount	TH	NLB	CIL
Finance	10	9	8
HR	9	5	5
IT	10	7	7
Procurement	8	5	3
Facilities Management	1	1	1
Total Support Services	38	27	24
% of Total Headcount	13.3% (1)	13.6% (2)	13.2% (3)

Source: TH with input from NLB and CIL. FTE Figures have been rounded up or down to the nearest whole post.

Note 1: Headcount of 286 FTEs. Excludes R&RNAV and Light Dues Collection.
Note 2: Headcount of 199 FTEs.
Note 3: Headcount of 181 FTEs.

The "right" proportion of employees in support services (in terms of being most efficient and cost effective) is exceedingly difficult to determine because it is affected by the size of the organisation and the nature of the work. For example, the number of HR personnel required is sensitive to the variation in the nature of work carried out within the organisation and the number of unions involved. Atkins' work in this area[37] suggests that, for larger organisations, one would expect to find between 5-7 % of employees engaged in Finance, HR, IT and Procurement. For medium sized organisations, the proportion rises to between 9 and 12 %.

In this regard, the GLAs suffer from being small organisations. There is a minimum number of functions that must be carried out by the support services and thus a minimum number of staff employed. However, all three GLAs are above the upper range of the expected number of people engaged in support services. Although the evidence is not definitive, we would suggest that this is one area worth re-visiting to establish whether further efficiencies and cost savings can be secured. Our proposals for how this might be done are set out below.

[36] Legal services and marketing account for 7 and 5 FTE posts respectively across all three GLAs.

[37] This is based on Atkins' research for HM Treasury in the UK and a number of other clients in both the UK and Australia in which public sector bodies provided data on headcount and the cost of support services. This is consistent with other studies published on the subject.

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6.3.3 Head Office Accommodation

The GLAs have differing arrangements – and costs – from their Head Office accommodation arrangements.

In the case of Trinity House, the building in Central London is owned and maintained by the Corporation of Trinity House. It is not therefore an asset of the GLF and is not represented as such within the GLF Accounts. The GLA occupies part of the building, but is not charged rent for this accommodation, or the use of rooms for meetings or events. This arrangement offers a net benefit to the GLF, since accommodation costs are minimal and Trinity House also provides good access important stakeholders such as DfT whilst being within reasonable travel distance to the main operations centre at Harwich. The relocation of Head Office staff from London to Harwich or an alternative location would not realise any income for the GLF resulting from any asset sale, and would likely result in increased costs.

CIL has already achieved substantial savings through consolidating all its operational and support activities at Dun Laoghaire. The sale of the former Head Office in Central Dublin yielded €26.3 million, and with construction costs of €23.4 million for the new facility resulted in profit of almost €3 million for the GLF. Consolidation of all activities on one site in this way also resulted in manpower savings of 21 posts and overall operating savings of almost €1 million.

The main current opportunity for cost savings in accommodation would appear to rest with NLB's Head Office in George Street, Edinburgh. However, the scope of these should not be overstated; the property was valued at £4 - 5 million in 2006, reflecting its poor suitability for modern business purposes and constraints for structural changes on account of the Grade I Listing of the façade and key areas of the interior[38]. This value – and therefore income for the GLF in the event of a sale – is considerably less than that of CIL's former Head Office in Dublin.

The Commissioners have agreed that the current property is not fit for modern business purposes and have considered a range of options to address the situation, including retention of the property in its current state, various proposals for refurbishment, and the sale of the building and relocation to an alternative site in Edinburgh or elsewhere in Scotland, including the main operational base in Oban. They believe that the NLB should remain in George Street, but with refurbishment to provide facilities which currently do not exist, to improve health and safety, make better use of the space available and to improve the working environment. This is based on analysis which shows limited financial benefit from a move to an alternative location, that all options would incur a cost and there is therefore little or no net benefit from an office relocation to the GLF at this time. Expenditure on the refurbishment, estimated at £2.5 million, whilst agreed by DfT in principle, is subject to Ministerial approval and further work on a final decision has been suspended whilst our Assessment has been ongoing.

Based on the documentary evidence and discussions with NLB, we agree that continued occupancy of George Street is, on balance, the optimum approach in the current economic climate. However, whilst some refurbishment is clearly necessary to the property, we believe the current proposals should be revisited to examine whether there are non-essential elements which could be reduced or deferred, whether additional income can be secured from the rental of any space not required by NLB [39], and the impact of any changes on the future sale value of the property. As has already been proposed by NLB itself, options should also be examined around whether the refurbishment should be financed from the GLF as a lump sum, or financed over time, for example by taking a mortgage on the property.

This approach will provide certainty for all parties in the short-term. In the medium term, NLB should undertake periodic revaluations of George Street and, depending on market conditions, should consider options for relocation of their HQ to a modern office facility elsewhere in Edinburgh or Scotland, based on outright purchase or leasing, provided such an approach fits operational requirements and would produce a net benefit for the GLF.

[38] NLB's outright ownership of its George Street accommodation also allows central activities to operate rent free. Nor does it pay Business Rates on its property.

[39] This is partially dependent on whether further staff who do not have an administrative role can be relocated to Oban or other operational bases elsewhere in Scotland, and the amount and flexibility of space available for third party use either for office purposes or potentially for retail. This is an area for further investigation.

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6.4 GLA Cost Control

6.4.1 Changes in Exchange Rate

Cost comparisons between the GLAs must be treated with some caution. Not only are there regional variations in various cost items, for example reflecting different labour markets, but CIL's costs are mainly incurred in Euros, whereas those of TH and NLB are incurred almost wholly in Sterling. As has already been remarked, there has been a dramatic change in the Euro-Sterling exchange rate over the last three years. In 2007/08, there was an approximate 15% appreciation of Euro against Sterling and a further 30% in 2009/09.

This means that, for example, in 2007, €100 was equivalent to around £70, whereas in 2009 this appreciated to £90 – an increase of nearly 30%. This rapid and large change in exchange rates means that making cost comparisons between the GLAs on the basis of current exchange rates will make Irish costs high when expressed as Sterling, as the underlying Irish cost base has not had time to adjust to the changes in the relative currency values. This means that, irrespective of operational efficiencies around staff numbers and use of technology, CIL costs are significantly higher relative to TH and NLB when considered in relation to the GLF.

6.4.2 Historic Cost Control

Table 6.6 sets out the "running costs" of each GLA in nominal and constant prices over the 10 year period 1999/00 to 2008/09. "Running costs" is defined as staff costs (including redundancy) plus other operating costs; they exclude pension costs, depreciation and amortisation, and capital expenditure.

In current prices, the increase in running costs over the period was 27% at TH, 38% at NLB, and 71% at CIL. However, in constant prices, TH achieved a reduction of 7% over the period while NLB's costs increased by 7%[40]. CIL's costs rose by 5%, the latter before exchange rate changes are taken into account, but partially reflecting wider public sector wage increases in the Irish Republic, both of which increase the costs of CIL when measured in Sterling terms on the GLF.

From this, we can conclude that the GLAs have been successful in maintain running costs more or less level in constant prices – in other words, costs have been rising broadly in line with inflation. It is also evident that Trinity House has been more successful than NLB or CIL in controlling its running costs.

[40] Inevitably such comparisons must be treated with caution since the actual the actual increase or reduction in costs will vary according to the year selected. For example, NLB's costs show a 9% decrease if the period of comparison is extended to 1997/98 to 2008/09.

Table 6.6 – GLA Running Costs, 1999/00 to 2008/09

Year	TH (£ '000s)		NLB (£ '000s)		CIL (£ '000s)	
	Current	Constant	Current	Constant	Current	Constant
1999/00	18,597	19,710	10,850	12,647	15,032	15,032
2000/01	19,537	19,232	11,824	11,481	14,763	14,007
2001/02	20,365	19,473	11,814	11,302	16,472	14,907
2002/03	20,423	19,237	12,013	11,256	16,553	14,282
2003/04	22,002	20,304	12,810	11,678	17,369	14,795
2004/05	22,568	20,256	12,647	11,181	18,653	15,551
2005/06	21,341	18,574	13,352	11,501	19,116	15,404
2006/07	21,219	17,999	15,586	12,943	19,811	15,204
2007/08	21,014	16,501	13,746	10,962	21,642	15,809
2008/09	23,604	18,001	14,961	11,587	21,081	15,815

Source: Annual Reports for TH, NLB, and CIL

Note: NLB's and CIL's constant prices are based on 1999/00 – the beginning of the series. TH does not state which year has been selected as the base; this renders year by year comparison between GLAs problematic

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6.4.3 Cost Breakdown

Table 6.7 sets out a simple breakdown of GLA operating costs for 2007/08 and 2008/09.

Staff costs are approximately 50% of running costs at both Trinity House and NLB, but 60% at CIL. This reflects the fact that wages and salaries are significantly higher at CIL than the other two GLAs. Benchmarking evidence from the GLAs themselves (and set out in Table 6.7 below) indicates that average cost per head averages around £31,000 for TH and NLB, compared to £53,000 for CIL, 68% higher at current exchange rates. Taking a three year average of the exchange rate reduces this differential to a lower, but still significant, 35%.

Depending on assumptions made on future pay awards for the Civil Service environment within which the GLAs operate, the GLAs will need to reduce headcount or "other operating costs" if they are to reduce running costs in real terms.

Other operating expenses include marine fuel, utilities (electricity and telephone especially), consumables for maintenance work, travel costs, subsistence costs, expenses related to helicopter journeys, consultancy and insurance. We note that none of the GLA Annual Reports or Corporate Plans list initiatives to target any of the "big ticket" items to identify opportunities for cost reduction. Proposals for how the GLAs might do this are discussed below.

Table 6.7 – GLA Operating Cost Breakdown 2007/09 and 2008/09

Item	TH (£ '000s)		NLB (£ '000s)		CIL (£ '000s)	
	07/08	08/09	07/08	08/09	07/08	08/09
Staff Costs	10,416	11,177	7,274	7,424	13,168	12,324
Other Operating Costs	10,816	12,693	6,672	7,523	7,981	8,181
Sub Total	21,232	23,870	13,946	14,947	21,149	20,505
Pension Costs	2,431	2,651	2,491	3,048	3,315	2,603
Amortisation	466	316	95	80	25	26
Depreciation	3,805	3,631	3,578	3,625	2,548	3,258
Total Operating Costs	27,934	30,468	20,110	21,700	27,037	26,392

Source: Annual Reports for TH, NLB, and CIL

Note: "Running costs" are calculated on cash basis, so are slightly different to the "Sub-total" in the table.

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6.4.4 Costs of Senior Management

The GLAs have recently benchmarked the costs of their overall staff and their senior management. The findings are shown in Table 6.8. These figures, expressed uniformly in Sterling, indicate an extremely high cost for CIL staff and especially for senior management, the latter at more than double the equivalent for TH and NLB.

Whilst, as noted, some of this difference can be accounted for through changes in exchange rate over the past 3 years, and wider public sector wage inflation in Ireland over the past decade, this shows that CIL has by far the highest cost per unit output of the three organisations; this flows through to increased burdens in funding Irish AtoN provision from the GLF.

The manner in which senior management pay, terms and conditions are determined also vary. Trinity House and NLB determine the pay of their Executive Chairman/Chief Executive and Executive Directors through a process supported by external pay consultants and research which takes account of job weight and market pay comparisons, supplemented by Performance-Related Pay linked to the achievement of corporate and personal targets.

Table 6.8 – Costs of GLA Senior Management

Benchmark	TH(1)	NLB	CIL(2)
Number of Directorates	3	3	4
Total Cost of Executive Directors & Chief Executive	£355,796	£314,364	£729,054
Total cost of Non Executive Directors/Board members (Excluding Executive Directors)	£40,544	£67,556	NIL
Total cost of Executive and Non-Executive Directors	£396,340	£381,920	£729,054
Chief Executive Salary (3)	£115-120,000	£90-95,000	£170-175,000
Average Cost per Head (4)	£31,554	£31,043	£52,963 (€56,690)
Average Cost per Head (5)	£31,554	£31,043	£42,517

Source: GLA Benchmarking Data

Note 1: Trinity House has Executive Chairman. Therefore no cost for (Non-Executive) Chairman of the Board.
Note 2: CIL's costs converted from Euro to Sterling using the exchange rate prevailing on 13th October 2009 (1:1.07).
Note 3 Figures for TH and NLB include performance related pay. CIL does not operate performance-related pay.
Note 4: Including Directors and SMT, but excluding LH Attendants.
Note 5: Based on three year average of exchange rate (1:1.33).

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The CIL Remuneration Committee bases its determinations on Irish Department of Finance Circulars on pay and conditions for the Irish Civil Service. Until recently, this has resulted in significant pay increases for all staff grades, although equally the direction of pay within the Irish Lights is now downwards in line with wider public sector pay adjustments across Ireland. There appears, on the face of it, to have been less use of external benchmarking data and research, or comparison of CIL pay with that of TH or NLB in terms of burdens on the GLF. The Chief Executive and Executive Directors do not receive Performance-Related Pay. Whilst we are aware of the differing views over the effectiveness of this approach in the public sector, it could be questioned whether and how, all other things being equal, this affects the motivation and accountability of CIL senior management in improving performance and achieving stretching Corporate Plan targets.

For these reasons, we believe that CIL policies and practices for setting senior management pay, terms and conditions should be reviewed in order to benchmark against market trends in Ireland[41], provide a comparison with TH and NLB and set appropriate levels of individual reward and motivation. There is scope to consider the introduction of Performance-Related Pay as part of this review process, but this will need to be carefully thought through and may not be appropriate at this time. In addition, the precise scale and timing of introduction of any PRP arrangements should reflect presumptions in favour of wider pay restraint within CIL in future years.

6.4.5 Projected Cost Control

Table 6.9 sets out projected GLA running costs to 2012/13, based on figures set out in the latest published Corporate Plans. According to these projections, the GLAs are each planning to maintain running costs at the 2008/09 position in constant prices, although each Authority has identified short-term cost savings over and above its Corporate Plan projections.

The conclusion here, based on the published Corporate Plans, is that the GLAs see limited prospect of substantially reducing running costs in real terms over the period. The main exception is CIL which does appear to have taken, and be planning further, substantial steps to reduce its costs below original budget projections, reflecting the poor economic climate across Ireland . Indeed, beyond the figures in Table 6.9, it has since submitted a revised budget showing lower running costs for 2010/11 and the two subsequent years.

[41] CIL have provided evidence of planned reductions in its 2009/10 budget of over €4 million, split €1 million in pay costs, €2.0 million in non-pay items and €1.4 million in deferred capital expenditure. If achieved, this represents over 12% of the original budget sanction for the year.

Table 6.9 – GLA Projected Running Costs 2008/09 – 2012/13

Year	TH (£ '000s)		NLB (£ '000s)		CIL (£ '000s)	
	Current	Constant	Current	Constant	Current	Constant
2008/09	23,570	23,570	15,136	15,136	21,081	21,081
2009/10	23,596	23,738	14,566	14,479	n/a	n/a
2010/11	24,396	23,899	15,481	15,166	20,330	19,916
2011/12	24,883	23,782	16,092	15,380	20,763	19,844
2012/13	24,883	23,782	16,092	15,380	20,763	19,844

Sources: Corporate Plans for TH, NLB, and CIL

Note 1: NLB has stated inflation factors for the period; 08/09= 100, 09/10 = 99.4, 10/11 = 102.08, 11/12 = 104.63, 12/13 = 107.25. TH has quoted slightly different figures, but for consistency we have applied NLB's factors to TH's costs. CIL does not quote an inflation forecast. For illustration we have applied NLB's factors.

Note 2: CIL has subsequently, in November 2009, submitted a revised bid for 2010/11 to 2012/13 in current prices of €19.9 million, € 20.3 million and € 20.5 million.

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It is apparent that some of the "savings" being made to achieve budgets for subsequent years in response to increased pressure from the two Governments to reduce burdens on the GLF may be "one-off" and not sustainable. Some of the areas targeted by CIL for its 2009/10 budget include an embargo on recruitment, reduced overtime, cut travel and subsistence rates and cut back on training and professional services. All three GLAs have deferred capital investment, but there are limits to which this can be continued before key assets begin to deteriorate.

It is likely that future staff cost increases will be moderated to some degree by UK and Irish Government policy and guidance on public sector pay, and this will allow the GLAs to achieve savings in comparison with the projections in the Corporate Plans.

Both TH and NLB follow HM Treasury Pay Guidance for Civil Service and Non-Departmental Public Bodies. In 2009/10, the upper limit for each metric was a Basic Award of 1.5% and Increase for Staff in Post of 4.0%. NLB awarded within, but towards the upper end of, this scale, with a Basic Award of 1.5% and an Increase for Staff in Post of 3.97%[42]. TH made a Basic Award of 1.5%. Updated Guidance for 2010/11 was published in December 2009 and sets a Basic Award of 0-1% and an Increase for Staff in Post of 0-2%. In addition, Chief Executives and senior managers are seen as having an important leadership role in terms of taking pay freezes or minimal increases. We assume that both TH and NLB will seek to comply with such Guidance, build these limits into their staff pay negotiations and therefore continue to moderate their pay awards within the bands specified by the Treasury.

For CIL, it is more difficult at present to make accurate forecasts of staff costs as there are a number of factors in play, including the current state of the Irish economy and public sector debt, CIL and national industrial relations and the political process. The Irish Government has indicated the need for considerable pay restraint across the public sector over coming years, and our assumption is that levels of CIL pay will reflect this.

There has been a pay freeze in CIL since September 2008 and the Chief Executive and senior managers have recently taken a voluntary reduction in salary. We understand that CIL intends to comply with the pay reductions outlined by the Department of Finance Circular which introduces downward adjustments ranging from 5% to 8%. Negotiations have commenced in order to enact these changes in early 2010, with a subsequent pay freeze until 2012. In addition, as noted above, up to 15 staff posts may be reduced through natural wastage, spread across frontline and back office functions, a higher number than indicated in the published Corporate Plan.

[42]This figure came about due to an above inflation increase for shore staff in 2009/2010, approved by Ministers, reflecting the second year of a grading, performance management and equal pay restructuring exercise. Pay for shore staff continues to be benchmarked against the Hay database, and most other staff grades received the Basic Award of 1.5%. The Chief Executive, Directors and Commissioners received an increase of 1%.

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6.5 Future Synergies and Efficiencies

Based on the evidence presented above, we believe there are a number of areas where the GLAs can secure organisational efficiencies and cost reductions, either on a one off or ongoing basis. A number of these have already been introduced, but in overall terms we believe there is scope for greater GLA efficiency and synergy from joint working in the following areas:

- informing management decisions through use of targets;
- sale or the transfer of costs associated with surplus and decommissioned assets;
- frontline operations in terms of fleet management, use of buoy yard capacity and centralisation of other core functions;
- pay restraint in line with wider UK and Irish Government policies for the public sector;
- headcount reductions in support services, and bespoke reviews of specific GLA departments;
- selective increases in local outsourcing and contracting out; and
- strategic decision making across the GLAs and shared activities in range of support functions, for example procurement and Information Technology.

Options in these areas are discussed below and inform our final recommendations at the end of this Chapter. We also discuss the case for and against the introduction of a shared services model for GLA support functions.

6.5.1 Setting Targets for Reduced Running Costs

As noted, the GLAs are budgeting to maintain running costs about level in real terms over the next few years; in other words, costs are budgeted to rise in line with inflation. No efficiency improvements are envisaged in the currently published Corporate Plans which will reduce net expenditure in real terms, although CIL has subsequently agreed a reduced budget. Whilst accepting that the GLAs have taken considerable steps to reduce their running costs over the past decade, we believe there is still insufficient ambition and insufficient leverage from the two Governments to push non-essential costs down to their maximum extent whilst ensuring statutory obligations continue to be met.

Given this position, the only way to obtain such efficiency savings is to impose "top-down" a cost reduction target. This would take the form of a RPI-x % formula, with x being subject to negotiation between the GLAs and DfT, scrutiny and challenge through Non-Executive Directors and Commissioners, and monitoring through the LFC. To allow a degree of flexibility (i) x might be allowed to vary between the GLAs based on historic performance and the perceived scope for cost reductions, and (ii) performance against the target measured over a five year period rather than against each year's outturn.

This is the basis of the approach taken by regulators to service providers which enjoy monopolistic or monopsonistic market positions and would otherwise be able to impose above inflation price rises on customers. It forces service providers to identify and implement cost reduction programmes in order to preserve margins – or in this instance to reduce the burden on the GLF.

Through this approach, Atkins believes that the GLAs could potentially reduce running costs, in real terms, by between 10% and 15% - equivalent to approximately £6 and 9 million - over a five year period, targeting a range of operational and back-office functions. Indeed, Trinity House has shown that it is possible to reduce cost in real terms, through the 7 % reduction achieved between 1999/00 and 2008/09, and the intention is to incentivise more ambitious outcomes for all three GLAs in the future.

6.5.2 Sale or Transfer of Surplus Assets

The GLAs have sold surplus assets in recent years as their operations or support functions have become modernised or relocated. In the main, these assets have been disposed of at market rates with net proceeds going back into the GLF. The most recent example of this is the sale of CIL's former Head Office in Dublin on relocation to the new facility alongside operations in Dun Laoghaire, and we have made comments above in relation to whether an equivalent net benefit from the relocation of NLB's Head Office from Central Edinburgh is achievable.

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A review of each GLA's latest Annual Reports shows that there are some tangible assets which are surplus to current operational requirements. However, TH has retained its Penzance Depot which became surplus in 2004/05 and was valued at £650,000 at the end of 2008/09. The site has been rented to standing tenants and used as a small museum, although the latter has now closed and TH continues heritage activities at the nearby Lizard Lighthouse Visitor Centre and other sites. On the basis that releasing the Depot would have no impact on TH operations, our recommendation is that Penzance is sold, and we understand that TH has already put the property on the market for an asking price of £800,000. The net proceeds of any sale will provide a one-off benefit to the GLF.

TH also owns a number of surplus properties related to its old offices in Harwich, prior to the modernisation of the buoy yard and construction of new operational facilities at this location. The market value of these properties has reduced substantially in the recession and rather than an asset sale at the current time, a medium-term strategy around redevelopment of the area with other partners is regarded by TH as more appropriate.

Finally, we presume that the GLAs will continue to review their surplus and redundant assets (such as lighthouses and adjacent buildings) resulting from implementation of successive AtoN Reviews and other developments and will sell, or transfer the ongoing liabilities of, these assets in a manner likely to maximise the net benefits for the GLF. Further discussion on this point is included in Chapter 8.

6.5.3 Frontline Operations

Detailed discussion and proposals for GLA operations are set out in Chapter 5. However, it has been noted that the GLAs have achieved a range of efficiencies and savings within, and across, their operations. The efficiencies produced by these have resulted in substantial reductions in headcount. Trinity House, for example, reduced its staffing from over 1,500 employees at the start of the lighthouse automation programme to around 430 in 2000 and to under 300 in 2010. Similar orders of magnitude reductions have been achieved by NLB and CIL.

Whilst there is no obvious equivalent "step change" in reducing resources and costs looking ahead, new technologies and operational practices continue to offer scope for savings through reduced need for physical AtoN, more cost effective maintenance requirements and more efficient operational practices. Increased quantification and use of cost-benefit analysis approaches within the AtoN Review process ought to encourage this further.

GLA Fleet

Implementation of the GLA Fleet Review is projected to result in operational benefits and cashable cost reductions, broadly in the range of £160,000 to £190,000 per annum, representing between 21% and 26% of current running costs.

It is notable that the GLAs themselves believe that implementation of a regional based variant of the C-MAR Model, which they describe as Co-ordinated Fleet Management (CFM), would provide a more cost effective option by significantly reducing implementation costs to the extent that they will be more easily funded from within current revenue budgets, and the amalgamation of some operational posts and removal of others by natural wastage. They estimate additional savings from this approach of £33,000 per annum compared to the C-MAR proposals. Whilst we make no detailed comments on either the C-MAR or GLA proposals, other than our remarks in Chapter 5, it is evident that savings can be achieved dependent on the precise operational model taken forward.

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The GLAs have invested in new vessels in recent years, which have realised a range of operational efficiencies and reduced crew requirements, as well as greater suitability for commercial work. The C-MAR Fleet Review recommended that the current number of vessels across the GLAs is appropriate for combined requirements of AtoN deployment and servicing, superintendence and emergency response. In this context, C-MAR recommended that THV Patricia should be replaced with a medium-sized vessel. As noted in Chapter 5, it is not the role of this Review to revisit this recommendation or to comment on whether, and how, the Patricia should be replaced when she reaches the end of her operational life. However, principles of CBA/CEA should be employed in informing any decision and we would comment that any successor vessel, if ordered, is likely to offer operating cost reductions in terms of reduced crew levels, as well as greater flexibility for commercial work.

We also note that TH do not intend to continue to offer a continuation of Patricia Voyages aboard any replacement vessel and whilst this will result in some loss of commercial income, this will be compensated by reduced staff requirements in holiday booking and management, with a potential reduction in headcount and payroll in support services.

Finally, there may be potential savings in vessel time and costs associated with the introduction of a self-certification approach to Local and Third-Party AtoN in place of the current GLA practices of direct inspection every one to three years. Further details of this proposal are set out in Chapter 5, although the precise balance of costs, operational and administrative savings remain to be estimated.

Central Monitoring and Control

As has been explored in Chapter 5, there is potential to combine the three currently separate AtoN Monitoring Centres at Harwich, Edinburgh and Dun Laoghaire into a single GLA facility, reducing staff and operating costs. There would be a requirement for investment in IT and communications systems, and for effective project management to deal with the technical, personnel, governance and logistical issues of any switchover. Nevertheless, evidence from TH has demonstrated that such a change could result in ongoing cost savings in the region of £200,000 per annum[43]. with varying levels of upfront capital investment and potential redundancy costs depending on the assumptions made.

Buoy Yard Capacity

The question of spare buoy yard capacity is discussed in Chapter 5. Whilst it has not been possible to reach a definitive conclusion and recommendation within this Assessment, there are clear implications for cost savings and commercial income generation if all four main buoy yards are retained or whether one is decommissioned. These will require very careful consideration, including facility disposal and redundancy costs, and the need for possible investment in the remaining buoy yards, if action is progressed in this area.

Consideration of buoy yard capacity is not only an operational issue. For CIL in particular, there are cost implications of continuing to source its buoy yard storage, maintenance and repair services from Dun Laoghaire due to the wage and exchange rate differentials between Ireland and the UK and other countries not in the Euro Zone. All things being equal, at current exchange rates, it is a greater burden on the GLF (and potentially on any future direct contribution from the Irish Exchequer) for Irish AtoN to be serviced directly from facilities in the Republic of Ireland, compared to equivalent operations in the UK. This indicates an area for substantial cost savings requiring further discussion within the JSB, and between the UK and Irish Governments.

[43]TH also estimate that the initiative would require upfront investment of up to £1.6 million, including allowance for compulsory redundancies and recruitment. Without more detailed examination, we are unable to confirm or challenge this estimate. However, we do believe it tends towards the upper end of the scale of costs which might be expected, and it is for the GLAs to explore a range of options of relocating monitoring facilities and their financial implications, balancing technical performance with value for money criteria.

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6.5.4 Capital Budgeting

Consultations with the GLAs and review of the latest Corporate Plans indicate that some basic appraisals are carried out of capital projects. However, figures from the Corporate Plans suggest that the GLAs spend around £10 to 11 million a year on capital investment, although with some short-term deferrals in the past two years to reduce costs, and with proposals for capital investment of more than £100 million (2009 constant prices) over the next 10 years. We believe that GLA capital expenditure of this scale should adopt a zero-budget approach with a more rigorous and competitive process such that only essential and added-value items are approved.

Many companies operate capital budgeting systems in which their subsidiaries or divisions compete for funds against criteria which reward innovative and value-added proposals. The starting position is a zero budget, so that each proposal is evaluated on its merits and items are not proposed simply because of funds being available. This proposal is closely linked to the discussion in Chapter 5 around introducing more rigorous methods of appraisal for all GLA investments requiring significant resources over a defined level.

Through their Corporate Plans, and supporting documentation, GLAs could provide a stronger business case for each capital project. Essential expenditures, for example to replace defective or time-expired equipment or which are needed to rectify safety problems, would have the strongest weighting and highest probability of approval. However, we would expect benchmarking to be used to challenge asset replacement costs where it is possible to make meaningful comparisons between GLAs.

Expenditures which aim at realising savings in operational costs will also be rewarded (the "invest to save" principle). Other expenditures (e.g. non-critical equipment without efficiency improvements or potential to support the raising of commercial income) would score less and consequently have a lower probability of approval.

The objective is not necessarily to reduce the overall capital budget for the GLAs, but to ensure that only the most critical and advantageous proposals are taken forward. We would also propose that capital budgets are negotiated collectively across all GLAs, rather than individually for each organisation. This would potentially introduce a degree of competition into the process and reward initiative and innovation. In principle, such an approach could be introduced from 2011/12 onwards.

6.5.5 Headcount Reductions in Support Services

It has been noted that the GLAs employ slightly more than the upper end of the proportion of staff who are employed in support services. The average is around 13% of total GLA employees, representing around 90 FTE. Although it is difficult to be precise, because of inevitable variations in the quality and scope of the services provided, 9-12 % would be considered good practice for organisations of a size and type similar to the GLAs with a possible trajectory towards the lower end of this band if the efficient use of available staff was maximised.

If the GLAs were to set a target for support staff in the mid-range of the above benchmark, this would suggest a reduction of 19 FTEs in total, with more reductions at TH and NLB than CIL[44]. Using TH's benchmarking figures for the average staff cost for 2009/10 of £31,000 per annum for both TH and NLB and £52,000 at CIL, these headcount reductions would potentially realise annual savings of about £700,000. We would expect, however, that these reductions would include a disproportionate number of lower paid staff, in which case the annual savings might in practice be around £500,000. This would be off-set by a one-off redundancy charge, unless some of the reduction can be achieved by means of natural wastage or early retirement.

It is unrealistic to expect such savings to be made overnight; they would need to be phased in over a five year period and considerable work would need to be undertaken on job evaluation and opportunities for job sharing and outsourcing. Moreover, in practice we would expect the GLAs to look at sharing activities such that one would take over or assume the lead for a function. Procurement is an obvious candidate for this which is discussed below. Thus, the headcount reductions may be distributed across the GLAs disproportionately.

[44]Although CIL is committed to higher staff reductions over its current Corporate Planning period than the other two GLAs.

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Even if the GLAs were not to commit to a specific target percentage, they should be required to publish figures on support services headcount and costs as a percentage of the GLA total, having first agreed a common definition of these services and a common methodology for allocating and apportioning overheads to these services. They should then benchmark themselves across their own organisations and comparators in other sectors[45], and set out in their Corporate Plans what steps are being taken to improve these metrics.

This recommendation should be actioned by the GLAs themselves, but under the scrutiny of the JSB and with progress reported to DfT and DoT, either directly or through their Non-Executive Directors.

Cost savings which may be attributable to alternative Head Office accommodation arrangements, especially in relation to NLB's Head Office in Edinburgh, are discussed above and are assessed as being limited in the short-term, but with more potential as the economy and property market recovers from recession.

6.5.6 Reviewing the Value for Money of GLA Support Services

We do not, as part of the overall recommendation of reducing headcount in support services, propose to identify specific departments, positions or staff where rationalisation can be applied. This is an area of detailed work, based on a full understanding of staff roles and responsibilities, the extent of multi-tasking across different functions, informal activities and relationships between in-house staff and external suppliers and service providers. This task is rightly left to the GLAs themselves to carry out, based on their local circumstances, HR policies and practices, consultation with staff themselves and a forensic examination of their business needs.

We do believe, however, on the basis of our work during this Assessment, that there are a number of areas where current arrangements should be challenged to ensure that existing teams are appropriately positioned and resourced, staff are fully contributing to corporate objectives, key tasks are carried out in the most efficient way, there is an appropriate balance of in-house provision and outsourcing, and that resources given to particular roles are proportionate to the overall benefits secured on behalf of Light Dues payers.

6.5.7 CIL Information and Communications Technology

Whilst direct comparisons cannot be made on overall departmental size alone, the size of the ICT function within CIL is equivalent to that of NLB and smaller than TH. It is, as noted, different from the other two GLAs in having dedicated representation on the CIL Board. On the face of it, this increases the management overheads of the Board and cost of the ICT Department overall. However, discussions with CIL have demonstrated its strong belief in the potential of ICT to transform the operations and business processes of the GLAs, enabling closer benchmarking of key activities and the identification of efficiencies and cost savings in terms of staff time and ultimately headcount. The potential for this to occur will be maximised only if there is active cooperation in this field with TH and NLB, overall and targeted through IGC9.

We therefore believe that whilst CIL could reduce costs marginally by streamlining the number of Executives on its Board, a more important challenge may be to ensure that ICT is given equal prominence and recognition across all three GLAs through the Joint Strategic Board and at Chief Executive level. This should then drive closer collaboration via IGC9, in areas such as common specification and procurement of hardware and software, selective integration of key GLA systems and processes and common standards. This exercise could be led or strongly supported by CIL, although further discussions are needed with TH and NLB on this proposal so that the optimum management and reporting structure can be determined and mandated through the JSB.

[45]TH already carries out benchmarking in support functions through CIPFA.

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6.5.8 TH Marketing and Public Relations

We believe that TH should examine whether the resourcing and organisation of its dedicated Marketing & Public Relations Department could be made more efficient, either under current arrangements or under the opportunities which will arise under the Draft Marine Navigation Bill.

This Department currently employs 4 FTE staff[46], with no equivalent team in NLB[47] or CIL. TH generated £1.7 million in 2008/09, compared to about £1.0 million at both NLB and CIL. It is therefore difficult to identify, on the basis of commercial income alone, the added-value provided by having a dedicated 4 FTE team of this nature. In its defence, these staff do carry out a number of other tasks, whilst some activities such as Patricia Voyages are more labour intensive than roles undertaken by the other two GLAs. TH believes that with the new powers which will be granted under the Draft Marine Navigation Bill, commercial income can be increased to over £4 million per annum provided further marketing and business development activities can be carried out. If such revenue targets are achieved, this may provide stronger justification for a team of the current size in due course.

We would nonetheless recommend that TH compares its resourcing of marketing and public relations with NLB and CIL[48], reviews the effectiveness of its Department, including the necessity of retaining this as a separate function rather than combining it with procurement, and considers whether some functions could be discontinued, outsourced or carried out jointly with the other GLAs[49]. The latter may apply, for example, to staff-intensive and customer focused activities such as Lighthouse Holiday Bookings. In addition this may apply to Patricia Voyages where costs of marketing may be relatively high compared to income received for the GLF[50].

For the GLAs collectively, we would recommend that they calculate the cost of generating commercial income[51] and develop and publish metrics on these costs. A further option to explore would be the allocation of responsibility for some common business development and marketing activity to one GLA on behalf of all three. At the very least, we believe there is scope for all three GLAs to promote their tri-GLA arrangements in a more integrated way whilst preserving the use of local brands in their respective territories. These issues should be discussed and taken forward by IGC4 (Operations) which covers marketing and business development as part of its remit.

[46]The full team has 7 members of which 3 are part time.

[47]By contrast, within NLB 1 FTE is devoted to these roles in terms of staff time.

[48]NLB and CIL would need to estimate the percentage of time devoted to marketing and public relations by responsible individuals.

[49]The rental of holiday cottages is already outsourced.

[50]Patricia is due to be decommissioned in due course. Irrespective of whether she is replaced (any successor vessel will not include accommodation for paying guests), this will free up staff time currently deployed on bookings and guest management. This allows for a reduction in headcount and payroll unless staff are redeployed onto other duties.

[51]Staff costs plus other costs, and assuming agreement on a common methodology for allocation and apportioning overheads.

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6.5.9 Research and Radio Navigation

In Chapter 5, we noted that the GLAs are promoting themselves as World Leaders in the development of AtoN technology, especially in emerging approaches for e-navigation. They believe, both individually and through R&RNAV, that this activity has the potential to deliver real benefits for future AtoN provision and commands considerable international prestige. We do not question this, or the need for forward-looking research, per se, but considerable resources are being invested from the GLF in current research activities, some of which is questioned by Light Dues payers. Our concern is that a robust business case has not been clearly made for some research activities, the output of which may prove ultimately unmarketable. For this reason, we have suggested that all GLA technology-based spending, including research and development, which exceeds expenditure limits of £500,000 over a three year period should be paused whilst a full quantitative appraisal is undertaken, not only of the overall value of the activities, but the appropriateness of supporting them from the GLF.

This proposal has particular implications for the future activity of Research and Radio Navigation (R&RNAV) which in its current form comprises 14 staff mainly based in Harwich. Effectively a "shared service" for all three GLAs, accountable to the Chief Executives, it provides a "Centre of Excellence" in the fields of lights and radionavigation with key functions including policy and strategy development, operational and engineering support, technology development and application and research. These functions are funded to up to £1.8 million per annum from the GLF with a small amount of external income coming in to reduce this cost[52].

We have no doubt about the quality of the work that R&RNAV does, or the basic premise that the development of new technology is important to ensure effective and efficient AtoN in the future. The current organisation's budget is broadly in line with research and development budgets in other technology-related companies and the GLAs regard the role as important to maintain their reputation as World leaders in such areas as e-navigation. It is also clear that some of the work which R&RNAV carry out is less related to future AtoN needs, but more to engineering challenges experienced by each GLA on an operational basis . R&RNAV is also important to developing future AtoN strategy which will guide the direction of travel for the GLAs technically and operationally in coming years.

Without R&RNAV, or an equivalent function, we are therefore clear that there would be a reduction in the strategic direction and core engineering and operational functions of the GLAs. Moreover, there are economies of scale in providing these functions centrally on a tri-GLA basis[53]. Otherwise, each GLA would have to do them separately, probably with more staff than the responsible specialists currently provided by R&RNAV.

However, a number of ship owners and other stakeholders have questioned the efficiency and market focus – rather than quality - of R&RNAV in respect of its technology, system development and research roles. There is a belief that more should be done to provide a clearer business case for the activities undertaken, to secure additional funding sources aside from the GLF and, once the Draft Marine Navigation Bill is enacted, to exploit commercial opportunities for consultancy to the public and private sectors both in the British Isles and overseas.

[52]Forward projections indicate costs of £6.5 million between 2008/09 and 2010/11, of which £420,000 (6.4%) is supported by external income.

[53]Around 10% of R&RNAV staff time is spent on strategy and technology watch, and around 27% on operational and engineering support. If R&RNAV did not exist, therefore, around two-fifths of its workload would still need to be carried out by the GLAs in some capacity.

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Our own discussions with R&RNAV provide some support for this view. In particular, we are concerned that the strategic objectives set by the service appear to be project and technology-led with no explicit departmental goals to ensure maximum value from the GLF, seek additional sources of income or consider the future potential for commercial activity. R&RNAV project mandates do not obviously quantify, at the inception stage, the costs and benefits of key activities and no evidence has been presented to us which quantifies the benefits of key ongoing work areas such as eLoran.

We therefore propose that options be developed for re-organising R&RNAV, either as an "internal consultancy" within the tri-GLA structure or potentially as an arms-length company, from which the GLAs would collectively and individually agree the purchase of a core workload, vital for their strategy, engineering and operational requirements. Beyond this, R&RNAV would have the freedom to seek funding from other sources to progress its technology and systems development or to sell its services to external clients on a commercial basis. The latter will be enabled under the provisions of the Draft Marine Navigation Bill.

The intention of the proposals is to ensure that the GLAs continue to benefit from much of the work that R&RNAV does, but that medium-term technology development and research is supported by a broader range of funds outside the GLF and that the work that is undertaken can be exploited commercially. We believe the effect of these changes may not be to necessarily reduce the overall level of resources committed to R&RNAV, but to achieve a balance in these resources between the GLF, other funding support and commercial income.

A change of this kind will require a shift in culture, mindset and management of R&RNAV and is unlikely to be achieved overnight. It will also require short-term costs in terms of staff training, marketing and business development, and staff would need systems and processes for allocating time for income-generating work without compromising their core work for the GLAs. The GLAs should therefore undertake, through the JSB, a review to develop and assess options for such a change; once this is complete, key actions (and sanction for transition expenditure) for implementation should be agreed with DfT and DoT.

6.5.10 GLA Pay Restraint

We note that the GLAs have recorded different rates of pay award, with recent historic increases in Ireland running ahead of those in the UK, further exacerbated by the change in Sterling-Euro exchange rate. Any above inflation pay awards render it more difficult to realise a real term reduction in running costs given that staffing accounts for around 50% of these costs for TH and NLB, and 60% for CIL.

The commercial shipping industry has by contrast seen private sector workers experiencing redundancies and pay freezes/reductions in the current recession, and a widening gap in pension provision. The position strengthens the argument for outsourcing the provision of some GLA functions to the private sector on the basis that private sector pay and terms and conditions are more competitive and flexible, especially if sourced from the Sterling Zone.

On this basis, we believe that the GLAs should seek to hold down pay awards in future years where such a policy is in line with guidance on public sector pay issued by the UK and Irish Governments. For TH and NLB, this implies a Basic Award of no more than 1% in 2010-2011 and for CIL, real-term pay reductions as set out above.

6.5.11 Local Outsourcing and Contracting Out

The GLAs already undertake selective outsourcing of a range of activities where they consider it appropriate and cost effective to do so, although the scale of this appears to be somewhat lower within CIL. Local lighthouse building maintenance and painting, cleaning services, legal advice, software development, and occupational health are examples of services which are commonly bought in from external providers. All three GLAs have external contracts for helicopter services. On IT, TH now outsources around 15% of its requirements in such areas as training, software development, Light Dues collection and project management.

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There may be potential for the GLAs to pursue further "granular" outsourcing of services over and above the levels currently undertaken, and indeed to set individual or joint targets through the Corporate Planning process, subject to outsourced provision being demonstrably more cost effective or better quality than in-house arrangements. For example, payment of salaries is currently undertaken in-house by all three organisations, but is a frequently outsourced process in many medium sized organisations. Similarly, local professional services organisations could be used to provide specialist advice (in addition to current provisions) particularly with regard to HR, legal, marketing and public relations.

It has been noted that CIL employs 6 Lighthouse Technicians for progressing capital projects and 24 Civil Coast Tradesmen for civil engineering, painting operations and capital works. These are functions which are outsourced in both TH and NLB and we believe that CIL should consider whether a similar approach would produce cost benefits for the GLF, whilst continuing to provide for operational requirements. These benefits could be especially significant if CIL chose to outsource some of this support from private sector suppliers in the UK, taking advantage of the cheaper costs of doing business in Sterling. It may be necessary to retain some employees for the relevant functions in-house, for example for contract supervision, site knowledge and emergency response, but nevertheless, we believe that net savings are achievable.

An investigation within and across all three GLAs should be conducted to get a detailed picture of current practice and the potential for savings and other benefits from increasing levels of outsourcing. Consideration of selective outsourcing, or in the case of areas already outsourced, comparisons with the costs of bringing provision back in-house, should be undertaken by all the GLAs as part of the process of continually reviewing the value for money of their different functions.

To date, we note that the GLAs have largely confined outsourcing to their non-core operations and support functions. In the short-term, this is the right focus, especially as practices such as central or co-ordinated fleet management establish themselves and, through the JSB, the GLAs get a clearer picture of their combined performance in key areas of staffing and cost ratios. In the medium-term, consideration could be given to whether some elements of core operations, such as buoy yard and vessel services, should be tested against a range of internal and external suppliers; this is addressed further in the final stages of this Report.

Where there is potential to outsource, or to retender an outsourced contract, the GLAs should consider the additional benefits which might be derived from doing so on a joint basis. This will be a possibility with helicopter services from 2015, for example, and there may be opportunities with some areas of marketing and business development in respect of commercial income.

In considering outsourcing any activity, it is also important that the GLAs retain an internal "intelligent buyer" capability in order to procure, manage and monitor outsourced work effectively.

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6.5.12 Joint Working - The Case for GLA Shared Services

The Terms of Reference for this Assessment require us to consider whether the introduction of a "shared services" model to the support functions of the GLAs would offer substantial efficiencies and cost savings in their operation.

Shared services in this context refers to the provision of a service by one part of an organisation or group where that service had previously been found in more than one part of the organisation or group. Thus the funding and resourcing of the service is shared and the lead department effectively becomes an internal service provider, leaving other departments to focus their resources on their core businesses. The key is the idea of "sharing" within an organisation or group, in this case the three GLAs.

The UK Government has done much in recent years to promote and support shared services initiatives, primarily in central government departments. Similarly, progress has been made in devolved government, local government and healthcare, with several organisations having implemented, or planning to implement, some form of corporate shared services model. For example, the DfT has approved, and is working to fully implement, an in-house centralised Shared Service Centre in Swansea to provide the Department and its executive agencies with support services for human resources, payroll and finance. Whilst the initiative has experienced a number of well-publicised difficulties, the intention is that the SSC will streamline processes, better meet the Department's business needs, reduce on-going costs and help the agencies and the central department to work more closely together[54].

Adopting a shared services model is most effective (and efficient) when there is a high volume of transactional processes to be done. This includes large volumes of invoices or payments sent (100,000+ per annum), numbers of salary/expenses payments, or a large number of employees requiring support across a number of disparate locations. For example a good performing Shared Services Facility (SSF) would process over 100,000 invoices per FTE per annum. Shared service functions work equally well in large, small and medium sized organisations.

Following investigation of the type of processes conducted within the back office functions of all three GLAs, it is apparent that there are no high volume transactional processes, and in fact the activities are spread over a number of individuals.

The development, set up and implementation costs of establishing a SSF involves the identification and fit out of a suitable single location. This could be an existing site – usually the lowest cost location, or a new brown or green field site in a low cost location. Either option would involve people moving location, but depending on which location moves could be minimised.

In the case of the GLAs, costs for setting up a SSF would be significant depending on type of site and location and, in our experience, would be far greater than any savings that could be generated, even over a 10 year period[55]. Savings would typically be generated from establishing a SSF in the following ways:

- **Staff reduction:** In the GLAs many staff already carry out multi-disciplinary roles across different parts of the organisation. This means that it would be difficult to identify individual people to remove from each organisation and savings would therefore be minimal. In addition, each GLA would need to retain a management function to provide the business overview, strategy and objectives;
- **Accommodation:** There are potentially savings due to reduction in staff numbers or relocating to a low cost base. Given the numbers involved it would be difficult in all cases for the space saved in current accommodation to be re-let to other organisations to generate any income;

[54]Shared Services in the Department for Transport and its Agencies. National Audit Office. May 2008.

[55]Based on discussions with Trinity House and our own experience, the establishment of a GLA Shared Services Facility might cost, indicatively, between £11 and 22 million to set up, depending on the detailed specification and assumptions made, and generate efficiency savings in terms of staff reductions and accommodation savings of only £400,000 to £600,000 per annum. Whilst detailed analysis would be necessary to forecast the costs and savings of any proposals with greater certainty and accuracy, we believe that any payback period would be likely to exceed at least ten years before any net benefit was realised for the GLF.

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- **Relocation:** Wherever a new location might be situated, it is unlikely that many (if any) staff will relocate and therefore in addition to the set up costs there would be the associated redundancy and recruitment costs as well as the loss of internal knowledge; and
- **More efficient processes:** The successful implementation of shared services involves re-engineering support processes and for all customers of the SSF to operate to common or consistent policies, processes and procedures. This can be achieved without adopting a full shared services model.

Based on our experience in the development and implementation of SSF within the private sector, for example Michelin and Sealed Air and the public sector, including the Foreign and Commonwealth Office (FCO) and the DfT, we are confident that the cost of setting up a GLA Shared Service Centre would not deliver any net savings within an initial 10 years and, although further detailed costing would be needed, would be unlikely to ever deliver significant savings capable of supporting a strong business case.

Whilst implementation costs would be cheaper through moving to an existing third party Shared Services Facility operated in the public or private sectors, rather than keeping all activities within the GLAs, we again believe that it is highly unlikely that there would be significant savings to be made, due to the small volumes of transactional processes operated within the GLAs.

There are a number of established SSFs in the private sector. They are, however, reluctant to take on public sector clients as the policies, processes and procedures are significantly different given the different organisational drivers. In the case of the GLAs the low activity volumes mean that the GLAs would not be a commercially attractive proposition for the private sector market. As a result the cost per transaction would be high and would result in minimal, if any, savings given the cost of redundancy of existing staff who would be unlikely to accept TUPE.

We have considered whether the incorporation into an existing public sector SSF such as the DfT Shared Service Centre in Swansea would merit further consideration. The DfT SSC is a relatively new operation that, as noted, is still migrating the DfT and a number of its Agencies into its operations. It has experienced start up challenges, some of which are still ongoing. Whilst the DfT could easily accommodate the volume of transactions presented by the GLAs, the SSC managers would be likely to ask the GLAs to move to their policies, processes and to be able to access their IT system (SAP). The costs associated with this would be significant. In addition, given the low volumes, the cost per transaction may be more than it currently is within the current organisations. In order to access the system the GLAs would have to have Government Secure Internet (GSI) accreditation which is a long and costly process[56]. Further investigation would need to be carried out to determine the full costs and into whether CIL, as a non-UK public sector organisation, would be able to get GSI accreditation.

The option to join either the DfT, or an equivalent, facility, could be reconsidered when the DfT SSC has completed the migration of its own departments and its executive agencies to Swansea and UK and Irish public sector shared services are more mature with a greater track record of experience than currently exists. This is likely to be some years away, however, and for the reasons set out above, we believe that a strong business case is likely to prove elusive.

In the meantime, progress could be made in shared common activities across the 3 GLAs without moving to a shared service model.

[56]In practice, time and cost of GSI accreditation is dependent on the level of IT security within each GLA. The accreditation process would have to be sponsored by a Government Department, most likely DfT in this instance, although as noted, further investigation is needed on whether CIL could apply and receive GSI clearance.

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6.5.13 Shared Activities

One of the potential efficiencies in shared services is ensuring common, shared processes and activities. The savings associated with these shared activities can be realised outside a formal shared service function.

Some organisations opt to introduce shared/common activities rather than a full shared service model as a result of their organisational requirements or in preparation for adopting a shared service model.

For example, the FCO investigated the possibility of international shared services to support all its home offices and missions overseas. Following detailed financial modelling and stakeholder engagement it was agreed, initially, to introduce some common activities and to generate efficiency savings before reconsidering the full shared service model. In addition the FCO carried out an extensive review of their procurement activities to identify areas where central procurement would generate significant and ongoing savings. It then concentrated on deriving efficiency savings on a small number of commodity procurement contracts.

Areas for the greatest potential savings for the GLAs include procurement and common IT platforms and management. Without introducing common finance or HR systems and processes, there is likely to be less potential for significant savings in these areas.

A key component of shared activities is the clear definition of roles and responsibilities. This will support any longer term options to move into shared services or a greater reliance on outsourcing as it will be easier to identify individuals where savings could be made through redundancy, retirement or TUPE.

6.5.14 Common Procurement

Current GLA procurement activities are valued at a total of around £40 million, covering a wide range of standard and specialised assets, products and services. Examples include buoy moorings, paint, marine fuel, civil engineering consultancy and helicopter services. Trinity House undertakes most procurement expenditure at around £26 million, 65% of the total.

Each GLA retains a centralised procurement function, although the size and capability of each team varies. The profile of GLA procurement has been raised since 2008 when the Chief Executives approved the establishment of a new Inter-GLA Committee for this area, IGC 10, which exchanges information on best practice and identifies opportunities for collaborative procurement. At present around half the value of GLA procurement - £20 million - is channelled through contracts on behalf of all GLAs, as summarised in Table 6.10. Allowing for variable contract periods, common procurement equates to around £3.5 million per annum. Some work has already been done by the GLAs to investigate the possibilities of further centralising procurement activities. This builds on, and takes further, recent work carried out through ICG10 and, we believe, offers substantial scope for cost savings as well as benefits such as stronger contract management and achievement of contractual goals and targets.

Further discussions are needed between the GLAs, via the JSB, on the most appropriate hub for co-ordinated procurement. We believe that the most significant savings from this approach would be found by being able to negotiate better contractual terms with suppliers, economies of scale and by the ability to manage those contracts more effectively from a single source. Savings might also come from reductions in the number of suppliers overall.

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Table 6.10 – Current GLA Common Procurement

Lead GLA	Contract	Value (£000s)	Period (Years)
TH	DGPS	4,000	4
	Insurance	1,000	3
	Moorings	3,000	3
	e-Loran	6,000	15
	Light Dues ALDIS	400	5
	Light Dues Certificates	350	10
	Buoy Paint Systems	150	5
CIL	AIS HArdware	100	3
NLB	AIS Software	1,000	3
	Actuarial Services	100	4
Total		**20,000**	

Source: Trinity House

Experience elsewhere suggests that these effects could result in maximum contract cost savings of 10%, some of which would be sustained year on year, but where others would need to re-negotiated each time a contract was reviewed. The scale and specialist nature of some GLA asset and service requirements[57] suggest that in practice they would not achieve such maximum savings in many cases, but nevertheless, the impact on costs and therefore savings on the GLF, could still be significant.

For example, IGC10 could set and seek to achieve a tri-GLA target of increasing common procurement from 50% to 75% of total procurement activity[58]. Assuming that on average relatively modest savings of 3% could be negotiated from this increase in joint activity, this would equate to a saving of £300,000 of the totality of all current contracts[59], variable on the basis of contract termination and renewal timescales[60], and perhaps equivalent to around £50-60,000 per annum. Clearly, greater percentages and volumes of common procurement and higher proportionate contract savings would produce greater cost benefits overall, and the setting of a "stretch" target could be considered by the JSB in this context.

[57]The cost savings specifically from this proposal also need to be considered within the context that some elements of GLA procurement, such as eLoran, may under other recommendations in this Assessment, be reviewed and discontinued, re-scoped or scaled up as a result.

[58]It is assumed that there will remain a proportion of GLA contracts where the small size and need for flexibility in products and services will continue to require local sourcing and management.

[59]If renewed on a like-for-like basis.

[60]By way comparison, Trinity House are projecting to achieve value-for-money savings of £640,000 for 2009-2010.

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The GLAs have started to look at the scope for achieving such savings potential for procurement and further work should be done in this area. We suggest that an appropriate focus should be on capital expenditure for the replacement or modernisation of assets, development of a core GLA common materials and product list and service contracts and consultancy.

Phasing of any changes to procurement practices will impact on the speed that cost savings can be achieved in practice, and the timing of procurement would need to be better co-ordinated over a number of years to align current contracts. Further investigation of extending the scope of some GLA contracts together with buy-out clauses and extensions will need to be carried out to determine the alignment period.

Assuming a lead role for one GLA on coordinated procurement and the achievement of a tri-GLA Value for Money target, it may be possible to achieve additional reductions and cost savings amongst procurement staff within the other two. Assuming reductions of 4 FTE posts in these two GLAs would realise savings in excess of £100,000 per annum, although these would be offset by increased costs in the case of compulsory redundancies and on additional training, professional accreditation and support systems within the lead GLA. There will also be a continued need for small local teams to provide input into the overall GLA procurement strategy and to manage local call offs and specific local activities.

6.5.15 Information Technology

A significant number of IT platforms, software and hardware are in use across the three GLAs. We understand that they are collaborating in a range of IT areas through IGC 9. This includes a Memorandum of Understanding on software development and sharing and the standardisation of certain platforms for network and desktop applications, e-mail architecture and data storage. The GLA Fleet also has a common satellite broadband infrastructure, allowing improved third party support, business process efficiencies and lower costs.

Whilst it may be possible in the longer term to consolidate and integrate GLA IT systems to a much greater extent than at present, the cost of doing so as a short-term measure at this time would be likely to outweigh any benefits. We also see little present case for the wholesale outsourcing of IT across the GLAs to one or more third party service providers, compared to more selective "granular" outsourcing of specific functions determined on a case by case basis.

Any potential for substantial savings on IT is likely to come from the development of 'cloud computing' which is developing rapidly across the public and in the private sector outsourcing market[61]. The concept is currently being developed by the Cabinet Office, as part of the Digital Britain initiative, for use across UK Government Departments and Agencies. However, there are a wide range of technical, institutional and security issues to be resolved, as well as work to develop a clear estimate of costs and benefits; it is likely that it will be some time before the approach is sufficiently well understood and mature for consideration by the GLAs.

In the meantime, inter-GLA procurement for some IT items will lead to standardisation and better prospects for obtaining bulk discounts. This applies equally to capital items as well as some consumables and services. In principle, procurement of a selected group of items could be led by one of the GLAs, as set out above, so providing benefits both in the form of improved value for money, but also a reduction in the overhead cost. Given our comments above in relation to CIL's Board structure, there may also be merit in the CIL Executive Head of ICT having a major technical input in this area.

[61] Cloud computing is essentially the delivery of software, information and storage over the Internet, with flexibility and scale of service provision to user demand. It potentially offers very significant savings on current IT practice, including for small organisations such as the GLAs. However, application in the public sector is still in its infancy.

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6.5.16 Human Resources and Finance

These areas are likely to offer less scope for shared activities and release of efficiency and cost savings compared to the areas already considered above. Nevertheless, the principle of shared activities should still be taken forward wherever it is sensible to do so, and local and regional variations in policy and practice can be overcome.

We understand, for example, that IGC 2 is working to standardise accounting practice, most recently in respect of International Financial Reporting Standards, across all three GLAs. This will improve comparability of financial information and assist the DfT and National Audit Office in the production and audit of the consolidated GLF accounts.

The GLA vessels employ common operating procedures, potentially enabling personnel to be interchangeable between different ships. To this end, tri-GLA management development courses are arranged for marine officers.

We believe such practices should be continued and extended with the work of the relevant IGCs stretched to achieve specific outcome targets set by the JSB.

6.6 Commercial Income

Under existing UK and Irish legislation[62], the GLAs have powers to enter into commercial contracts with third parties in the public and private sectors with the intention of raising additional income for the GLF from the exploitation of spare capacity within their operations. Since 1997, they have developed their commercial offer and built up a portfolio of services and clients, including:

- local port and harbour authorities;
- utility companies;
- marine and offshore renewable energy companies;
- offshore oil and gas operations;
- agents for maintenance and navigational marking of various offshore installations, including oil and gas facilities and renewable energy sites such as tidal power and wind turbines; and
- public sector marine protection, research and technology development bodies.

The services offered by the GLAs include "traditional" areas and emerging sectors such as:

- hydrographic surveying, sampling and data gathering;
- rental of buoys, berths and maintenance facilities;
- vessel hire, charters and services, for example for survey work, deployment or maintenance of third party buoys, the laying of concrete mattresses, deployment or recovery of scientific equipment or guard duties for cable or pipe laying operations[63];
- sea trials of electronic and speciality equipment;
- rental and income from the property portfolio, for example holiday cottages and visitor centres, as well as licensing of GLA sites for external equipment (such as mobile phone companies and meteorological agencies); and
- sale of calendars and other publicity material.

[62]The 1997 Merchant Shipping and Maritime Security Act and the 1997 Merchant Shipping (Commissioners of Irish Lights) act.

[63]Trinity House also runs Patricia Voyages which allows paying passengers onto THV Patricia as a holiday experience. This service has been discontinued from newer GLA vessels and will not feature on any successor vessel if and when Patricia is replaced.

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The conduct of such activity is secondary to the GLAs' statutory duties to ensure the safety of shipping and mariners and must relate solely to the productive use of spare capacity in assets used to meet these duties. All three organisations are clear that there can be no compromise to their ability to ensure mariner safety, including the rapid redeployment of GLA assets and staff engaged on commercial work to tackle navigational emergencies if the need arises. This provides constraints on the ability of the GLAs to offer their services compared to private sector competitors and they remain focused principally on a relatively niche market around AtoN provision rather than seeking to provide a broad range of marine services.

The GLAs are required by DfT to include details of commercial income in their Annual Reports and as projections within their Corporate Plans, which are therefore subject to scrutiny and challenge, and inclusion in the GLF Accounts. These sources show that gross income for all three GLAs has risen considerably since the new powers were created in the 1990s, growing from a little over £1 million in 2004/05 to an estimated £3.6 million in 2009/10. These figures have shown a year-on-year increase with the exception of the current financial year where prevailing economic conditions are making the securing or renewal of commercial work more difficult. However, the presence of long-term contracts, quality of work and high levels of client satisfaction means that many income streams are holding up, especially for TH and CIL.

Tables 6.11 and 6.12 set out trends in commercial income by income stream and by GLA between 2005/06 and 2008/09. Figures for 2009/10 in Table 11 are provisional from each GLA and not yet reported in the GLF Accounts.

Table 6.11 – GLA Commercial Income by Income Stream 2005/06 to 2008/09 (£000s)

Income Source	2005/06	2006/07	2007/08	2008/09	% Increase 2006 - 2009
Property	240	349	457	632	+163%
Buoys Rental / Mainten -ance	307	421	457	454	+48%
Other Comm -ercial Income	46	495	137	187	+306%
Tenders	466	327	1,446	1,764	+278%
R&R NAV (1)	133	141	21	27	-79%
Sundry Receipts	512	701	1,201	750	+46%
Total	1,704	2,434	3,719	3,814	+123%

Sources: GLF Annual Report 2008-2009

Note 1: Tri-GLA Service securing income on behalf of all three GLAs.

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Table 6.12 – Trends in Commercial Income by GLA 2005/06 to 2009/10 (£000s)

GLA	2005/06	2006/07	2007/08	2008/09	Average 2004-09	% Increase 2005-09	2009/2010 (Forecast) (3)
TH	648	1,015	1,521	1,677	1,215	+158%	1,577
NLB	196	625	684	1,012	629	+416%	323
CIL (1)	1,036	682	1,306	960	996	-7.3%	1,097
Total (2)	1,914	2,322	3,511	3,649	2,849	+49%	2,997

Sources: GLAs

Note 1: Euro-Sterling Exchange Rate assumed at 1.07.

Note (2): Excludes R&RNAV

Note (3): Provisional figures. TH total includes whole value of commercial income for Met Office Data buoys Contract which is also serviced by NLB and CIL. This reduces reporting of NLB income by an estimated £237,000.

The data shows Trinity House is the largest generator of commercial income, although all three GLAs have reached typical earnings of around £1 million per annum. NLB has tended to bring in the lowest amount of commercial income, although has seen the highest relative increase, whilst CIL has exhibited a more stable pattern of earnings year on year, reflecting a number of long-term contracts or work for other public sector bodies.

In terms of income stream, "traditional" GLA services in such areas as property rental and buoy rental and maintenance have seen solid growth. However, across all the GLAs the biggest growth has been in ship charter and associated services such as AtoN deployment and recovery, survey work and well marking. This suggests that investment in new GLA vessels has not only lowered crew and other operating costs, but provided new aspects and standards of service which are in demand by commercial customers.

Income brought in by R&RNAV is limited compared to other sources and whilst over £1.1 million has been secured since 2005/06, current forecasts are for less than 10% of the service's activities to be supported from external sources. This may be an area of further investigation in future, given our comments elsewhere in this Chapter.

Looking ahead, the GLAs have long argued that their potential to secure additional commercial opportunities has been limited by restrictions within existing legislation such as inability to "buy in" additional resources to undertake contracts, or use their staff and skills flexibly on a consultancy basis. This has been particularly so in the arena of port and harbour authorities where clients often require packages of services which include more than just the maintenance of their local AtoN.

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This anomaly has been recognised by the two Governments and clauses have been included in the Marine Navigation Bill. It is the stated intent of the main UK political parties to introduce the Bill in the first session of the next Parliament, and a similar commitment exists in the Republic of Ireland. These clauses will enable the GLAs to:

- continue to enter into commercial contracts for the purpose of exploiting spare capacity in their assets, subject to such work not prejudicing their statutory duties;
- purchase assets and services in connection with third party contracts, such as smaller boats for buoy work and pilotage and tug capability for port and harbour work;
- provide consultancy and other services, which is largely precluded under current legislation, as people are considered a resource not an asset; and
- implicitly to open up new markets for the GLAs albeit they would remain securely based in marine and AtoN related work.

It is not the role of this Assessment to revisit the specific provisions on GLA commercial income in the Draft Marine Navigation Bill. We are aware of a number of concerns expressed by ship owners and others that the GLAs should not be given such powers, not least claims of unfair competition and distortion of the market against fully commercial service providers. Nevertheless, the Draft Bill has cross-party support in the UK and Ireland and our assumption is that it will be enacted in due course.

Assuming that legislation clears the UK and Irish Parliaments during 2010-11, the GLAs should be in a position to benefit from these new powers from 2011/12. Coupled with a recovery in the economic cycle, they will then be able to expand commercial income over recent historic levels. In particular, the increasing development of the offshore renewable energy markets, together with the anticipated decommissioning of oil and gas platforms in the North Sea, means that there will be further opportunities to be exploited in the waters around Great Britain and in the Irish Sea.

Commercial opportunities should also be assisted by the recommendations of the GLA Fleet Review and the GLA's response in terms of central or co-ordinated fleet management. This will improve the GLA's ability to collectively manage their routine statutory duties in terms of AtoN provision and maintenance, emergency response and commercial work.

In the context of this Assessment, all three GLAs were able to provide future estimates of commercial income, based on identified market opportunities and assuming the new more flexible powers contained in the Draft Marine Navigation Bill. In total, they forecast a potential future annual income from commercial income of around £7 million per annum, almost doubling recent performance. Of the individual GLAs, TH is the most ambitious, forecasting around £4.1 million, compared to more modest increases from CIL (£1.5 million) and NLB (£1.4 million). These figures exclude income property rental, sales of publicity material and visitor centres which is expected to remain relatively stable and could potentially bring in a future £500,000 to £600,000 per annum. Nor has any estimate been made for consultancy contracts, either through the GLA core operations or via R&RNAV. As already indicated, the latter could develop external consultancy as a new income stream, with direct benefits to the GLF depending on how profits from such activities are allocated.

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We accept that new markets will take some time to build up, and that GLA commercial activities – especially vessel hire and associated work – will continue to be constrained by the focus on statutory work; however, in principle, such income is possible by around 2015.

Whilst we have not assessed in detail the basis and the accuracy of the projections above in principle, we do not regard them as unreasonable as a starting point for supporting future projections for the GLF and the development of appropriate marketing and business development plans and activities by the GLAs. They are, however, based on separate estimates by each individual GLA and therefore vary in terms of underlying assumptions about the market, key areas of opportunity and ability to compete with private sector providers on quality and price[64].

On this basis, we recommend that the GLAs coordinate preparation of future income projections, based on an agreed common set of assumptions, such as market segmentation, GLA competitive advantage and positioning. Projections should distinguish between opportunities which could be met on a shared basis and those which are more "local" within each GLA territory. The costs of marketing, business development and delivering services to commercial clients should also be set out, including the procurement of additional assets or staff over and above existing GLA operations. These joint forecasts should then be subject to examination and constructive challenge as part of the Corporate Planning process, before informing forecasts for the GLF. The latter should include examination over whether commercial activities are clearly and transparently related to irreducible spare capacity across the GLAs without detriment to the fulfilment of statutory duties for mariner safety.

However, in realising the potential of the Bill, the GLAs should ensure that their operations are closely integrated to ensure that customers benefit in full from the combination of tri-GLA assets and capabilities, that marketing and business development is co-ordinated (whilst recognising the value of "local" brands), and that commercial work is efficiently and appropriately balanced with ongoing statutory responsibilities.

On a specific point, where income is received in relation to tri-GLA contracts, the reporting of revenue should be apportioned in relation to the volume of work undertaken by each GLA as well as to the lead GLA which holds the relevant contract. This will provide a transparent means of monitoring the contribution of all three GLAs where the contract is held by one organisation.

Finally, we believe that the potential role of consultancy activities has been given insufficient attention in consideration of bringing in additional income. Further investigation should be carried out in this area, especially within the context of the future role and function of R&RNAV.

6.7 Conclusions

The GLAs have a strong track record in identifying and realising efficiencies and cost reductions within their operations and support functions which directly benefit ship owners through reduced burdens on the GLF and the real-term level of Light Dues. Our proposals in this Assessment have identified a range of areas where savings could continue to be made, without detriment to mariner safety, and the new Joint Strategy Board, once established, should consider which recommendations should be taken forward for priority planning and implementation.

[64]There is also a risk that some market opportunities may be double-counted across GLAs.

Photo courtesy of CIL

7. Charging for Aids to Navigation
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7. Charging for Aids to Navigation

7.1 Background

The Terms of Reference for this assessment specifically remitted us to consider the Light Dues charging regime. The issues we were asked to consider included whether the system of Light Dues currently employed is the fairest and most cost effective way of funding the GLF; and whether Light Dues unfairly put UK and Irish trade, sections of industry or a particular sector of the shipping industry at a significant disadvantage, and how can this be tackled if this is the case. It is therefore clear that recommending changes to the system and structure of Light Dues is within the remit of our assessment[65].

In our analysis we have attempted to develop a suitable test of fairness which we have used to identify the characteristics of an ideal system, which we have then applied to a series of practical options. Our approach reflects that adopted towards transport policy in general, namely that unless there are clear market failures[66] which taxation, pricing or other measures are required to correct, all users of the transport system should face a level playing field, and the subsequent allocation, use and pricing of resources should be left to the working of a competitive market.

The recent history of Light Dues has been discussed elsewhere in this report (see in particular Table 2.1). Early in the Assessment, a review was undertaken of the present system; from this it was apparent that a system involving thresholds (caps) would lead to a situation where there some parts of the shipping sector which faced much higher charges than others for the same unit of activity[67]. Research using port data indicated that the differences between those who benefit from the system and those who suffer could be substantial, relative to what they would pay under an ideal system. While members of the LAC have expressed broad satisfaction with the system as at present, other consultees, and especially those in the ports sector, expressed concerns that the system was distorting and might be adversely affecting port business.

This Chapter is not concerned with the amount of money that needs to be raised through Light Dues; rather, it is concerned with the formulae and rules that are applied in order to arrive at a rate which will generate the required amount of revenue, and with whether these formulae and rules meet certain desirable criteria.

The system involving the caps has emerged through a process involving the DfT and the shipping industry representatives on the LAC. We have not, of course, been privy to the process, but several interviewees have commented that the way Light Dues have changed over time reflects the relative lobbying strengths of interests groups on the LAC and others with political access. This seems a reasonable interpretation of the present system: the voyage cap clearly works in the interests of the ships with frequent port calls such as roll-on roll-off (ro-ro) ferries, which make very frequent voyages. Several years ago all ships paid a monthly certificate (12 voyage cap) but ferries paid twice monthly (24 voyage cap), so the move to a 7 voyage cap was clearly beneficial to this category of shipping. Similarly, at one time there was an additional charge for deck cargo on container ships, but this was removed and the imposition of the cap on tonnage was clearly in the interests of container shipping.

[65]The LAC has been consistently clear that it regards changes to the structure of Light Dues to be less of a priority with this Assessment than tackling the GLA cost base and cost recovery of AtoN provision in the Republic of Ireland.

[66]Market failures would include external effects such as CO_2 emissions and imperfect competition.

[67]Discriminatory pricing is practised extensively by, for example, the aviation industry, where passengers on the same flight and in the same class might pay very different fares. However, the fares they pay are based on willingness to pay and payment is therefore a transfer of consumer surplus from passenger to airline. The Light Dues system shows no parallel rationale.

7. Charging for Aids to Navigation

The present system is heavily distorted; we estimate that 385 ships make just under half of all port calls, averaging some 240 calls each but currently paying for just 9; these are chiefly ro-ro ferries but include some coastal shipping. The other 9,900 ships making port calls in the British Isles are therefore paying more than they would be required to pay if the total amount of charges paid by these high call frequency ships were higher. Put another way, the limited amount of revenues gathered from these high call frequency ships means that, in order to collect a given total sum (required to operate the AtoN system as a whole), the tonnage rate has to be higher than it would otherwise be. However, the tonnage cap also limits what the largest ships pay. The losers from the caps are those with ships whose NRT is around the cap tonnage and which make around 9 voyages per annum.

One of the principal aims of this chapter is to define what would constitute a more proportionate system of Light Dues. Having set out what a proportionate system would be, we have examined two issues of practical importance, namely the administrative issues involved in implementing changes, and the need for a transition regime. The former recognises that collection of Light Dues is complex and that there is a need to avoid any unnecessary increase in complexity which would add significantly to costs; the latter recognises that the shipping industry will require some time to plan how it will adapt to changes in the Light Dues formula. Accordingly we believe there is a need for a defined end point for reform of the system and a route map to get there. Our analysis first looks at the end point, before turning to the route map, which is partly determined by practical issues and partly by the need to allow time for adjustment on the part of the shipping industry.

7.2 Are Light Dues a Charge or a Tax?

As our analysis of Light Dues has progressed, it has become clear that a critical issue of principle which needs to be resolved before progress can be made is whether Light Dues are best regarded as a charge or as a tax. This is important, because the tests that would apply to a charge are not the same as those that would be applied to a tax.

Our initial approach treated Light Dues as a charge or price paid in exchange for a service; however, as the Assessment progressed it became clear that this was not the best approach, not least because no-one paying Light Dues saw their payments in this way, but also because it proved impossible to establish tests that could be used to determine whether one charging approach performed "better" than another. This is an unsurprising conclusion, as AtoN have very strong public goods characteristics and there is no right way to charge for such goods when (as is logical) no beneficiaries will reveal any valuation for the consumption of the good.

The usual response to this is either to fund public goods from general taxation, as many countries do with their AtoN, or to levy a fee. An example of the latter is terrestrial television: in the UK everyone with a television receiver pays a licence fee which pays for the BBC, a public service broadcaster. People who never watch BBC channels protest that they are not users, but such protests have no impact because the fee is relatively small and, once paid, the licence holder has full and legal access to BBC and other channels. The fee is a flat annual charge as it is impossible to charge proportionately with use: again with a very small fee this is accepted.

Light Dues have similarities with the TV licence in the UK, in that they are levied on ships "in scope" (using British Isles waters, the equivalent of a UK property with a television receiver); as with the TV viewer, ships might not use AtoN, but AtoN are available for use as part of the overall system of maritime safety. However, in contrast to the TV licence, Light Dues are not trivial in absolute terms (but may be very small in relation to other shipping costs), and there is a linkage between the amount of charge levied and a measure of ship size and access to (if not use of) AtoN in British Isles waters.

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7.2.1 Can Principles of Charging be Applied to AtoN?

The current model for charging is described as a user pays system, with users paying so that full costs are recovered from "users". However, many from the shipping industry (especially ship owners) claim that almost no use is made of aids, but this does not undermine the principle that costs should be recovered from those for whom aids are made available. However, if actual use is highly variable in practice (as appears to be the case) and if a truthful statement of value in use cannot be reliably "extracted" from those who could (and in reality almost certainly do) use aids, then there is no way to relate what is paid to the level of use made or the utility or value derived from either actual use or having AtoN available for use.

Our research confirms that, in the case of shipping, achieving any willingness to pay (or an option value, see below) is even more complicated than it is for most public goods. This is because the actual user of aids is not the same as the payer: the user is the master of the vessel, while the payer is the ship owner, and the master's valuation "at the sharp end" is likely to be greater than that of the owner[68].

The basic principle of user pays for the use of AtoN is itself rejected by ship owners, on several grounds, including:

- the fact that, as demonstrated in Chapter 4, in most other countries the State pays for aids out of general taxation and therefore that shipping in British and Irish waters is paying what they regard as an additional tax, to its disadvantage[69];
- that their ships do not use the aids they are asked to pay for;
- that there is no way of measuring use and that use does not relate to any quantitative parameter such as size, value, frequency of sailing or length of voyage; and
- that the ultimate benefit derived from any use that does take place is not related to any quantifiable measure of that use.

Our research indicates that there is some basis in these views. The actual use of conventional aids by modern ships is often very limited, because most navigation and positioning is undertaken using GPS, which is seen as a free gift (notwithstanding the enhancements in positioning provided by the GLAs). It is also claimed that the greatest use of conventional aids is by yachts and leisure craft which do not pay Light Dues, and by shipping close to harbours where lights and buoys are classed as local aids, rather than general lights, which is the focus of this Assessment.

The alternative to a value in use is the concept of an existence value, where the ship would never use the system but would attach a value to its being there for others to use, or an option value, where the ship owner might be willing to pay in order to have the system available, just in case its use becomes necessary. In the analysis, the option value has been used as it appears better to capture the view expressed that ships do not use AtoN but some might appreciate having them in case use becomes necessary.

The concept of an existence or option value is very similar to the idea that Light Dues are a charge for overall maritime safety, to which users of the seas are required to contribute. Thus the existence or option value more satisfactorily encapsulates the idea that there should be payment to a system that enables safety, even if benefits to individual ships cannot be discerned.

[68]To obtain a user valuation, it might be possible in principle to construct an experiment, for example creating a situation where both electronic and conventional aids are switched off, and then asking ships' masters what they would pay to have the lights turned on. Unfortunately, as user and payer are different, the user (master) would almost invariably be unable to pay and would have to obtain a valuation from the owner, who might not be willing to pay anything. This might be an interesting experiment, but unfortunately impractical.

[69]For some continental ports this is a measure which helps a port in one country to compete with a port in an adjacent country; however, it is also the case that most countries have coastlines which are short compared with much of the UK and Ireland and also pose fewer hazards, so that the cost of providing aids is low enough to be funded from general taxation.

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This is useful in principle and would be a reasonable basis if all ships and shipping were broadly similar, such that a flat fee could be charged as is the case with the TV licence. However, this does not help to provide a basis for determining how much any ship (or ship owner) should contribute towards the costs of that system where, as is the case, sizes of ships and frequency of use vary enormously, such that a flat fee would be manifestly punitive to some ships and massively beneficial to others[70].

The Assessment has confirmed that it is impossible to obtain any direct indications of utility or value either from using aids or from the knowledge that aids are available even if not or rarely used, and in the absence of any sort of indication of willingness to pay, there is no information from the "market" which can be used as the basis on which to set prices or charges for either use of aids or for the overall availability of the system.

In looking for a basis for charging (as distinct from applying taxation principles), four other routes were considered, namely:

- setting a price related to costs;
- imputing a value based on other characteristics of shipping;
- allowing charges to be set by the shipping industry itself; and
- looking to the end users of shipping services to derive a measure of willingness to pay.

Cost based approach: the economics literature would propose a charge set at long run marginal cost for outputs where this can be applied. However, the long run marginal cost of AtoN is low[71], and given the characteristics of AtoN, this would not actually help in allocating an overall cost among participants in maritime activity. This is an unsurprising result: lighthouses have been used for over a hundred years in economic theory as an example of a public good for which the price required for "allocative efficiency" is zero.

The idea of **imputing a value** has some appeal. As ship owners can insure ships (and passengers and cargo) the question here is "what should a rational ship owner be willing to pay to avoid an increase in insurance costs that would arise if the provision of AtoN were removed". This approach was considered, but considerable complexities are involved. It was also evident that not all ship owners are willing to pay for insurance, and that some are also unwilling to pay for things like good quality training of crew and investment in ship management systems and bridge resource management. A brief review of information on maritime accidents suggests that human error is the principal (or a major contributory) cause of most maritime incidents (and therefore of financial losses); the fact that investment in measures such as training to help address human error varies between operators and countries suggested that an attempt to impute a value to AtoN would be difficult and would probably not yield sensible results. For example, up to 90% of accidents are wholly or mainly due to human error, and while there are calls within the industry for more and better training and the enhancement of performance in critical areas such as bridge crew cooperation, ship management procedures and passage planning, but problems of human performance and human error persist.

[70] It will be apparent that reductions in the tonnage and voyage caps move the system closer to being one with a single flat fee.

[71] And relates to an additional unit of output which itself is problematic: the cost of adding an additional ship with access to AtoN is zero, the cost of a physical product such as a buoy can be defined but that cost spread over all users also approaches zero.

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Industry price setting: an alternative approach might be to allow the industry as a whole to determine the whole system of payments, including rates, formulae and caps. At present this is what happens, but through a committee rather than through a process that gives a vote to all ship owners. As with any form of representative system, there is always the possibility that committee membership will not be wholly representative of its constituency as a whole, and therefore that some elements of that constituency will have a stronger voice in decision making than others. Clearly, to capture the views of all payers across the industry and to give adequate weight to smaller operators would be an extremely complex task. We are not convinced that a fair process exists that would prevent large companies with an interest in reducing their Light Dues from dominating the process and transferring the payment burden on to smaller companies, which individually may pay small amounts of Light Dues and may therefore have little motivation to bear the costs of organising objections to the present system.

End user valuation: ship owners are in general bearing costs (including paying Light Dues) because of the demands placed upon them by either passengers or consignors of cargo (including cargo in accompanied trailers), where these parties are willing to pay for transport services. Where a commercial cargo or passengers are carried, the ultimate payers are those hiring the ship or space on the ship. The ability of owners to get their customers to pay Light Dues varies by type of ship use, but in general ship owners will be able to pass on what is a very small charge relative to other operating costs without detriment to the volume of shipping business[72].

At the present time, however, severe competition in the shipping sector means that margins are squeezed and ship owners are trying to eliminate costs (for crew, fuel etc) and charges. The ability to pass on costs arising from Light Dues depends on what the market will bear, but (with regard to being willing to pay for Light Dues) the market also needs information on the risks that are avoided because AtoN exist.

This Assessment has not engaged individual end users regarding willingness to pay for AtoN per se, as private individuals would have no basis on which to place a value. Passengers may be able to place a value on their personal safety on an individual voyage and possibly also on marine safety in general, but this would not provide a basis for valuing AtoN, as the contribution of aids to marine safety is actually extremely difficult to gauge. For example, it is understood that no insurance claims arise entirely because of failure of electronic or conventional aids, partly because such failures are extremely rare. Therefore even if a passenger were able to value his or her safety, allocating a value to various elements within a complex safety system would be both extremely subjective and difficult for the passenger.

Similarly, no attempt was made to obtain a direct valuation from consignors of cargo. As commercial operators, these would in all probability significantly under-value the provision of AtoN; as with any public good, this would be rational behaviour as they would expect provision for the general good and then obtain a free or very low cost ride. It is uncertain whether those consigning cargo would be willing to pay a marginal extra sum for AtoN, but a general overview of maritime safety suggests that consignors or ship owners or both are prepared to limit expenditure on measures that should improve safety.

As very few accidents are wholly attributable to failures of technology (largely because the technology hardly ever fails), it seems unlikely that either owners or commercial users would reveal a willingness to pay for AtoN when they appear reluctant to take steps such as increasing the quality of training to address human error, which is at least a contributory factor in the great majority of maritime accidents. It is therefore unsurprising that ship owners claim that their ships make no or very little use of the aids provided by the GLAs.

[72]Unless the demand for shipping has zero price elasticity, any increase in charges will have some impact on the volume of shipping. However, in many cases total demand is inelastic as there are no close substitutes for shipping; even in cases like passenger ferry services where there is a rail or air alternative, the addition to a ticket cost of Light Dues is so small that the effect on ferry travel is negligible.

7. Charging for Aids to Navigation

7.2.2 Charging versus Application of Tax Principles

In this Assessment, we have searched for a way of relating a price or charge for the provision of AtoN to the utility that is derived from the availability of AtoN or to the value that the shipping industry itself attaches to that provision, or to a value that could be imputed. We do not believe this is achievable, because the provider is compelled to provide AtoN under international conventions, and the rational user and end user will always conceal the value or utility that is derived from AtoN to avoid or minimise payment.

We have concluded, therefore that there is no way to set a "correct" price for AtoN[73] and no test of correctness; we therefore reject the idea that the principle of user pays can reliably be applied to AtoN. As discussed below, while the principle of proportionality or fairness is more robust than willingness to pay, it nonetheless presents some challenges in terms of how to apply it and to test that it is being achieved.

We therefore propose to apply taxation principles rather than charging principles for the analysis; The case for adopting the view that Light Dues have more tax-like characteristics than charge characteristics may be stated as follows:

- that it is impossible to obtain either a use value or an option value from those who pay Dues: this is entirely in keeping with the public goods nature of AtoN
- the payers of Light Dues do not perceive themselves to be in receipt of services, they do not accept the concept of paying a charge that relates to use of a service and they do not reveal any willingness to pay for what is provided: to them, Light Dues are therefore a levy or tax as seen by the market
- in contrast to aviation, the maritime safety system is passive, and is more akin to infrastructure than a service comparable to air traffic control: payments are therefore towards the upkeep of that infrastructure, which is more akin to the road fund licence, which is not use related, than fuel duty, which is use related
- the European Parliament did not disagree with a submission by the Independent Light Dues Forum that Light Dues are a tax and not a charge[74]
- adopting a tax perspective provides a much sounder basis for assessing the suitability of alternative proposals on formulae and rules, and ultimately the actual rate.

While not conceding that Light Dues are legally a tax, if it is accepted that Dues have more tax-characteristics than charge-characteristics, then it is possible to apply a tax-fairness test, while it is not possible to apply any criteria to a charge[75].

Our proposal is therefore that a **proportionate taxation test** should be applied to Light Dues for AtoN and that the "correct" system of charging should be based on this. How this principle could be applied is discussed in the next Section. It should be noted here that we are attempting to establish sound principles for Light Dues; in practice it may not be feasible or cost effective to implement a system based entirely on these principles, but at least having established the characteristics of a proportionate system, we have a basis for assessing the costs and benefits of an alternative system against the theoretically ideal system.

[73]This is entirely in keeping with the economic analysis of public goods: without knowledge of users' utility from use, there is no rational basis for setting a price.

[74]http://www.europarl.europa.eu/meetdocs/2004_2009/documents/cm/601/601484/601484en.pdf; we understand that, had the Parliament not agreed with the submission that Light Dues are a tax, the matter would have been referred elsewhere, possibly to the EU Directorate General for Competition.

[75]Semantics are important here, as there is a general presumption against hypothecated taxes, but there is no evidence of a market in which there are willing payers. We have therefore referred to Light Dues as a levy and as a charge, but our view is that Light Dues have more tax than charge characteristics, if charge is interpreted as a payment for a specific good or service. On the other hand, Light Dues would be a charge if the TV licence fee is regarded as a charge that is defined as, a compulsory fee which allows legal access to a service from which utility might reasonably be derived.

7. Charging for Aids to Navigation

7.3 Applying Principles of Proportionality to Taxation

7.3.1 Defining Proportionality

It is straightforward to define proportionality in the context of taxation. As any tax or levy or charge with tax-like characteristics is a financial payment, that payment has to be proportionate to a financial metric; this is usually relatively straightforward to establish provided sufficient information is available. The consequences of proportionate taxation and whether it is fair or has some unintended consequences is then a matter for further consideration.

In the area of income tax, a proportionate tax would take (say) 25% of all income from all income earners. However, in many countries this is not regarded as fair, and many countries give tax breaks on a proportion of income and / or apply higher rates beyond some threshold; these are referred to as progressive tax regimes and are regarded by the majority as being fairer than a proportionate tax regime.

In the case of Light Dues we do not have any basis on which to assess fairness, but we can in principle test proportionality and we can look at the wider consequences of a proportionate approach as well as a non-proportionate one.

While the following definition is one of tax fairness (from Investopedia), it provides a reasonable statement of what might constitute a proportionate tax system (in particular the text in bold type):

"An ideal that aims to create a system of taxation that is fair, clear and **equivalent** for all taxpayers. Overall, tax fairness looks to **limit the amount of tax legislation and rules that benefit one segment of the tax-paying population over another.** (those) that push for tax fairness are looking to remove loopholes, incentives and cheating within the tax system. Tax fairness supporters believe these practices place an undue tax burden on certain segments of the tax-paying population, while making it easy for other segments to significantly lower their tax burdens".

In the case of shipping, the principle of proportionate taxation could be stated as follows:

A proportionate system of payment would secure from each user of UK and Irish waters a contribution to the costs of maritime safety in UK and Irish waters in proportion to the profits earned through the use of UK and Irish waters.

It is not, however, straightforward to apply this basic principle to shipping, because:

- in most cases ship owners would find it very difficult to arrive at an allocation of costs and revenues, such that the profitability of a voyage or the annual sum of voyages in UK and Irish waters could be calculated
- even if ship owners were able to calculate the required profit information, they would almost certainly not be willing to share that information with, or provide accurate information to, the UK and Irish Governments.

A further difficulty is that as many shipping companies are registered in, and pay taxes to, different national jurisdictions, it would be impossible to calculate accurately the taxable income per "unit" of shipping activity relating to British and Irish waters and port calls, even if ship owners were to provide data on gross revenues and costs on a per voyage or per tonne kilometre basis.

Therefore we do not have the information available to relate the burden of a navigation levy to revenue or profit, even though this would be the ideal basis for establishing whether a levy is proportionate or not. However, we believe that a reasonable approximation exists which can be applied to Light Dues, and we have set out proposals on how to move towards this in subsequent sections.

These proposals involve a transition period, and during this period there is an opportunity to obtain better information on shipping industry costs and profitability, which would assist the UK and Irish Governments in fine tuning the proposals and in selecting the most appropriate ship size units to be applied. In the transition period the shipping industry will make representations regarding any proposals to change the formula for Light Dues, and this will present the UK and Irish Governments with the opportunity to request more information to assist in developing the end-point charging system. However, we believe that the first steps that can be taken to reform the current system (which is discussed below) should not be held up because of the lack of available information: it is our view that the use of even an approximation to profitability as a basis for reform is preferable to continuing with the present system.

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7.3.2 Devising a Suitable Financial Metric

In a proportionate system of taxation, the financial tax take has to be proportionate to another financial metric, which here should be profit related to the activity for which the tax is due. In the broadest sense this is exposure to the availability of UK and Irish AtoN.

As we do not have profit data, it is necessary to use an indicator or unit for which information is available and which provides an acceptable proxy for profitability. After consideration of the options available, the proposed unit is a combination of a day and a ship size indicator. The rationale for this is that the profitability per annum per "unit" of any given ship type will tend to equalise through the working of the market. The "unit" here is a measure of ship characteristics which broadly equates to a financial value; if the financial investment per GRT were the same for every type of ship, GRT would be the correct proxy for capital employed. As market forces tend to equate the return on capital employed, GRT could be used as the unit in the model for proportionate taxation alongside a day. This is not to argue that GRT is the best unit measure; however, gross and net registered tonnage (GRT and NRT) are the only size measures readily available and the volume of a ship is likely to be reasonably related to the financial capital tied up in that ship. GRT is therefore proposed as the unit measure, but subject to the shipping industry working with Governments to develop a better measure, related to profitability, during the proposed transition period[76]. The rationale for using a day is that if returns equate over a year they will also tend to equate per day on average.

There are plenty of reasons why full equality of returns per unit per day will not be reached, including imperfect competition and the fact that capacity cannot be adjusted rapidly, but the market will nonetheless tend to equate profitability per "unit", because areas of shipping activity that earn poor returns will shed capacity and lose operators, which will improve margins, and areas that earn high margins will attract investment in capacity and new operators, which will drive down margins. Such adjustments may not be rapid, but to the extent that markets are reasonably competitive and have freedom of entry[77], these trends will be present.

Given this, it follows that profit per unit of shipping per period of time will tend to be equalised, so that profit per day per unit across shipping types will tend to be equalised. Therefore provided the "right" size unit is used, the "size unit" per day will provide a basis for assessing proportionate taxation. As GRT appears to be a reasonable approximation, and is one of two size measures that are readily available to Trinity House for Light Dues collection, we have used GRT as the (provisional) size unit to illustrate both the critique of the existing system and the nature and effects of a proportionate system. On this basis, a levy will be fair if is levied per ton per day, as it will represent the same rate of levy on daily profits per ton across all types of shipping.

[76]One of the benefits of a transition period is that these proposals can be refined on the basis of evidence; as discussed below, interim changes are proposed which will be administratively feasible and which will move the system in the direction of greater proportionality.

[77]These are standard assumptions across transport appraisal; if they apply to shipping the use of a measure of capital employed is reasonable.

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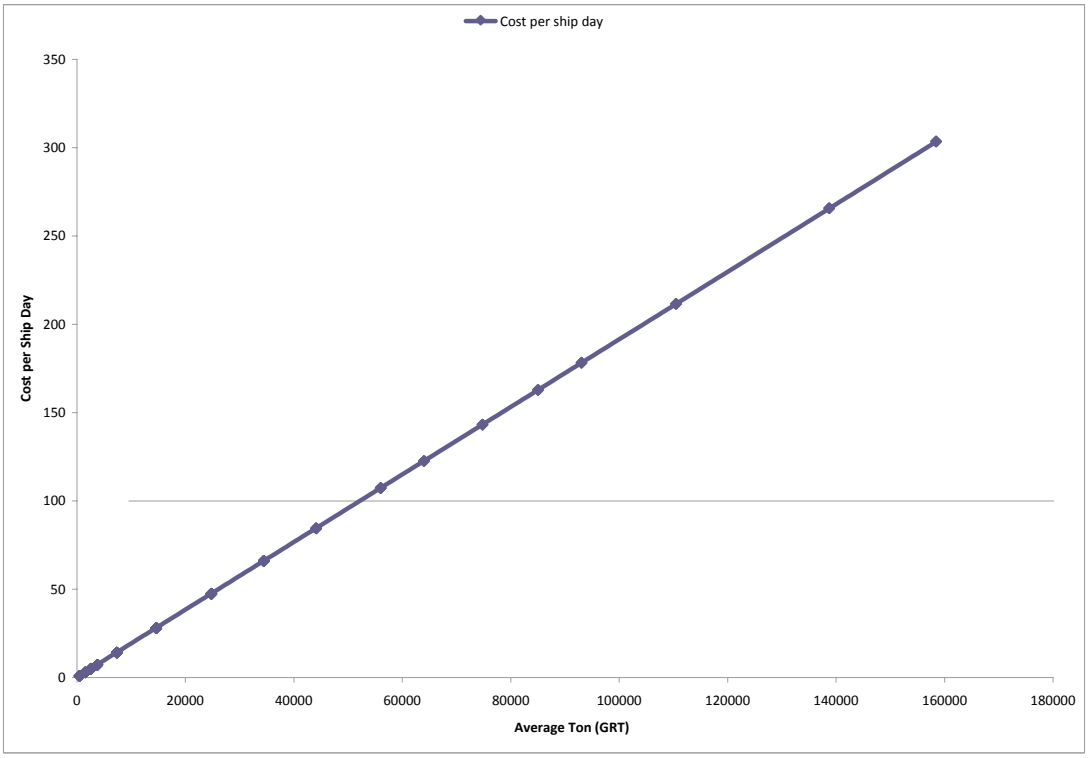
Therefore if the amount taken by a charge is proportional to profits and profits (tend to) equalize per GRT per day, the cost (shown below in Figure 7.1 as an index on the Y axis), should bear a linear relationship to the size of ship (on the X axis, here using GRT). That is, if the vessel size doubles, so will the total charge per day.

Figure 7.1 – Charge per Ship per Day



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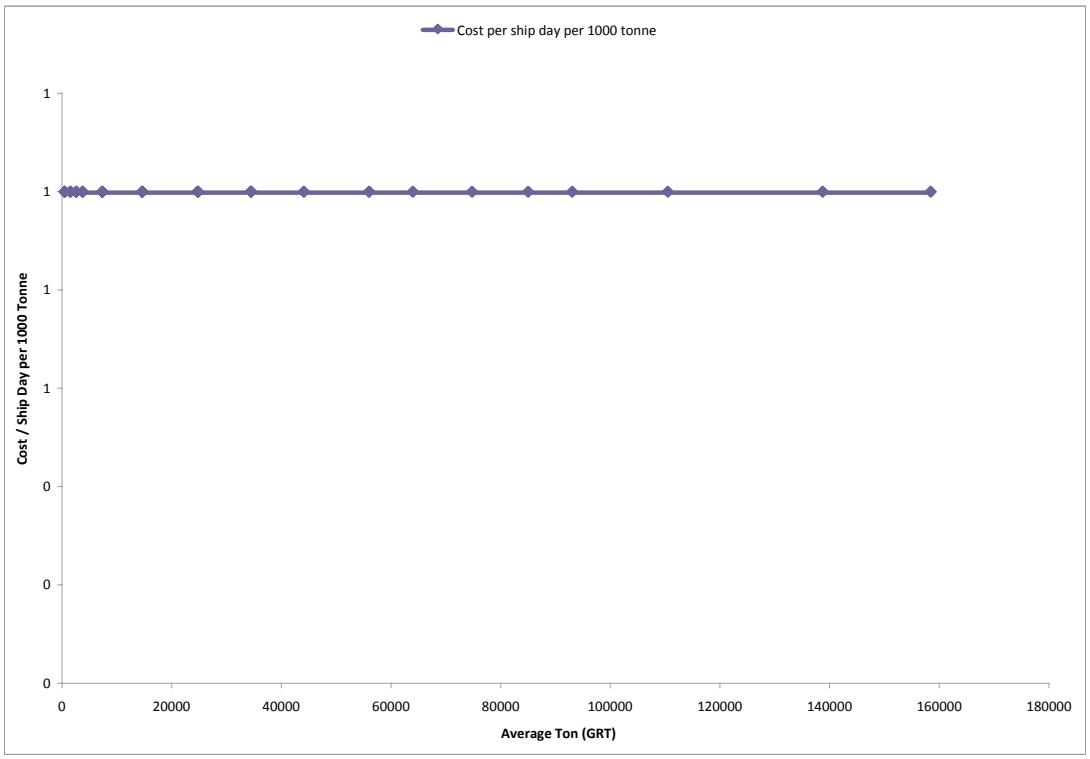
Similarly, as shown in Figure 7.2, the charge per ship per day per 1,000 tons would be the same rate for all ships; numerically the charge per day which is related to GRT is divided by the GRT which gives the flat single charge. Here it is shown as an index; the index for the flat charge per ton (here shown per 1000 tons) will always be a line parallel to the X axis with a value of 1.

Figure 7.2 –Charge per Ship-Day per 1000 Tons



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7.3.3 A Proportionate System

While an approximation, provided the profit per day per size unit (here GRT) attributable to being in UK and Irish waters is reasonably similar across all ship types, a flat per gross registered ton per day charge rate will be broadly proportionate in that it does not benefit one segment of the "tax-paying population" over another or impose a burden on other payers of the levy who have to make up the shortfall in income from the levy arising because of overly favourable treatment of any segment of the "tax-paying population". As noted above, a pre-condition here is that the right ship size measure is used[78].

In practice this charge would apply per day spent in UK and Irish waters, so that for example:

- a ro-ro ferry between Great Britain and Ireland would pay once per day on its first arrival or departure from a UK or Irish port[79];
- a coaster serving ports around Great Britain and/or Ireland would pay once per day spent in UK and/or Irish waters; and
- a ferry between the UK and (say) France would pay once per day on its first arrival or departure from its UK port.

It is less straightforward to apply the per day principle to ships such as container ships that use a port in Great Britain and stay in port overnight. The underlying principle is that profit per day is equalised, so that even if much of the time in port is loading or unloading, two units of profit will be earned in these two days. On the other hand, had the operation been completed within the day (defined as midnight to midnight) the charge would have been for one day only. This suggests that a rolling 24 hours payment would ideally be required for ships that make less frequent calls; the technical feasibility of this requires further consideration.

It is not, however, proposed that we should move immediately to this sort of system, rather it is intended to show that a much more proportionate system can, in principle, be devised. What is proposed is that an interim system be established and monitored (ideally from April 2011, but more probably from the start of 2012), with a review in 2013 or 2014 with a view to further reform of the system from 2014 or 2015.

[78]Establishing the best fit size measure will require some further consideration, and we suggest that this should be investigated through consultation with the industry. This will however, require access to information on costs and revenues, as the objective is to develop a size measure which bears a consistent relationship to profitability. It is recognised that the size measure might vary by type of ship.

[79]In this case, revenues would be shared between jurisdictions; as discussed in Chapter 9, this approach would apply at least until the GLF ceases to pay towards the costs of AtoN in the Republic of Ireland.

7. Charging for Aids to Navigation

7.4 The Current Structure of Light Dues

Light Dues in the British Isles are charged on a per ton basis, based on a vessel's NRT. However, charges are currently subject to two "caps", namely a tonnage cap currently set at 35,000 NRT and due to rise to 40,000 NRT in April 2010, and a voyage cap currently set at 9 voyages. However, any payment of Dues is valid for all voyages for a rolling month. Payments are made on the first port call and a certificate is issued: the certificate is valid for the rolling month and for any port within the British Isles. The certificate is specific to an individual ship; if ship X is used and is issued a certificate then if it is replaced within the month by ship Y another certificate is issued for that ship, even if both ships are operating the same service.

Such a system leads to a situation where some ships will face a zero marginal cost, while others will not. Specifically, once an owner is operating vessels which are over the tonnage cap, a ship owner can choose to use larger and larger ships at no additional cost per call[80]. Elsewhere it is noted that the trend is towards fewer and larger ships, and therefore larger ships will generate zero additional Light Dues revenue if total numbers stay constant. If numbers of vessels fall, as would happen if ship size grows more rapidly than trade volumes, then charges for all ships will have to rise if the sum to be recovered remains the same; it should here be remembered that the total of AtoN will not be reduced even if the total number of ships were to fall by 50%. In contrast, as noted above the marginal cost to an owner of a larger ship is zero, once over the tonnage cap.

Similarly, each individual vessel which makes more than one call in a rolling month or more than nine calls per year faces a zero marginal cost per additional call. At present, a ship making a call per month throughout a year pays for nine calls, while a ship making a call every day also pays for nine calls.

This system leads to anomalies. In the aggregate, based on ports data there are significantly more ship-calls than there are certificates issued. Port data for 2008 show some 178,000 ship-calls for ships of 250 GRT and above in UK and Irish ports, once some very frequent ships (such as Solent ferries) and naval vessels have been removed from the ports data. DfT's Maritime Statistics report 130,551 ship arrivals. We do not have parallel data for the Republic of Ireland, but based on tonnage data and information on types of shipping serving the Republic, the total of ship arrivals might sum to around 150,000. The difference between the totals is due to the way some ports record calls, with some recording only the first call of the day for ships making frequent calls in a day; even after eliminating the obvious very high frequency callers, there is still a discrepancy between the totals. Further data cleaning could be undertaken to achieve a better reconciliation between these totals; however, this is actually of little importance to the fundamentals of the charging system.

[80]As noted, the certificate is valid for a specific ship; we are not saying here that once the owner has paid for ship X that ship Y can be substituted, rather that in choosing whether to use ship X or ship Y, there is no additional cost if both are over the tonnage cap.

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In contrast to the records of arrivals of upwards of 150,000, Light Dues certificates data record only 23,830 voyages for which certificates were paid, and only 280 out of 22,404 certificates were for more than one chargeable voyage, and only 209 were for 7 or more voyages. Port records show that of 11,216 ships recorded[81], 8,282 ships make more than one recorded call and 3,244 make more than 9 recorded calls. These differences are, we believe, largely due to the caps and the rolling month system. While not an exact comparison, it is evident from these very large differences that the combination of the voyage cap and the rolling month leads to significantly fewer calls being charged than are made. Assuming a fixed revenue target, this means that ships with a low call frequency which do not benefit from the voyage cap and the rolling month system pay a greater contribution to the total than they would if more calls were eligible for charging[82].To look at this in more detail and to enable a comparison with the ship-day / ship day per ton units of measurement used in the analysis of tax fairness, the port data were adjusted so that higher frequency calls were rounded down (through use of a logarithmic function) so that the port data were a reasonable representation of ship-days; because of data limitations, what is described in the following as a day has an allowance for more than one call per day for those ships making very frequent calls. The day might therefore best be thought of as an activity unit. Ship sizes (here GRT) were used alongside ship-days and a voyage and tonnage cap was applied to both.

Figure 7.3 shows the Light Dues payments under the cap system. It is evident that the rate paid per ship-day varies significantly depending on the number of calls made – those making most calls pay least. For example, at around 45,000 GRT, the lowest frequency ship pays 44 times the rate per ship-day of the highest frequency ship in this class. Even if profit per day is only roughly the same, it is clear that this does not pass the proportionate taxation test. It should be recalled that for a totally fair charge the line in the graph would be a straight line through the origin.

[81] Again excluding Royal Naval vessels and vessels such as cross-Solent ferries.

[82] It might be argued that the fact of zero marginal cost on ship size once over the tonnage cap provided an incentive for large ships to call at UK ports. However, Light Dues are so small in comparison with both port dues and charges and with the costs of transhipment of containers, and with the economies of scale due to use of larger ships, that this argument is very dubious. If the aim is to use Light Dues to provide an incentive, a taper system such as that discussed in 7.5 would eliminate the threshold effects that arise from a cap system

Figure 7.3 - Index of Dues per Ship-Day

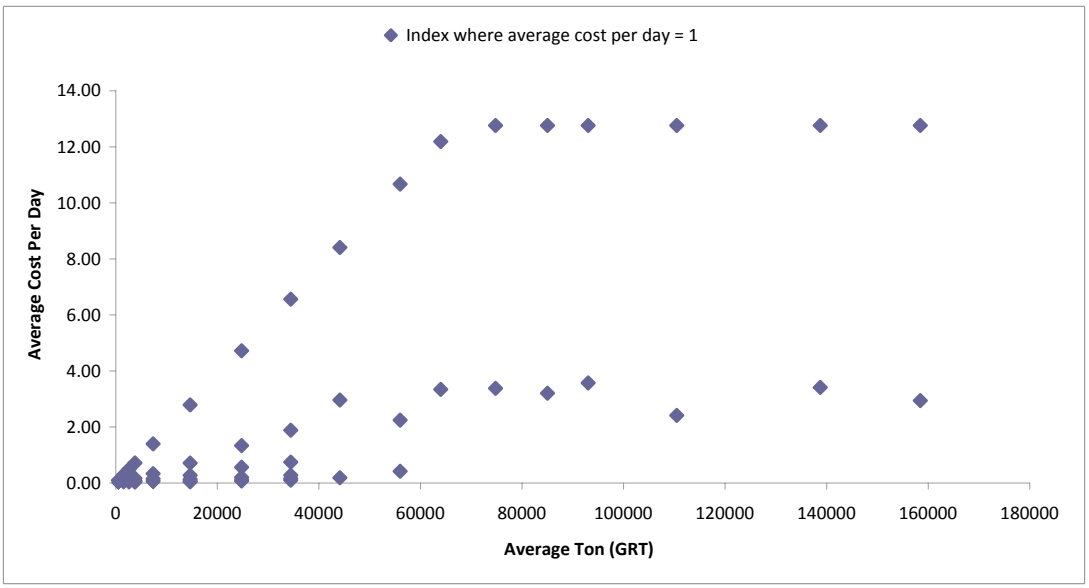

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Figure 7.4 – Dues per Ship-Day per Ton

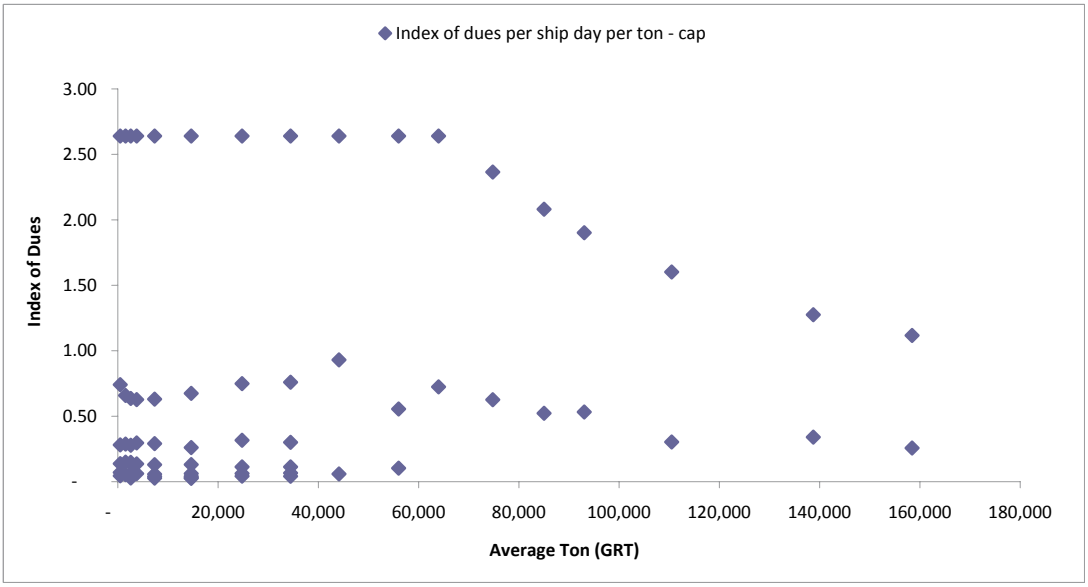

Figure 7.4 shows an index based on the rate per ship-day per ton. With a totally fair charge, the line in this graph would be located at 1.0 and would be a straight line parallel to the X axis.

Figure 7.4 shows that some ships below the tonnage cap value pay significantly more per ship-day per ton than others. Again, those making frequent calls pay least.

We have calculated an index of Light Dues charges under the capped system against two measures of use, namely per ship-day and per ship-day per GRT. The analysis takes the total revenue to be raised as given, so that in making comparisons the total raised is not altered by selecting an alternative charging system. On this basis it is feasible to compare systems of charging.

The analysis per ship-day ignores ship size in order to focus on the effects of numbers of days, while the analysis per ship-day per GRT also takes ship size (as GRT) into account. In both cases an average charge was calculated, and the index is in relation to the average. This analysis, which is set out in Appendix B, shows that under the capped system any ship above the tonnage cap, and making a small number of calls pays 12.76 times the overall average, while one making frequent calls could pay less than one percent of the average. This is based on a cap of 7 voyages: the range is reduced when the cap is increased, but there remain these very large variations around the averages. As the analysis used GRT, the cap was taken to be 67,000 GRT as an approximate equivalent to 40,000 NRT; this is an average ratio across all UK and Ireland shipping, but varies between types of shipping. The analysis grouped ships by GRT and recorded port calls (both in bands) rather than by types, so the effect of using an average ratio for GRT / NRT was not significant.

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Similarly for charges per ship-day per GRT, a large ship making few voyages pays 1.12 times the average, and over 4 times the charge per ship-call per GRT of one making frequent voyages, while smaller ships making few voyages and just under the tonnage cap pay 2.64 times the average. Those paying the highest uplift over the average are those making fewest calls and those making most calls pay what amounts to a large discount on the average. Similarly, the largest ships pay a smaller uplift over the average than those on lower size bands.

This clearly shows that the largest ships and those making the most frequent calls pay less in relation to the average than those making fewer voyages and those which have a smaller GRT. Given that under the caps system the marginal cost of more tonnage or more calls over the respective caps is zero, these results are what would be expected.

The differences between the flat rate per day per ton system and the capped system can also be illustrated by charts. Figure 7.5 shows a comparison of the flat rate system and the capped system using indices for the charge per ship-day. The flat rate system shows that the charge is a linear function of GRT (used here as the size measure), so the larger the ship the higher the charge per day, while under the capped system the charge is high for infrequent ships and low for frequent ships. Figure 7.6 shows the same comparison but using indices for the rate per ship-day per ton (GRT again being used).

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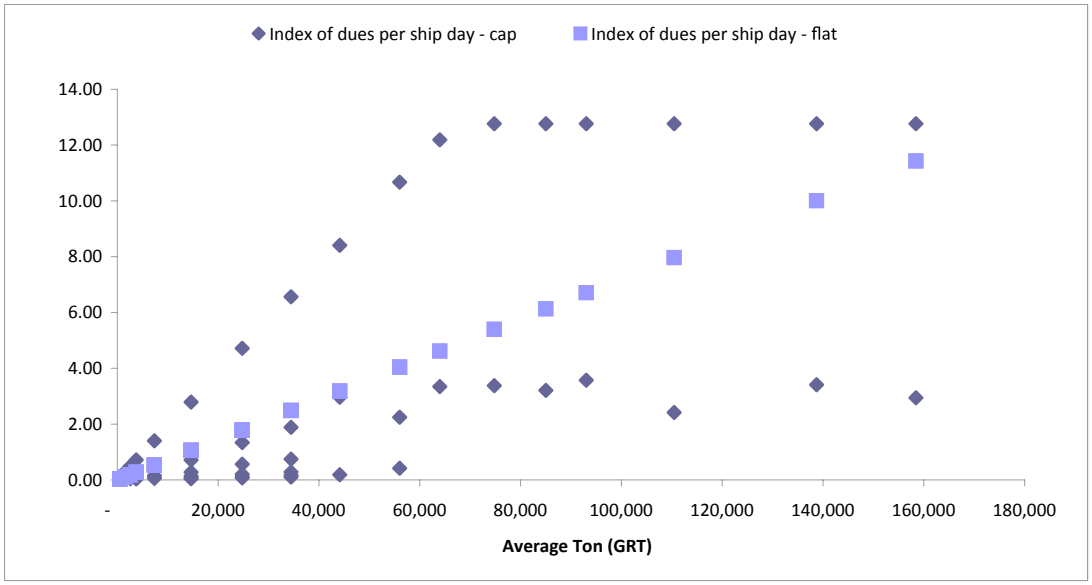
Figure 7.5 – Flat Rate and Capped System: Charge per Ship Day



Again Figure 7.6 illustrates the point that the charge per unit of activity and size varies considerably under the present cap system whereas under a flat rate system the charge would be the same per ship day per ton for all.

It is difficult to escape the conclusion that the present system is inherently oriented in favour of those making most use of the seas around the British Isles and the largest ships, while loading costs on those making more limited use and using ships around the tonnage cap level.

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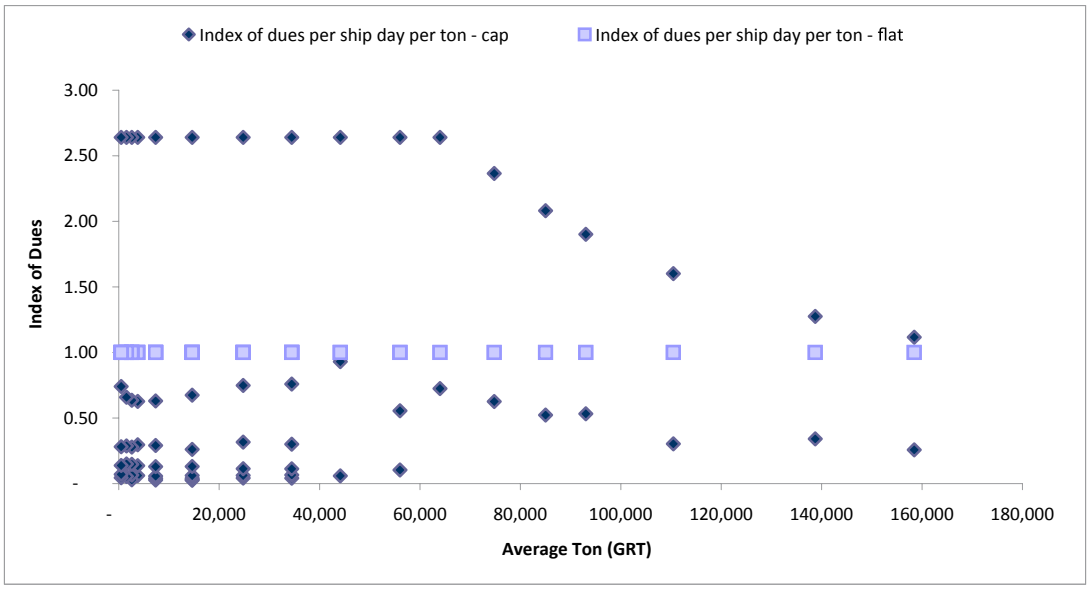
Figure 7.6 – Comparison of Flat and Cap Systems – Charge per Ship Day per Ton



While the units used here – the ship-day and GRT – are arguably not perfect, the ship day has much to commend it as a factor that can be shown to be related to profitability[83]. GRT is less satisfactory as a unit because its relationship to the value of "ship capital" employed is unlikely to be a linear one, but even so the fundamental conclusions from this analysis would be valid whatever unit of size were used. The size unit is an area for further research, but the basic principle of moving towards a flat system using a day and a suitable size unit appears robust.

[83]In broad terms and taking one year with another, but not necessarily per individual voyage.

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7.5 Possible Variations to the Cost Recovery System

We have considered two variations on the flat rate system, both of which reflect the assertion that ships on frequent routes, such as ro-ro ferries, learn their route and so gain less utility from AtoN; it is argued that such ships should therefore pay less towards the overall costs. This argument would have some validity if we were able to apply user pays principles across the board, so that we also knew the utility gained by other types of shipping. As discussed above, we believe this to be impractical (and in all probability, impossible given the public goods nature of AtoN). A second argument, namely that certain types of shipping merit discounts because of their wider economic contribution, has also been considered (see below).

While we do not believe this to have any merit, and we would argue that differential pricing violates generally accepted policies on transport, we have nonetheless considered these variations on the flat rate system, as they represent options that DfT and DoT can consider within the wider context.

The two approaches considered are:

- a tapered charging system, which has been developed from an assessment of the system used within the aviation sector; and
- a banded day system, in which days are banded (1 – 50 days, 51 to 100 days etc) with discounts applied to successively higher bands.

In the taper system, a zero taper is the same as a flat system, while in the banded day system a zero discount between bands is the same as the flat system.

7.5.1 The Taper Model

The closest – but still inexact – parallel to navigation charges for shipping is the Eurocontrol system of air traffic management for Europe; the differences between the nature of the systems does in our view justify the proposal to treat payment for AtoN as more akin to a tax than a charge, while payment for air traffic management is more akin to a charge.

The principal difference between charging for air traffic control and for maritime navigation services is that air traffic control is an active and interventionist system that operates in real time: aircraft move too fast for flight crew to manage all aspects of the flight and especially positioning in respect of other aircraft. Given this, flight crew require real time information on their own position and that of other aircraft from ground based traffic control to avoid air-to-air incidents. Flight crew can use on board information (including information from beacons and way points) to ensure that these headings will not vector the aircraft towards fixed hazards (such as terrain) but ground control exists to address the hazards of other aircraft, as well as providing headings that will not take the aircraft towards fixed hazards when operating below the minimum safe altitude in the particular area covered by ground control.

Air traffic control is therefore an essential active service that is integrated into every aspect of flight, and airlines and passengers are prepared to pay for this[84]. In contrast, AtoN are passive and the role of air traffic ground control is largely undertaken on the bridge of the ship. Shipping companies already pay for the air traffic control function by providing crew on their ships and equipment including radar and electronic chart displays, and are apparently unconvinced about the value of the passive aids, even though without these the ability of the bridge crew to function would be compromised.

[84]An air-to-air or CFIT (controlled flight into terrain) incident almost always results in loss of life and aircraft, which is costly and bad for the industry; consequently airlines are prepared to pay for, and pilots make considerable use of, air traffic control systems.

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Despite the differences, it is worth looking at how air traffic control services are charged. Air Traffic Management across 38 Eurocontrol member states is funded principally through cost recovery, with a system designed to "achieve secure and equitable funding of the ATM system in Europe".

The charging system is based on the following:

- one charge per flight, including flights that do not land within the charge area;
- a flight is defined from its departure airport or the first point of entry to the Eurocontrol area;
- the key information is the flight plan, which an operator is legally obliged to file prior to take off;
- airspace is divided into charge zones;
- zones apply different charge rates and are allowed to provide incentives;
- the basis of the charge is weight and distance, and a unit rate for each charge zone;
- weight X distance X rate is summed over all zones to arrive at the total charge;
- charges apply for departures and arrivals within a single zone; and
- a distance based deduction is applied to allow for local charges: this varies by zone.

This approach is accepted because it is seen to provide a high degree of alignment between the use made of the service and the charge applied. It also recognises that the services supplied do not vary directly by aircraft weight, and therefore the following formula is applied to Maximum Take-Off Weight (MTOW) to generate the weight factor used in the charge formula:

- Weight factor = $\sqrt{(MTOW / 50)} = 10^{0.5 \text{ Log } (MTOW / 50)}$.

The distance factor is calculated on the basis of great circle distances between the aerodrome of departure or entry point to the charge area and the aerodrome of arrival or the exit point of the charge area. This operation is repeated for each Charging Zone concerned by the flight. These distances are not typically the actual distances flown, which are adjusted to circumstances (weather, traffic etc), but are based on the route shown in the flight plan. The flight plan calculated distance is divided by 100 to give the distance factor used in the charging formula.

The Unit Rate of Charge is the charge in Euro applied by a Charging Zone to a flight operated by an aircraft of 50 metric tonnes (weight factor of 1.00) and flying 100 kilometres (distance factor of 1.00) in the charge area of that State.

While most operational aspects of the air traffic control system do not readily translate to shipping, one element that is worth considering is the use of a formula which "recognises that the services supplied do not vary directly by aircraft weight". Indeed, apart from small aircraft operating under visual flight rules, air traffic control supplies the same service to an individual aircraft regardless of that aircraft's weight. At the same time, it can be argued (as with shipping) that the services provided are for the benefit of all aircraft within a given airspace: the services are provided to all to avoid two or more aircraft colliding.

It is unclear why the square root formula has been adopted, but clearly it tapers the charge so that a large aircraft pays a rate to which a large discount is applied, compared to a small aircraft. For example an Airbus 380 might have a MTOW of 576 metric tonnes and a Bombardier CRJ 900 a weight of 36 metric tonnes. On a flat rate basis the ratio between charges would be 16 : 1, but on the square root formula the ratio is 4 : 1. This clearly scales back the charges to large aircraft considerably but is accepted as a way of relating the charge to the use of the service.

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While not articulated in the literature on Eurocontrol charging, it could be argued that a simple per kilometre charge would better reflect the cost of the service per air transport movement, but that this would not measure of the value obtained from it. The argument would be that large aircraft would be willing to pay more because of the larger losses that potentially would arise if involved in a collision with a small aircraft. Large aircraft might therefore accept paying more than a per kilometre charge because of the benefits to them of avoiding smaller aircraft. However, the cost per tonne kilometre of a large aircraft is generally lower than that of a small aircraft (due to economies of scale, including the cost of flight crew per tonne), so the square root formula means that cost disadvantages of smaller aircraft are increased.

If we were aiming to develop a system to charge for the use of services, then a case might be made for applying a taper system to shipping. In this case, a taper could be applied to both ships' size and to the number of port calls or days of operation at sea within UK and Irish waters. The argument for applying a taper to weight is the same as that discussed above for aviation, provided Light Dues are a charge for a service[85]. The argument for applying a taper to calls is that distance should figure in the charge and that as the number of port calls increases, distance travelled falls, and therefore some discount on call numbers is needed better to reflect a measure of distance, as consumption of the service increases with distance. A second argument for applying a taper to calls is that ships' masters on higher frequency routes do learn the route and the marginal utility of their next use of aids consequently diminishes with frequency.

Table B1.2 in Appendix B shows the results of one form of taper, namely a taper on calls[86]. For this the following formula was used:

- Call factor = 10 $^{0.85 \text{ Log calls}).}$

This formula reduces the impact of high numbers of calls, which means that very frequent ships are given a small discount compared with lower frequency ships. What is clear from the analysis shown in Appendix B is that the cost per ship call varies by size (GRT) and by frequency. For example, for low frequency ships the cost per ship-call decline as size declines. However, the effect of the calls taper means that, for example, a ship over 150,000 tonnes GRT making frequent calls pays less per call than a ship between 125,000 and 150,000 tonnes GRT that makes infrequent calls. Application of a more severe taper (changing the 0.85 in the formula to say 0.5) increases this effect. The full tabulated results are shown in Appendix B.

Figure 7.7 compares the capped system with the flat rate system (here also applied to calls) and the taper system, in this case for costs per ship-call per GRT. This shows that under the call taper system the costs per ship-call per GRT vary around the flat rate average, but by less than for the capped system[87].

The number of permutations of call and size tapers is in principle infinite; the following illustrates the outcomes when a taper is applied to both size and calls, where the formula for calls is as above and for size is

- Size factor = 10 $^{0.75 \text{ Log GRT}).}$

Figure 7.8 shows the costs per ship-call per GRT for all four systems considered, namely:

- a flat charge for both calls and size;
- the capped system;
- the calls taper system; and
- the calls and size taper system.

[85]This is an important point: in aviation it is straightforward to relate charges and use because the system is active and is provided in real time, but it is not a charge for a service for shipping because the system is passive and so no direct service is provided to ships. For shipping therefore the taxation model is more appropriate and the charge is in reality a hypothecated tax. If this is accepted, the issue is not one of aligning charges with use but closer to the fairness approach which relates tax payments to some measure of ability to pay.

[86]This part of the analysis uses the port data on recorded calls rather than the data converted into days. It should be noted that the use of a day rather than a port call as a basis does already discount very frequent calls; the rational for this is set out in the annex on charging.

[87]It has not been possible to model the rolling month element of the system using port data, but this adds to the effects shown for the cap system in the charts as high frequency ships benefit most from the rolling month as well as the voyage cap.

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The calls and size taper model shows less variability around the average than the calls only taper system, except for smaller ships, where the cost per ship-call per GRT becomes very high, but it also clearly favours larger ships that make frequent calls. The flat rate system delivers the same average rate for all (and is therefore shown by a line parallel to the X axis at a value of 1.00).

Figure 7.7 – Taper System for Calls

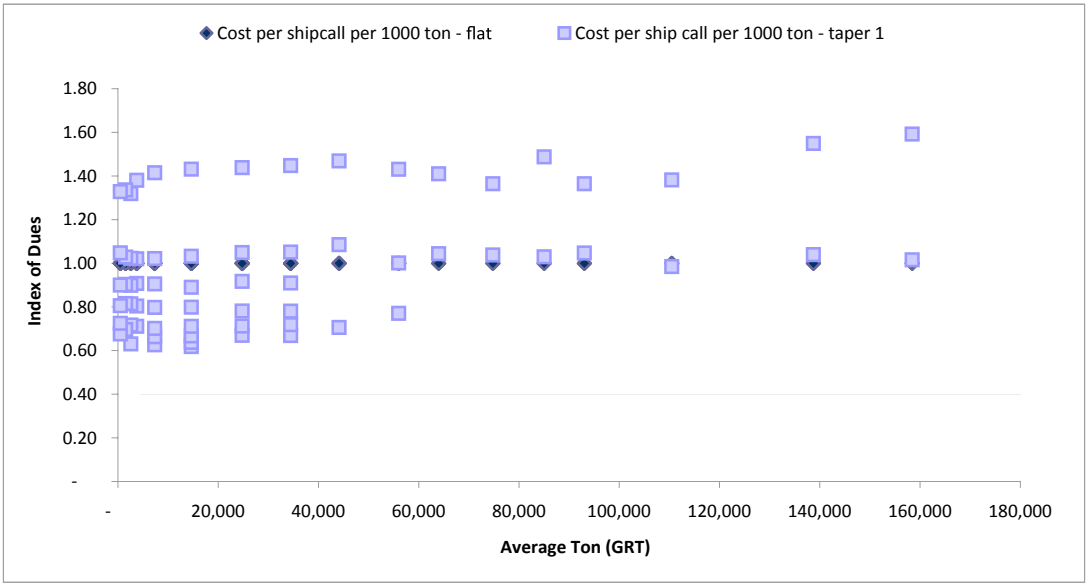
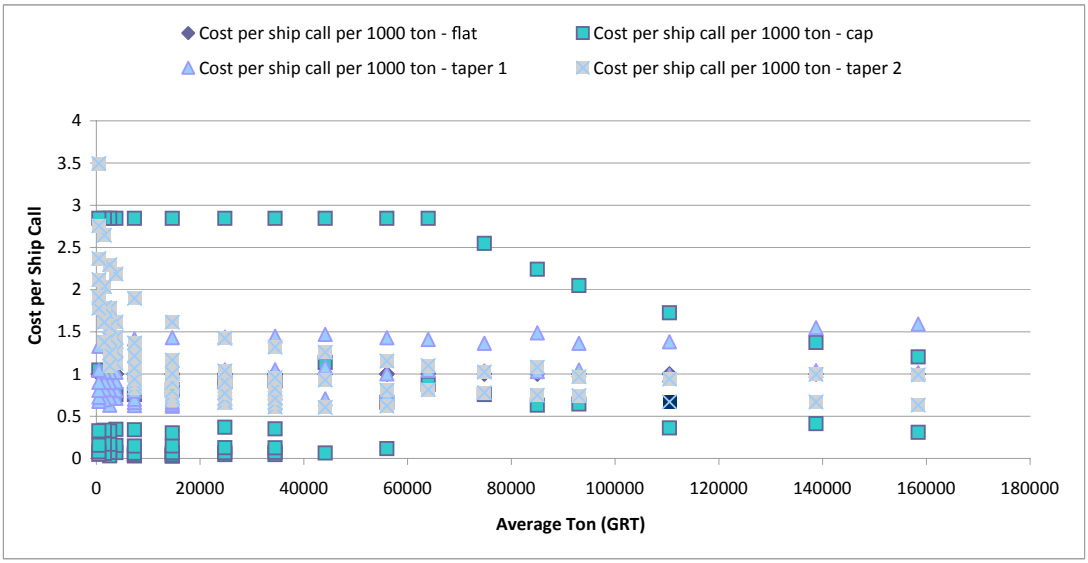


Figure 7.8 – Alternative Taper Systems



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7.5.2 The Banded or Multi-Day System

While a taper system could, in principle, be fine tuned to achieve a compromise between total proportionality and acceptability, it has the downside of being difficult to implement, at least in the short term, as it would require development of suitable technology to enable certificates to be issued. This is because if Dues are charged on all port arrivals, the agent issuing the certificate would require up to date information on the number of calls to date that year and have access to a way of calculating the charge. Information on that charge would then have to be sent to a central facility which would then have to provide information on that call to the next agent so that the next call would benefit from the tapering charge. This could be achieved in principle with a sophisticated IT system provided agents report issuing of certificates or the system is able to record this automatically. There would be a financial cost for the development and subsequent roll-out of such a system.

The other practical downside is that the system is inherently more difficult to understand than a cap or flat system, as it is based on the application of a mathematical formula; for some ship owners this may present problems of predictability of rates, as they may not know in advance how many calls they will make or days they will operate, and so planning their own charges ahead becomes more problematic.

We have therefore developed a simpler version of the voyage taper which is based on defining bands for numbers of days but not for tonnage. This system would apply a given rate for the first (say) 50 days, then a lower rate for the next 50 days and so on. The rate for each step up in the day bands would therefore reduce in a defined and predictable manner, so the rate for 51 to 100 would be higher than the next band which could be for 101 to 200 days of operation. The narrower the bands the more complex the system, but the closer it becomes to a taper system.

In addition to deciding on the bands, there is a need to consider the rate at which a discount between bands would apply. In a flat rate system there would be no discount, but within a banded system the rate applying to each successive band could reduce by 5% or 10% or even 20%. Very large discounts would make the system more like a capped system – under a voyage cap system the discount after 9 voyages is 100%.

For illustration we have applied a 10% discount between bands and a 20% discount; this is shown in Table 7.1; a 10% discount factor means that a rate for the first 50 days falls by 10% for the next band (here the next 50 days), and so on. A steeper discount of 20% shows that the rate applicable to ships with over 300 days is just over 60% of the rate applicable with a 10% discount between bands. The flat rate per day simply involves no discounts between bands. It is therefore a straightforward matter to proceed over time from a steep discount to a zero discount, once the system is established and the mechanics for collection are in place.

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Table 7.1 – Effects of Discounts between Bands

	Rate for each band of days per ton					Charges per ton	
discount	first 50	51-100	101-200	201-300	301+		
10%	10.00p	9.00p	8.10p	7.29p	6.56p		
20%	10.00p	8.00p	6.40p	5.12p	4.10p		
Days of operation						Annual charge with 10% discount	Charge per day with 10% discount
4	4	0	0	0	0	£0.40	10.0p
39	39	0	0	0	0	£3.90	10.0p
73	50	23	0	0	0	£7.07	9.7p
121	50	50	21	0	0	£11.20	9.3p
203	50	50	100	3	0	£17.82	8.8p
352	50	50	100	100	52	£28.30	8.0p

This table is simply for illustration. The following chart shows how various discounts perform compared with a no discount (flat per day) system. In the table, a steep discount is 20%, a "mid" discount is 10% and a small discount is 5%, the latter approaching the flat system; the points for the flat system are not shown but would lie along a line parallel to the X axis at a value of 1.00.

What is then immediately apparent is that, at every discounted rate, the charge per ton per day is higher than under the flat system for some payers, but lower for others, and as with the cap system, those paying at the lower rate are the ships making the most frequent sailings. Nonetheless, all of these formulae deliver a smaller spread around the proportionate rate (flat) than the present voyage caps system.

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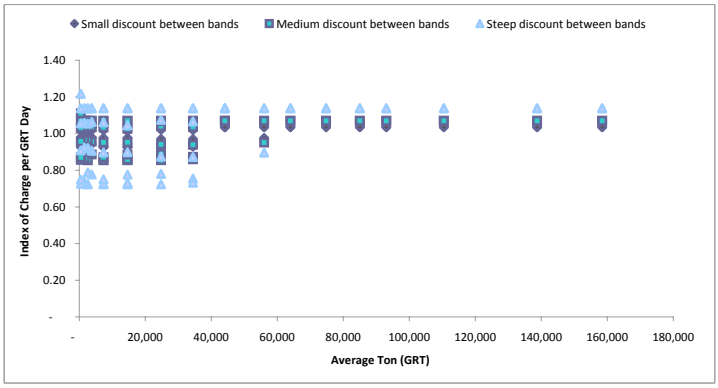
Figure 7.9: Multi-day System, Alternative Discounts between Bands



We believe this approach has considerable merit in that:

- it is simple to understand: the system would be as indicated in 7.3.3, but with day bands;
- the discounts between different day bands can be reduced over time to give different parts of the shipping industry time to adjust to the system; if there is a desire to adopt the flat rate system at some future date, discounts could be reduced from (say) 20% to zero over an agreed period; and
- it does not require major changes to the collection system and is therefore feasible to implement, potentially in 2011 but more realistically from 1st January 2012.

However, we do propose three further minor changes, which will be beneficial to ships making frequent calls. These are discussed in Section 7.6.

7.5.3 Charging Outcomes

The outcome of the banded system was tested for us by Trinity House using port data, from which one voyage per day was extracted for each vessel; ships whose GRT was not known were removed from the database. In practice the omission of some vessels makes the estimates of charges a very marginal over-estimate. The analysis was undertaken for 8,586 individual ships.

Using the 10% discount formula, a charge of 5.67 pence per GRT per day would raise £73 million; which is taken as a target for revenues. Of the ships in the database, 8,121 would pay the rate of 5.67 pence, while 465 ships would pay between 4.55 pence and 5.66 pence. Of the 150 ships that paid the least per ton per day, two out of three were ro-ro ferries or passenger ships.

Using the 20% discount formula, a charge of 6 pence per ton per day also raises £73 million in revenues. The same 465 ships pay between 3.84 pence and 5.98 pence per ton per day, while the great majority (8,121 ships out of 8,586 ships) pay 0.33 pence per ton per day more than under the 10% discount formula.

For comparison, the flat rate charge using these data would be 5.35 pence, so the majority of ships are paying 0.65 pence per ton per day in order to provide a discount to the very high frequency ships. As discussed above, such discounts may be useful during a transition period, but the case remains for moving towards a flat and proportionate system.

The practical issues involved in implementation are discussed in the following section.

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7.5.4 Practicalities

We have explored the mechanics of the banded system with the Light Dues team at Trinity House, to ensure that the proposals do not involve undue expense or complexity. We are content from these discussions that there are no insuperable technical problems, but time will be required to develop the software needed to produce invoices and record payment, in parallel Government will wish to consult with the shipping industry on the practical arrangements of such a change.

In terms of software development, specifically, it will be necessary to:

- introduce a defined sum to add to the first payment in the year on each vessel, to cover the £100 fee that will apply to all vessels up to 250 GRT[88];
- change the monthly parameter to daily, with charge on arrival to enable records to be tallied with port records as at present, which is used to police and enforce payments;
- introduce a banding percentage reduction based on the defined bands and discounts for each band; and
- change the programme to calculate on GRT rather than NRT.

In principle this could be undertaken in the next 12 months, but realistically a target date of 1st January 2012 for the system to go live is more sensible. There would be a relatively small financial cost involved in system development, of the order of £100,000 to £150,000. In addition, reducing the payment per certificate to shipping agents will be required and this will involve negotiations with the Institute of Chartered Shipbrokers. This may not be a major issue as agents already undertake other work with a ship on arrival.

By introducing forward payments (with discounts) based on a route, the 400 or so very high frequency ships could be billed 12 or 4 times per annum, which removes the issue of shipping agents having to issue thousands more certificates. This might be capable of extension to other less frequent shipping such as coastal vessels, which would then also benefit from the certificate being route rather than vessel based. For other shipping there would be an increase in the number of certificates, and this would require a re-negotiation of the contractual arrangements with shipping agents. However, the possibility of a change in the system is built in to the contract.

The foregoing addresses UK payments. The Republic of Ireland will also need to consider its system of collection and enforcement; some consultees have expressed reservations about the current system, and this may therefore be an area for further development.

[88]Apart from exempt vessels but including those pleasure craft over a defined size: see Section 7.8.

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7.6 Charging Proposals

We propose the following:

- a banded day system, with the bands and the discounts between the bands subject to further development and consultation: a day is defined as the day of arrival at a UK or Irish port; and
- the system to be implemented with the following further adjustments to the banded day system;

  - the operator / ship owner will have the opportunity to forward pay on the basis of a defined route; it is proposed that forward payments will be monthly or quarterly;

  - a small additional discount should be introduced for quarterly forward payment; and

  - when an operator / ship owner pays for the month or quarter ahead, the charge relates to the route for which payment is made, not the individual vessel.

It should be noted that the third proposal above enables a change of vessel to be made; at present a certificate is vessel specific, so that a new certificate is required if there is a change of vessel. What is proposed is that an alternative vessel would be covered by the payment, but subject to adjustment for a difference in GRT. We believe these proposals would require only a change through a Statutory Instrument. Accordingly we believe it will be possible to implement these proposals from April 2011, subject to development of the software and consultation with the GLAs and the shipping industry.

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7.7 Impacts on Shipping and the Economy

As part of our analysis we have a given some consideration to how changes in Light Dues might impact on the wider economy. This has been limited in depth and in scope to certain sectors, and is therefore an area that might merit further research with regard to local or regional impacts, if it is believed that any of the proposed changes would impact on volumes of port traffic.

In looking at impacts, it is useful to distinguish micro economic impacts which will work through to affect the economy as a whole, from those which will have local consequences.

Looking at the micro economic impacts, in a competitive market economy the case for a reasonably level playing field within which markets are free to operate is generally accepted; an exception would arise where it is necessary to address negative external effects such as congestion and carbon emissions. Policy in general - and more specifically UK and EU competition laws - seeks to remove distortions which might favour one type of activity over another. For example, all businesses face a common core set of tax regulations, and VAT is imposed at a uniform rate except for food and energy, these exceptions being consistent with wider welfare policies.

In the transport sector exceptions to the level playing field principle are specific measures in support of other policy objectives, for example duty on fuel for farmers and differential vehicle excise licence charges in support of environmental policy objectives.

As a generalisation, a level playing field is in most circumstances the best basis on which to enable the market itself to function and to allocate resources towards their most advantageous uses. Deviations from this principle are therefore exceptional and policy specific. The underlying principle is that, in the absence of externalities, taxes or other measures which favour one type of activity over another send the wrong signals to the market and lead to a less than optimal amount of resources going to one activity and a more than optimal amount to other activities. Where there are external effects such as congestion, the use of measures such as parking charges, road user charging and differential vehicle taxation are used to adjust relative prices in the market so that the unwanted effects are corrected through the working of the (adjusted) market. These economic principles underlie many areas of policy and in particular the approach that is adopted to transport appraisal.

Our analysis has shown that, even though Light Dues are a small element within overall shipping costs, the system is not proportionate – which is another way of saying that it violates the general principle of a level playing field by favouring ships such as ferries and coastal shipping which make frequent port calls in British and Irish waters, while increasing the amount paid by other shipping (compared with what would pertain in a proportionate or level playing field scenario).

Accordingly, if the playing field is not to be a level one for different types of shipping, there should be a sound economic basis for making it so: in all of our work we have never seen such a case demonstrated. While Light Dues are a very small element in shipping costs, that in itself is no reason to allow tax signals to be significantly distorted.

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To turn the analysis on its head, the application of a tax proportionality test shows that the current system would be proportionate and justifiable only if:

- returns on capital for ships making very frequent port calls were significantly below that for other types of shipping; and/or
- there are external benefits which would justify dispensing with a level playing field.

To argue the former, it would have to be the case that the shipping market is extremely uncompetitive and has very high barriers to entry, which then distorts competition, and which Light Dues are required to correct. We have not heard an argument to support this proposition, and we would suggest that in fact this cannot be the case – companies engaged in ro-ro ferry activity, for example, would either move their vessels elsewhere in the world or would sell them and invest in other areas of shipping, or in other more profitable activities. In other words, while there are barriers to a new entrant (including the capital costs of acquiring vessels and developing a reputation for quality and safety), any part of the shipping industry is potentially contestable[89] by other established firms. In other words, if the returns from high frequency activities such as cross Channel ferries are poor, the major established operators are capable of contesting either other geographic markets or other types of shipping.

That profitability is much lower in ro-ro ferries and other high frequency areas of shipping, and therefore requires a subsidy through Light Dues, seems to be an untenable assumption; given this, we have to conclude that the current system is not proportionate and indeed appears significantly to favour the "high frequency sector", including the ferry sector.

While the value of Light Dues does not appear to be significant enough to distort patterns of shipping, it is nonetheless useful to consider what directions any such distortions would take. Trinity House has made a broad estimate of Light Dues burdens by type of shipping, compared with a completely flat system. This suggests that at present the ferry sector benefits by around £14 million per annum and that most of this is in effect at the expense of container shipping, with some dis-benefit also falling on tankers – that is, container shipping pays more than it would under a flat system. As can be seen, the sums involved are actually small when spread over all shipping activity, but this still does not justify having a system which is not proportionate.

[89]The interested reader is referred to the following for an overview of the underlying principles: http://en.wikipedia.org/wiki/Contestable_market

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From port data, we estimate that 385 ships (all of which make very frequent calls) are paying less than they would under a flat rate system; applying Trinity House's calculation, these ships benefit by some £36,400 each; however, per average voyage this amounts to only £150. To put this into context, and ignoring the option of increasing any charges on commercial vehicle traffic on ferries, if an average ferry has 300 passengers and chooses to increase fares on passengers alone (that is, no increase on commercial or passengers' vehicles), this amounts to £0.50 per head. This is a small sum, but in principle and at the margin even a small price differential would induce a few more people to travel by ferry, and an increase in fares would reduce ferry use.

The extent to which current ferry passenger travel is sensitive to fare increases would merit further analysis, but looking at trends for ferry passenger travel between Great Britain and Ireland, it appears likely that the low cost airlines have already taken a high proportion of the more price sensitive foot passenger market. The remaining vehicle accompanied passenger market is less price sensitive, and would be the main market sector from which additional revenues would be raised to cover Light Dues increases. For the vehicle accompanied personal travel sector, on Irish Sea traffic the only competitor to shipping is the fly-drive market (I.e. fly and hire a car); on the cross Channel routes, the competitor is the Channel Tunnel and to some extent air travel plus car hire.

If ferry traffic is to receive price signals to adjust behaviour, for example to use surface travel rather than flying (for environment reasons), Light Dues is not the right tax / subsidy instrument to use; the inclusion of air and ferry travel within an emissions trading scheme and road user charging to encourage people to use ferries and travel onwards by rail or bus would seem to us to represent more suitable approaches, which can be fine tuned to achieve specific and well defined objectives.

It is also worth pointing out that ferry travel by tourists is not wholly beneficial at a macro-economic level either, for the UK at least. From the UK perspective, ferry travel takes some expenditure out of UK (and into Ireland and continental Europe) but brings less expenditure into the UK: the International Passenger Survey shows the following for 2008 for travel by sea:

Journey	Visits	Expenditure
Visitors from Europe to UK	4,092,000	£1,073 million
UK residents to Europe	7,490,000	£2,950 million

This clearly shows that sea travel between the UK and Europe is associated with a net outflow of visitors and of expenditure. Since some of this travel will be accompanied by vehicles, it might also increase CO2 emissions over and above a level that would pertain if ferry costs were higher.

While not beneficial in terms of the macro-economic impacts of tourists, ferry traffic does play a significant role in exports to and imports from Europe by commercial vehicle, whether as driver-accompanied tractor and trailer units or as unaccompanied trailers. Higher costs would impact on the costs of imported materials and finished goods and on the costs of exports. However, the likely change in costs is so small that it would be smaller than, for example, the effect of a 0.05% change in the value of Sterling against the Euro. As commercial vehicle traffic is core business throughout the ferry sector, and as the fare increase to passengers is so small (as noted above), it seems unlikely that there would in practice be any increase in charges to commercial vehicle and trailer traffic, and a very small increase to passengers. The main – but still very small – increase in fares would probably fall mainly on passenger vehicle fares, as this is likely to be the least price sensitive segment of the market.

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While it is evident that the ferry sector would pay more under a banded day or flat rate system, other sectors of shipping would benefit. Our analysis assesses those who pay proportionately more or less than the flat rate using costs per GRT per day, and this shows that those most disadvantaged are medium size ships making under 9 calls; those ships making more calls benefit per call because of the voyage cap, and the largest ships, while still losing from the system, get a degree of compensation from the tonnage cap. A feeder ship making frequent calls between (say) the east coast of Britain and the Netherlands has a very low rate per GRT per call, whereas a larger ship making infrequent calls faces a higher effective charge, but that charge declines as ship size gets bigger due to the tonnage cap.

Under the present system, and based on the charges from April 2010, a ship of 40,000 NRT will pay £16,400 (at the rate of £0.41 per NRT) for a single call. Based on a charge of 6 pence per GRT, the ship would have to be over 270,000 GRT to pay the same amount. Therefore while further research with container shipping companies would assist in estimating any possible impacts, it appears likely that a replacement of the present system with one that had neither tonnage nor voyage cap would benefit the UK in terms of attracting more large ships. However, Light Dues are a tiny fraction of the operating costs of large ships and the overall impact, compared with charges such as port dues would probably be very marginal [90].

The one area where a subsidy towards shipping would have some justification is coastal shipping, as this removes HGV traffic from the road network and therefore has positive impacts in terms of congestion and carbon emissions – in other words, it addresses a negative external effect of transport. However, it is arguable that the more economically efficient way to remove HGV traffic from the roads is to charge more for the use of roads (by increasing fuel tax or using some form of road user charging) rather than a blanket subsidy to ships making frequent port calls; we are not arguing for or against such measures here, however, since they remain outside the scope of our Assessment.

Turning to possible impacts at a more local level, ferry traffic contributes strongly to the local economies around ports such as Dover, Holyhead and Stranraer, and if changes in Light Dues seemed likely to have a noticeable impact on ferry traffic it would be necessary to consider measures to address this at the local level. Similarly, if ferry costs to passengers rise relative to air fares, there would be an (almost certainly marginal) amount of switching between ferry and air, which would have adverse impacts on carbon emissions. Whether subsidising ferries from revenues paid by other users of AtoN is the correct way to address these issues is, however, open to debate. The general presumption is against such cross subsidisation and in favour of more direct measures to achieve the desired outcomes; for example, additional taxation on aviation would help to reduce carbon emissions and at the same time make ferry use relatively more attractive.

We also recognise that some ferry services play a vital social and economic role for island communities. For example, it is a policy of the Scottish Government to consider the introduction of a road equivalent tariff for lifeline ferry services, in order to reduce the costs of travel by islands residents. Such ferry services will experience higher annual Light Dues costs. For example, for the MV Isle of Lewis, if a flat rate were applied, the annual costs might rise by around £90,000 compared with Light Dues post April 2010 (at £0.41 per GRT). While this amounts to only around 12 pence per passenger per one way journey (assuming an average 60% load factor and no additional payment for cars), there may be a desire not to pass on these costs to passengers, and therefore the additional Light Dues payments would have to be met by the Scottish Government.

[90]This is not to say that the impact would be zero, especially if combined with other changes to reduce costs in the UK and calls upon the GLF to contribute towards the costs of AtoN in the Republic of Ireland.

7. Charging for Aids to Navigation

7.8 Extending Coverage of the System

7.8.1 Potential Additional Groups for Payment of Light Dues

In addition to considering whether the system needs to be reformed and how best to do so, the study has considered how best to extend the coverage or "tax base". The candidates for inclusion in the system are:

- passing ships that use UK and Irish waters, but not UK and Irish ports;
- vessels used for non-commercial pleasure or leisure purposes;
- vessels of the Royal Navy and the Irish Navy, and other Government ships; and
- fishing vessels using UK and Irish ports.

Passing ships cannot be charged for passage under international law and will unfortunately remain as "free riders". Whether revenue could be captured from such ships under an alternative taxation basis, such as a carbon tax (a charge for converting oxygen above UK and Irish waters into CO2) is outside of our remit, but remains an interesting avenue for exploration, preferably within a European rather than a national context.

The port data identified only 581 port calls by Royal Navy vessels, all of which were relatively small; the benefits from ending this exemption would be small, and it would almost certainly be counter-claimed that the MoD provides some AtoN which are not charged. We did not specifically identify Irish military vessels, but we would expect that similar comments would apply. On the basis of the UK findings, we did not pursue this option of charges for military vessels.

Fishing industry policy is an area where National Governments have to contend with complex issues including local employment in fishing ports and the effects of fishing quotas. We took the view that current treatment of the fishing sector with regard to AtoN should be left untouched until the wider policy direction for the industry is clearer.

7.8.2 Pleasure Craft

Small vessels used for non-commercial leisure purposes represent a potentially large source of revenue, but the charging system and the system for collection would both have to be carefully assessed. At present leisure vessels over 20 NRT are charged £77 per annum, but the system could be extended to smaller vessels.

In the course of the Assessment, four approaches were considered for the UK, namely:

- a tax on marinas on the basis of berth capacity;
- a tax on VHF licence holders in conjunction with OFCOM;
- a charge through Crown Estates, who levy fees on use of water above land in Crown Estates ownership; and
- a registration fee.

A charge on leisure sailors should target those who are likely to use and benefit from general lights, in the same way as some ferries that do not leave local lights areas are not charged. In practice, this means capturing those leisure vessels which "go foreign", that is, which leave UK territorial waters. Again in practice this applies to larger vessels; for yachts this would generally apply to those over 9 – 10 metres in length.

A tax imposed on marinas would be based on berth capacity, and the marina owner would have the discretion of how to recover the tax from clients. This would lead to different charging systems at different locations based on what the market at each marina would bear, and there is no guarantee that the emergence of a new tax would not lead to a general uplift in charges. A further problem is that most boats using marina berths do not sail out of territorial waters; boats that do sail outside territorial waters generally make more use of swinging moorings and may fall outside marina charges altogether. A marina tax might therefore increase costs to those who never use general lights while missing those who do, which could then give rise to complaints similar to those made by ship owners, namely that they are being charged for something they do not use.

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It is understood that OFCOM discontinued charges for VHF licences because the cost of collection exceeded the revenue gathered. However, this position could be overcome if the licence fee included a charge for AtoN. The downside of this method is that many vessels which have VHF licences do not leave harbour areas, and so some very clear non-beneficiaries of general lights would be charged.

The Crown Estates charge fees on some areas of water which are used for mooring yachts and powered leisure craft, including marinas and harbours. However, this coverage is patchy and there are areas where Crown Estates either have no rights to impose charges or where local agents do not actually make charges. Therefore even if the DfT were able to arrive at a suitable arrangement with Crown Estates, the match between use (or potential use) and those paying the charge would be too "hit and miss" for this to be accepted by the leisure sailing market.

The MCAs registration system defines pleasure craft as used for sport or pleasure where the owner does not receive any money for operating the craft or for carrying any passengers. Craft over 24 metres are registered in the MCAs Part 1 register, and those under 24 metres can register in the small ships or Part III register; Part III registration provides proof of ownership and while not compulsory in UK waters is highly beneficial (for example for proof of ownership) but not actually compulsory for sailing outside UK territorial waters. Even so, registration does in principle align well with likely use of general lights.

There are some 41,000 ships on the Part III register and 24,000 on the Part 1 register; some of the latter will also fall within the over 20 NRT size band for Light Dues. For Light Dues an annual payment of £77 is made, unless the vessel is used and kept outside the UK, when a payment of £26 per visit of 30 days or less is made. There is a maximum in any year of £78 under this system. Therefore some 50,000 – 55,000 ships, in round numbers, might be registered and therefore able to sail outside UK territorial waters but fall under the size where Light Dues would be charged at present.

For registered pleasure craft, including those already falling within the over 20 NRT band, a charge of £100 per annum might generate £5m to £6m in gross revenue in the UK alone. However, owners can register in any jurisdiction and registration is only advisory and not mandatory for ships which sail outside UK waters. There is therefore a reasonable possibility that some owners would discontinue registration when faced with such a charge, while others would register abroad.

There is also the complication that the MCA register is understood to be significantly out of date, mainly because changes of vessel ownership are not notified by owners (in contrast to changes in car ownership, for example). There may therefore be considerable difficulties in issuing invoices to current owners, as well as in following up outstanding invoices and issuing credit notes where invoices have been issued incorrectly. These problems may mean that trying to collect Light Dues would prove not to be cost effective, without a proper overhaul of the register, or better still a compulsary registration system.

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In Ireland, the Irish Sailing Association operates a voluntary Small Craft Register for craft up to 24 metres in length. There is also a certificate of identity and origin which (according to the ISA website) may assist with foreign formalities, which may imply that this is all that is required in order to sail outside territorial waters. To date no data on numbers of registered craft have been obtained.

While there is considerable merit in bringing in pleasure craft within the net of the levy system, we would expect widespread objections to this measure from leisure sailors, as well as encountering large numbers changing registration to avoid the charge. In addition, the costs of collection could be significant if, as we believe, the register is inaccurate. While £100 is only some 1% to 1.5% of the annual operating costs of a yacht of 9 – 10 metres (and current UK registration fees are £124 for five years (Part 1) and £25 for Part III), we would expect some owners to change registration or de-register as a matter of principle, rather than on grounds of affordability.

Pleasure craft therefore do not look entirely promising as a source of significant additional revenues; the only way to address this would be through a compulsory registration system for boats over a given size, and where the owner is normally resident in the UK (and Ireland), with an annual renewal system similar to that applying to cars. This register would be based on owner's place of residence, and regardless of where the vessel is normally kept.

With such a system in place a larger annual levy could be applied with better prospects of minimising avoidance, while also being able to set rates at a level which represent a reasonable contribution to AtoN costs while also covering the costs of the registration scheme itself. Further consideration would be needed with regard to an enforcement regime under a compulsory registration scheme; without effective enforcement, we would expect the number of free riders to be high, and if enforcement is expensive and the costs of doing so cannot be fully recovered from non-payers, it may be that the net revenues from pleasure craft would be disappointing.

7. Charging for Aids to Navigation

7.9 Conclusions

We believe there is a strong case for reform of the system to make it less non-proportionate than it is at present. Based on available information and some reasonable assumptions regarding how competitive markets work to allocate resources, there is a case for adopting, or at least working towards, a flat rate system based on a daily payment and no tonnage cap. Given the way the system and the charges and caps have varied year to year, there is also a case for defining a system that will operate from a future year and setting out, and sticking to, a road map to get to that end point.

However there are three important considerations to be taken into account:

- first, this is likely to be viewed by the shipping industry as a major change and one which needs to be introduced gradually, so that the shipping industry has time to consider and absorb the implications;
- second, any changes will require changes in collection methods and systems, and time is required to make such changes and prepare for actually implementing charging systems on the ground; and
- third, both the UK and Irish Governments need to consult with the shipping industry to produce robust financial evidence regarding the extent to which proportionality is or is not achieved through our proposals.

We believe that consultation needs to include a wide spectrum across the industry, but also that the core principle of proportionate taxation should stand as a matter of policy, not least because it is consistent with the approach adopted with regard to other areas of transport and indeed in other areas of government policy.

The elements that could form the basis for (gradual and phased) changes to the Light Dues regime are:

- to abolish the tonnage cap and adopt GRT rather than NRT; and
- to introduce a banded multi-day system.

We believe there is a sound case for removing the tonnage cap and for the use of GRT, not least because that measure is used for port dues and so there would be greater consistency and comparability.

We also propose three further minor changes, which will be beneficial to ships making frequent calls namely:

- the operator / ship owner will have the opportunity to forward pay on the basis of a defined route; it is proposed that forward payments will be monthly or quarterly;
- a small additional discount should be introduced for quarterly forward payment; and
- when an operator / ship owner pays for the month or quarter ahead, the charge relates to the route for which payment is made, not the individual vessel.

The banded day model performs better on the proportionate taxation test than the simpler options of a 52 voyage cap and a 3 day certificate; both of these represent only a limited improvement in terms of proportionality over the current system, and therefore we do not recommend this approach.

The banded day model also has the advantage that discounts can be applied between the bands. The system could be in introduced with relatively deep discounts, which would lessen the impacts on shipping such as ro-ro ferries; however, thereafter the discounts between bands can be reduced in succeeding years, so that the costs facing ships that make very frequent calls can be increased gradually. It should also be recalled that as the discounts between bands are reduced, the base charge per GRT per day will fall.

7. Charging for Aids to Navigation

We believe there is also a strong case in principle for extending the payment system to include those pleasure craft not already captured by the present system. We have identified significant practical drawbacks, and it is likely that the introduction of a compulsory registration scheme would be required if all eligible to pay are to come within the net for charging. A major practical advantage of a compulsory registration scheme is that the rate of charge could be increased, from a level of £100 (beyond which too many owners might register abroad) to (say) £250, which would have a significant impact on revenue and would also pay for the registration scheme.

However, if a proportionate approach is to apply across all who pay the levy, a medium to large pleasure craft of say 15 GRT would pay only £1.50 on the flat rate system (and it would not be feasible to apply day bands to voyages), but it is suggested that such craft could be charged £100 (this rate set so as to avoid wholesale changes in place of registration). Accordingly it is proposed that:

- all craft up to 249 GRT could pay a £100 flat charge only; and
- all ships of 250 GRT and upwards could pay the flat £100 plus the charge indicated by the banded day system.

The £100 can be treated as a basic administration charge required to put vessels into the system and cover overheads.

7.9.1 Potential Charge Rate

Our analysis using port data indicated a likely charge level of around 5 pence per GRT on the flat rate system. This was targeted at raising approximately £73 million in revenue; this sum ignores the possible revenues from leisure sailors. A lower target revenue would lower the rate pro-rata[91]. This finding appears reasonably robust and is broadly in keeping with DfT data and port data which indicate the following:

- recorded calls (DfT Maritime Statistics 2009): 131,551 (UK ports only); and
- average GRT per ship (calculated from port data): 12,995 GRT.

Applying a rate of 5 pence per GRT per recorded call and allowing for Irish ports (increasing the UK total by 5%) would generate £90 million, so a 5p rate appears conservative. On this basis the average ship using a port for one day would pay £650; a ship of 150,000 GRT making the same use would pay £7,500 for AtoN. For comparison, it is estimated that the average ship calling at Clydeport to load or discharge cargo would pay £28,069.20 (based on published 2009 rates).

To assess this, Trinity House undertook a parallel exercise on the banded system, which confirmed a rate of 6 pence per GRT per day based on a target of £73 million. Therefore we believe the charge rate and revenue potential estimates require only minimal further validation to address imperfections within the ports data. This shows a huge cut in the rate per ton, while also flattening the structure and moving it significantly towards a proportionate system.

As shipping numbers may continue to decline, any revised rate may rise over time, but by a lesser amount than would happen under the capped system. This is because larger vessels, where there is growth in numbers, would not face a zero marginal cost as happens at present under the tonnage cap.

[91] As would happen if substantial amounts could be raised from leisure sailors; similarly, if our proposals to reduce GLF payments to Ireland were implemented, the rate would also reduce.

7. Charging for Aids to Navigation

7.9.2 Final Remarks

Light Dues are best regarded as a charge with strong tax characteristics, and therefore the best way to test the existing system and any options is to apply a test of whether the "tax take" is proportionate to the financial rewards from the activity being taxed. The test used here is in relation to ability to pay, which in turn depends on profitability in relation to use of British and Irish waters. A proportionate tax would take the same proportion of profits from all users. We do not have information on profits earned in British or Irish waters, but market forces will tend to equalize profit per ship unit per day across all types of shipping, and our analysis has used GRT as the best available ship size unit.

The present capped system fails the proportionality test because it gives rise to large variations in the rate of charge per GRT per day, depending on ship size and frequency of calls. Ships just under or over the caps pay more per unit of activity than larger ships and those making frequent calls, so that, as profitability and hence ability to pay is related to activity, this means ships around the cap are paying too much and those well over the caps are paying too little in relation to each other. In terms of the proportionality test, this constitutes a fail.

We have considered a simple flat rate per GRT per day as the system most likely to deliver a proportionate outcome. However, we recognise that moving quickly to such a system would present some difficulties for the shipping industry, as well as requiring time to address collection issues. We also considered a more complex taper system, which has some merit but while workable in the aviation sector presents more substantial problems for the shipping sector.

As an alternative we devised and tested a system using day bands (up to 50 days, 51 to 100 and so on) with lower rates applied to the higher bands. Given the pattern of shipping, this works very well and delivers a result which we believe represents an acceptable degree of proportionality without undue complexity. By setting large discounts for higher numbers of days, the impacts on high frequency ships can be reduced, but we propose that this should be a transitional arrangement, a stepping stone towards the flat rate system. The use of the banded system also allows change to be monitored and assessed.

We therefore propose the banded day system with a charge per GRT per day, with the minor adjustments as described above plus a flat rate administration fee as the basic system; all ships under 250 GRT would pay only the flat fee, including pleasure craft. The rate of discount to be applied to the different day bands is a matter for consultation and negotiation, but our view is that over time discounts should be eliminated. By introducing a compulsory vessel registration scheme, the flat administration fee could be increased, which would reduce the amount to be collected using the banded day system.

As Light Dues are such a very small element of shipping costs, we believe the net impact of introducing the banded day per GRT system with reasonably high initial discounts for high frequency shipping will be minimal, as the system would simply redistribute the payment burden towards the more frequent users of UK and Irish waters and away from others. We see this as a significant improvement on the current system and a significant step towards a much more proportionate approach. It also has the merit of greater transparency with regard to the allocation of revenues, as revenues attributable to Ireland traffic will not be hidden within the system.

Photo courtesy of TH

8. The General Lighthouse Fund
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8. The General Lighthouse Fund

8.1 Introduction

The Secretary of State administers the GLF, which derives most of its income from Light Dues charged on ships calling at UK and Irish ports, together with lesser levels of GLA commercial income, sale of surplus assets and investment in the stock market. The GLF finances the GLAs and needs to generate sufficient regular income to sustain the short, medium and long term operations of the three GLAs in order to fulfil statutory requirements. This Chapter addresses the management of the GLF. The main aims, as defined in our Terms of Reference, are to:

- assess the level of GLF reserves needed to maintain the financial stability and resilience AtoN service provided by the GLAs;
- assess the management of the GLF and its fund managers; and
- address specific issues identified during the analysis, including management of the GLF in relation to changing shipping patterns and trade volumes, investment strategy given to the GLF investment fund managers, future pension fund arrangements and the current structure, operation and management of the GLF.

8.2 Financial Performance

Financial accounts for the GLF are presented in the format stipulated by the Merchant Shipping Act 1995 and in line with advice from DfT. From 2009/10 onwards, the accounts will be presented in accordance with International Financial Reporting Standards (IFRS).

The financial performance of the GLF over the last 5 years is illustrated in Table 8.1. The figures indicate that performance has varied significantly from year to year:

- direct operating surplus has declined by 89% over the last three years, from £10.5 million in 2006/07 to £1.1 million in 2008/09; and
- net operating performance indicates an even weaker position with the reported deficit reaching £24.5 million in 2008/09.

The operating surplus or deficit in each instance is largely driven by the income from Light Dues balanced by operating and capital expenditure, pension payments and depreciation provisions. Under each of these criteria the following conclusions can be drawn:

Income

- total income has remained in the range of £76 to £80 million per year;
- Light Dues are the prime income source, but they have declined as proportion of the total from 93% in 2004/05 to 91% in 2006/07 and 87% in 2008/09;
- the Irish Government contribution increased by nearly 60% in Sterling terms from £3.89 million (5% of total) in 2004/05 to £6.17 million (8%) in 2008/09; and
- other operating income (mainly from tender hire, sundry receipts, property & buoys) increased by 250% from £1.5 million (2%) in 2004/05 to £3.8 million (5%) in 2008/09.

8. The General Lighthouse Fund

Table 8.1 - General Lighthouse Fund - Income and Expenditure Statements (£000)

Component	2004/05	2005/06	2006/07	2007/08	2008/09
Income					
Light Dues	71,123	74,602	70,062	67,452	69,581
Other Operating Income	1,497	1,704	2,434	3,719	3,814
Irish Government Contribution	3,893	3,728	3,937	4,555	6,170
Grant Income		28	180	253	74
Total Income	76,513	80,062	76,613	75,979	79,639
Expenditure					
Staff Costs	28,478	26,240	27,000	27,789	29,679
Pensions	5,047	4,240	5,399	7,135	7,845
Amortisation		124	230	579	414
Depreciation	9,926	11,455	10,096	9,156	9,546
Other Operating Costs	23,531	25,059	23,362	25,275	31,041
Total Operating Costs	66,982	67,118	66,087	69,934	78,525
Operating Surplus	9,531	12,944	10,526	6,046	1,114
Exceptional Items	(7,902)			18,382	
Surplus on Operating Activities	1,629	12,944	10,526	24,427	2,363
Other Items					
Interest on Pension Scheme Liability	(15,666)	(16,490)	(18,195)	(17,430)	(21,952)
Gain on Sale of Fixed Assets	(215)	207	80	829	182
Income from Listed Investments	1,802	2,105	1,888	2,253	2,589
Gain on Sale of Listed Investments	(550)	998	5,843	1,831	(4,790)
Other Interest Receivable	1,124	914	1,087	1,370	923
Interest Payable	(1,460)	(1,351)	(1,102)	(1,965)	(2,560)
Total - Other Items	(14,965)	(13,617)	(10,399)	(13,112)	(25,608)
Net Operating Surplus (Deficit)	(13,336)	(673)	127	11,315	(24,494)
Other Financial Indicators					
Fixed Assets	100,890	105,577	127,558	150,059	147,553
Net Current Assets	85,750	94,517	96,527	103,093	76,567
Long Term Creditors, Capital & Reserves	(126,697)	(143,108)	(196,788)	(186,291)	(203,318)
Pension Liability	(256,130)	(305,430)	(347,838)	(337,665)	(330,558)
Purchase of Tangible Fixed Assets	13,217	16,028	35,534	34,380	10,231
Employees - Average (Incl. Part-Time) (Nos.)	956	909	881	854	841

Source: Reports and Accounts of the GLF - 2005/06 to 2008/09.

8. The General Lighthouse Fund

Expenditure

- total operating costs increased by 17% over the last five years from £67 million in 2004/05 to £78.5 million in 2008/09. This was largely due to the significant decline in the exchange rate between Sterling and the Euro, which increased the converted value of CIL costs in 2007/08 and 2008/09;
- staff costs are the largest cost component, but have declined as a proportion of the total from 43% (£28.5 million) in 2004/05 to 41% in 2006/07 and 38% (£29.7 million) in 2008/09 - which also reflects the general decline in staff numbers from 956 in 2004/05 to 784 in 2008/09;
- pension costs increased by 55% over the five-year period to reach £7.8 million in 2008/09. Again, the exchange rate decline had an important impact;
- annual depreciation has remained fairly stable at between £9.1 and £11.5 million per year. It is important to note that assets are valued at historic cost and are not subject to periodic revaluation. Only assets that are surplus to operational requirements are valued at market prices and reviewed annually; and
- other operating costs are also significant items, including: (i) ships and boats; (ii) general repairs and maintenance; (iii) services and energy; (iv) travel and subsistence; (v) helicopters; and (vi) communications.

Other Financial Indicators

- gross fixed assets have increased by nearly 50% over the 5-year period from £101 million in 2004/05 to £148 million in 2008/09 - all valued at historic cost; and
- pension liabilities have increased by 29% from £256 million in 2004/05 to £330 million in 2008/09.

On the GLF balance sheet, Table 8.2 indicates that sums owed by debtors (i.e. accounts receivable) have increased by 37% from £6.8 million in 2004/05 to £9.3 million in 2008/09, of which GLF debtors amounted to £6.7 million (72% of the total). This position was largely due the fact that the Irish Government's contribution is always paid in arrears and the significant shift in Sterling-Euro exchange rate over the last three years. In future, it would be more appropriate financially to negotiate quarterly contributions from the Irish Government.

Table 8.2 - General Lighthouse Fund - Debtors (£Million)

Year	Debtors			Total Debtors/ Total Income	GLF Debtors/ Total Light Dues
	Total	GLF Debtors	GLF %		
2004/05	6,825	n.a.	n.a.	9%	n.a.
2005/06	7,517	n.a.	n.a.	9%	n.a.
2006/07	7,570	4,754	63%	10%	7%
2007/08	9,370	6,409	68%	12%	9%
2008/09	9,343	6,718	72%	12%	10%

Source: Reports and Accounts of the GLF - 2005/06 to 2008/09.

Finally, the financial accounts of the GLF and the GLAs are subject to external audit by the National Audit Office (NAO) and the Northern Ireland Audit Office (NIAO). The audit reports do not identify any significant accounting issues. However, they do highlight the need for care in the future financial control of:

- the fixed asset account and appropriate valuation;
- pension provisions and future pension obligations;
- public interest in the GLF and changes in the level of Light Dues; and
- the introduction of International Financial Reporting Standards.

8. The General Lighthouse Fund

8.3 Investment Funds Management

8.3.1 Overview

The objectives, structure and management of the GLF's investment resources are currently under review by the DfT with support and advice from the Government Actuary's Department (GAD). Therefore, this section summarises and comments on the present position and the implications for the future operation of the GLF investment funds.

The GLF's investment objectives can be summarised as follows:

- achieve a reasonable rate of return over the medium to long term;
- investment risks should be controlled and not excessive; and
- maintain adequate levels of liquidity.

8.3.2 Current Structure of GLF Investment Funds

The current structure of the GLF Investment Fund is summarised as follows:

- an overall value of £80 million, as at September 2009 (compared to £83.8 million in March 2004), divided as follows:
  - £10 million with HSBC in a cash vehicle; and
  - £70 million with investment managers (Martin Currie and Baillie Gifford) who were contracted from July and August 2006 respectively.
- £70 million with the investment managers can also be divided in terms of: (i) £44 million in accumulated member pension contributions; and (ii) £26 million as an operating reserve.

8. The General Lighthouse Fund

8.3.3 Management of Investment Funds

The main issues relating to the management of the Funds are the relative importance of the annual returns from the investments as a contribution to GLF income; and the capital growth of the Funds themselves. Historically, dividends and interest have only accounted for modest proportions of annual income[92]. Therefore, marginal increases or decreases in investment income are relatively unimportant. This implies that capital preservation and/or capital growth is a more important investment objective.

In recent years, the general objective has been to maintain a stable Investment Fund of about £70 million, including adequate protection of members' pension contributions. Nevertheless, the Funds are exposed to a number of risks, namely:

- significant falls in Light Dues revenue, due to: decline in maritime trade and/or delay in increasing shipping charges;
- excess operating and/or capital expenditure resulting in a draw-down on the operating reserve; and
- poor management and returns on the reserve funds.

In the light of these issues, it would be more pragmatic to divide the Investment Funds into two distinct pools:

- accumulated member pension contributions fund - to be invested like a conventional pension fund with a long-term growth objective. This may necessitate legal advice as to whether a separate legislative regulation would be required to protect the funds; and
- operating reserve fund - to be invested with a stable value objective to maintain its role as an operational cash-flow buffer, but with medium to long-term growth potential.

The reported performance of the GLF Investment Funds is summarised in Table 8.3 for the last three years.

In general, the performance has been poor and exacerbated by the financial crisis and the significant decline in stock market values, especially in 2007, 2008 and early 2009. The figures in Table 8.3 clearly indicate the impact of the poor performance. For example, in 2008/09, total GLF investment funds declined in value by more than 16% (£16 million), from £100 million to £74.5 million. However, in the eight months from April to November 2009 stock market values rallied, and the total fund value recovered to £80.8 million. Nevertheless, the economy remains fragile and volatility in the stock market may continue for at least another year or more.

Annual returns (dividends and interest) have been disappointing, ranging from £2 to 3 million per year, which represents a return of only 2% to 3% per year.

[92] 4% to 5% in 2007/08 and 2008/09.

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Table 8.3 - Investment Funds - Annual Performance 2006 - 2009 (£000)

Fund Manager	Fund Value		Annual Return		Management Costs	Percentage Gain (Loss)	
	Year Begin	Year End	Capital Gain (Loss)	Investment Income		Capital Gain (Loss)	Investment Income (3)
Martin Currie							
2006/07	41,991	45,895	3,904	887 (1)	114	+9.3%	2.0%
2007/08	45,895	43,711	(2,184)	1,370	159	-4.8%	3.1%
2008/09	43,711	33,272	(10,439)	1,636	134	-23.9%	4.3%
2009 (Nov.)	33,272	40,653	7,381	1,024	94	+22.2%	2.8%
Baillie Gifford							
2006/07	30,325	32,976	2,651	436 (2)	111	+9.7%	1.4%
2007/08	32,976	32,500	(476)	883	163	-1.4%	2.7%
2008/09	32,500	26,674	(5,826)	953	151	-17.9%	3.2%
2009 (Nov.)	26,674	32,416	5,742	501	101	+21.5%	1.7%
HSBC							
2006/07	16,178	13,691		620	22		4.2%
2007/08	13,691	23,861		924	38		4.9%
2008/09	23,861	14,589		811	38		4.2%
2009 (Nov.)	14,589	7,712		45	13		0.4%
Total							
2006/07	88,494	92,562	6,555	1,877	247	+7.4%	2.1%
2007/08	92,562	100,072	(2,660)	2,996	360	-2.9%	3.1%
2008/09	100,072	74,535	(16,265)	3,260	323	-16.3%	3.7%
2009 (Nov.)	74,535	80,781	13,123	1,552	208	+17.6%	2.0%

Notes: (1) July 2006 to March 2007; (2) August 2006 to March 2007; and (3) based on average fund value for year. Source: GLF Accountant.

DfT and the Investment Committee (IC) have been concerned for some time about the poor performance of the GLF Investment Fund Managers - even in the current difficult economic conditions. The concerns are illustrated by the indicators in Table 8.4, which compare the performance of the two fund managers against market benchmarks. Under their contracts, the investment managers were given the target of exceeding the market benchmark by +1%. Of the managers, only Baillie Gifford has recorded an acceptable performance.

In light of the poor performance and the need to rebuild stability and long-term growth in the fund, the Investment Committee recommended to the DfT that contracts for the management of the investment portfolio should be subject to a new tender process. The initial intention was to re-tender the Martin Currie contract, but this was subsequently amended to cover both contracts. In addition, the GAD was engaged, in August 2009, to provide specialist advice to:

- review performance of the two investment managers;
- assess appropriateness of current benchmarks and suggest necessary changes;
- advise on alternative investment management products; and
- recommend a process for re-tendering the investment management contracts. In addition, the Committee recommended the retention of the HSBC cash management contract and custodian service.

8. The General Lighthouse Fund

Table 8.4 - Investment Fund Managers - Performance from Contract Inception

Periods to 31st March 2009	GLF Fund	Benchmark	Difference
Martin Currie			
1st Quarter 2009	-4.0%	-6.8%	+2.8%
Year	-23.5%	-17.1%	-6.4%
Since Inception (1)	-7.8%	-4.3%	-3.5%
Baillie Gifford			
1st Quarter 2009	-5.9%	-7.9%	+2.0%
Year	-17.6%	-19.0%	+1.4%
Since Inception (2)	-4.8%	-5.9%	+1.1%

Notes: (1) 30th June 2006; (2) 21st August 2006; and (3) Benchmark comprises: 40% FTSE All-Share; 15% Government All Stocks; 24% FTSE World (excl. UK); 10% IPD UK Monthly; and 10% LIBOR +4%. Source: GLF Accountant.

The GAD has presented a number of reports that review the performance of the fund managers and discuss potential future investment strategies.

The current strategy implemented by the two investment managers has focused on the following broad distribution:

- equities 72% (UK 45% and overseas 27%); and
- alternative assets 28% (government bonds 18%, property 5% and LIBOR +4% targeting fund 5%).

The GAD recommends a more diversified investment strategy in order to limit exposure to the volatility of equity markets; reduce the perceived levels of risk; and promote long-term growth based on a more diversified distribution. Many conventional pension funds are increasingly seeking to spread equity risk by diversifying their holdings into alternative assets (e.g. property, commodities, hedge funds and high yield debt). In this context, GAD recommends the adoption of a split investment strategy for the GLF's two funds, as follows:

- Accumulated member pension contributions fund (circa £44 million) - to be placed in a Diversified Growth investment vehicle that aims to generate long-term absolute returns above an inflation or cash benchmark. GAD states: "Return targets after the deduction of fees (circa 0.75% p.a.) are typically in the order of RPI plus 5% or LIBOR plus 3%. Given long-term inflation expectations of around 2% and cash returns of around 3.5%, typical return targets are around 6.5% to 7% per annum over the long-term."
- Operating reserve fund (circa £26 million) - to adopt a *Stable Value* strategy in order to reduce risk exposure but retain some long-term growth if possible. The investment vehicles that would fulfil this strategy include:
  - enhanced cash funds;
  - absolute return bond funds; and
  - equity funds plus downside protection.

Based on these recommendations, GAD suggests that the "two manager" structure should be retained in order to limit the impact on the Fund's governance, with the following indicative allocation:

- Investment Manager 1 - pension funds in a Diversified Growth investment vehicle: £44 million (63%);
- Investment Manager 2 - operating reserve fund in a Stable Value investment vehicle: £26 million (27%).

8. The General Lighthouse Fund

We support the GAD's recommendations, subject to two important observations:

- Pension Contributions Fund (PCF) - when the Draft Marine Navigation Bill becomes law, the GLAs will be empowered to establish separately funded pension schemes for new employees. The existing arrangements for new employees will be closed. Hence, over a long period of time, the GLF's pension liability will gradually decline; and
- Operating Reserve Fund (ORF) - there is a need for a realistic review as to whether the ORF is a financial necessity for the short to medium term stability of the GLF.

Arguments for retention of the ORF in some shape or form include provision of additional protection for the payment of future pension obligations, provision of sufficient funds to cover two months of GLA operating expenditure[93], wreck removal costs and provision to cover uninsurable losses.

Against this the GLF has a positive cash flow position and low risk financial structure. Therefore, high reserve levels are not necessary. In addition, current funds in the ORF are sufficient to cover more than 3½ months of GLAs operating expenditure, which is high by general commercial standards, investment returns on the ORF have also been low and the funds would be more productively invested in new and/or replacement capital assets, moderation of future phased increases in Light Dues and/or a combination of the two.

The balance between the arguments for and against retention of the ORF points towards keeping the level of the ORF funds under review, with a potential phased reduction over time, balanced by the need to secure the financial stability of the GLF in the face of cycles in the economy and shipping trends.

In addition, the arguments for a reduction in the ORF are reinforced by the other significant recommendations in this Report on Light Dues and GLA costs and efficiencies.

[93] Equivalent to around £13 million for 2008/09.

8. The General Lighthouse Fund

8.4 Pension Structure and Management

8.4.1 General

At present, the GLF meets the cost of GLA statutory pension obligations on a Pay As You Go (PAYG) basis. There are three pension schemes (one for each GLA) that are analogous to the Principal Civil Service Pension Scheme (PCSPS). In 2008/09, pension payments amounted to £15.3 million, which is about 4.6% of reported pension liability, or 19% of direct annual expenditure (Table 8.1).

Total reported pension obligations have risen by 25% over the last five years, from £263 million in 2004/05 to £330 million in 2008/09. The present pension structure is as follows:

- Main obligations – all pension benefit expenditure is met on an unfunded basis. Benefits are paid when they fall due from the GLF. No assets are set aside specifically to meet future pension and cash payments. A recent report (January 2005) estimated that it would take 80 years to fulfil all the pension liabilities of the existing staff and longer if new employees join the current pension scheme; and
- Separate pension contributions – the GLAs have established an additional reserve to cover spouses' pension benefits into which staff members contribute 3.5% of their salary. The current value of the fund amounts to about £44 million, with additional sums of about £1 million per year. Two investment management companies administer the funds on behalf of the GLF.

8.4.2 Future Pension Obligations

Future pension obligations will continue to rise based on the direct links to price inflation, further salary increases and assumptions on members' retirement ages (note: on a member's death the surviving spouse is entitled to 50% of the member's pension). In this context, pension projection models are a crucial component in financial planning in order to maintain realistic current estimates of annual pension outgoings for at least 10 to 20 years. In 2004, consultants were commissioned to prepare Pension Benefit Cashflow Projections for staff members employed in the base year (report by AON Consulting, January 2005). Although the report has not been updated, it is useful to illustrate the results to gauge the magnitude of future obligations. The central assumptions for the forecasts were as follows:

- long-term average price inflation 3% per year;
- increase in national average earnings of 4% per year;
- GLA earnings increases of 1.5% per year more than inflation; and
- life expectancy at age 60 of 25 years for males and 28 years for females.

Table 8.5 summarises the forecasts prepared by AON Consulting in nominal and real prices by GLA from 2010 to 2020, and for 10-year intervals to 2050. It should be noted that pension projections for CIL were based on an exchange rate of £1 = €1.50. Therefore, at the present exchange rate (£1 = €1.10 to 1.15) the CIL forecasts are under-estimated by as much as 35%. The figures indicate the following:

Nominal Prices (i.e. including inflation)

- Annual pension payments are forecast to increase by 38% over the next 10 years, from about £16.5 million in 2010 to £ 22.8 million in 2020, with a total requirement of £214 million.
- Total pension requirements for the next 40 years (2010-2050) are estimated to be more than £1 billion.

Real Prices (i.e. excluding inflation)

- annual pension payments are forecast to increase by a modest 3% over the next 10 years, from about £13.8 million in 2010 to £14.2 million in 2020, with a total requirement of £154 million; and
- total pension requirements for the next 40 years (2010-2050) are estimated to be more than £480 million.

8. The General Lighthouse Fund

Table 8.5 - Pension Forecasts by GLA in Nominal and Real Prices: Central Assumptions

Year	Nominal Prices (£ million)				Real Prices (£ million)			
	TH	NLB	CIL	Total	TH	NLB	CIL	Total
2010	7.4	3.5	5.6	16.5	6.2	2.9	4.7	13.8
2011	7.6	3.3	5.5	16.4	6.2	2.7	4.4	13.3
2012	7.5	3.8	5.8	17.1	5.9	3.0	4.6	13.5
2013	8.1	3.9	5.9	17.9	6.2	3.0	4.5	13.7
2014	7.9	4.2	6.2	18.3	5.9	3.2	4.6	13.7
2015	8.4	4.4	6.3	19.1	6.1	3.1	4.6	13.8
2016	9.0	4.4	7.0	20.4	6.3	3.1	4.9	14.3
2017	9.4	4.5	7.1	21.0	6.4	3.1	4.8	14.3
2018	10.5	4.6	7.2	22.3	6.9	3.1	4.7	14.7
2019	9.7	5.1	7.3	22.1	6.2	3.3	4.7	14.2
2020	10.1	5.0	7.7	22.8	6.3	3.1	4.8	14.2
Totals								
2010-20	95.7	46.8	71.58	214.0	68.8	33.5	51.3	153.6
2021-30	113.0	57.1	81.4	251.5	59.8	30.2	44.1	134.1
2031-40	130.6	71.1	82.2	283.9	51.5	26.7	33.8	112.0
2041-50	131.1	78.6	63.6	275.3	39.3	18.8	23.3	81.4
Grand Total	472.4	253.6	298.7	1,024.7	219.4	109.2	152.5	481.1
	46%	25%	29%	100%	45%	23%	32%	100%
Employees 2008/09	320	263	258	841	320	263	258	841
	39%	31%	30%	100%	39%	31%	30%	100%

Source: Pension Benefit Cashflow Projections, AON Consulting, January 2005.

8. The General Lighthouse Fund

The figures in Table 8.5 illustrate the magnitude of future pension obligations that will need to be met by the GLF. In this context, it is important to highlight that the UK Government issued a Letter of Comfort (dated 17th December 2001) given by the UK Government that effectively safeguards future PAYG pension obligations of the three GLAs, subject to Parliamentary approval. It is understood that the UK Letter of Comfort also applies to CIL's pension obligations.

The GLAs, with NLB in the lead, have been actively investigating the options to establish their own Funded Pension Schemes for new staff members. In the current economic conditions, this is an important initiative that should be encouraged in order to relieve pressure on the PAYG system and promote personal pension provisions that reflect the commercial world. Table 8.6 highlights some of the main features of a funded pension in comparison with PAYG arrangements.

The main steps to establish a new Funded Pension Scheme are briefly outlined as follows:

- establishment of a project team for scheme implementation;
- identification and appointment of external service providers e.g. scheme actuary, legal advisor, administrator, investment consultant, auditor and fund manager;
- identification of necessary internal resources e.g. internal administration and/or secretarial services;
- legal documentation and pension fund trustees, including: (i) Trust Deed and Rules; (ii) appointment of Pension Trustees; and (iii) scheme registration with the FSA and other regulatory bodies;
- development of appropriate information database & interface procedures with beneficiaries;
- opening of a Trustee Bank Account.
- commissioning of initial actuarial valuation to determine the contribution levels necessary to fund future pension benefits;
- scheme sponsor and the Pension Trustees to select a suitable scheme investment strategy and initiate implementation; and
- preparation of a schedule for regular review of the pension schemes performance and any changes that may be necessary in the light of changing circumstances.

8. The General Lighthouse Fund

Table 8.6 - Pension Arrangements Comparison - Funded and PAYG Provisions

Main Features of Fully Funded Pension Provision	Main Features of PAYG Pension Provision
Costs are flexible. GLAs would have more control over the levels and incidence of payments within certain regulatory limits.	Costs are inflexible. The GLF would be required to pay pension obligations according to the benefit entitlements
Funds are set aside in advance and provide beneficiaries with an increased level of security compared with most PAYG arrangements.	Generally offers less security than a funded arrangement since funds are not set aside in advance. If the scheme sponsor becomes insolvent, there will be no funds available to pay benefits. However, given the Government's guarantee to fulfil pension benefits that the GLF cannot provide – then this aspect is less important.
There is an opportunity cost associated with the setting aside of money in advance.	Funds are available to the GLAs for capital expenditure and investment, as they are not required for financing pension benefits in advance,
Investment returns could be negative over short periods, and hence increase the overall costs. However, assuming long-term growth is positive then the overall cost of pension provision may be reduced significantly relative to PAYG arrangements.	Funds invested elsewhere (e.g. capital project investment) may offer a higher rate of return than would have been achieved in a pension fund.

8. The General Lighthouse Fund

8.4.3 Future Pensions and the Draft Marine Navigation Bill

The Draft Marine Navigation Bill includes provisions for the GLAs to manage their own pension arrangements for new staff in line with best commercial practice. Under the existing statutory structure, there is no provision to "ring fence" within the GLF pension contributions made by GLA employees. The GLF is a single undifferentiated fund that pays out pension benefits in the same way as any other operating expense. Therefore, pension contributions cannot be solely applied for the benefit of the staff and may be used for other GLF financial commitments. Indeed, there is even uncertainty as to whether the GLAs can participate in third party multi-employer schemes. It is important to emphasise that the provisions of the Draft Marine Navigation Bill apply only to the GLAs in the UK. They do not apply to the Republic of Ireland until such time as the Irish Government wishes to enact equivalent legislation.

With regard to pensions, the Draft Bill proposes:

- the GLF be to formally split in two – pensions would be protected from all other GLF liabilities and obligations: the level of pension contributions in the GLF is expected to increase substantially. Employees engaged since October 2002 are required to pay a higher level of contribution than existing staff. In addition, all members of the GLAs' pension schemes may purchase enhancements to their pension benefits, the monies from which are held in the GLF;
- new powers to create separately funded pension schemes – the intention is that this should initially be for new staff. It will be the first move to a fully funded pension scheme that over time will transfer the pension liability from the GLF into the new scheme. Although the GLF will be responsible for making employers' contributions into the new scheme. It will provide a better method of managing pension liabilities in the long term; and
- the UK Secretary of State be permitted to provide orders to facilitate payments from the GLF to third party pension funds – this clarification is necessary, as employer contributions are paid into schemes like the Merchant Navy Officers' Pension Fund.

The GLAs are also keen to ensure clear statutory provision that would allow employees to transfer previously accrued benefits into the GLF or the new pension scheme; or out of the GLF or the pension scheme to a new employer. The Bill is also intended to cover payments into Partnership Pension Accounts specifically introduced to improve pension provisions for the lower paid. NLB has already established the Northern Lighthouse Pension Scheme, but the Board has no power to: (i) ensure the scheme is adequately funded; (ii) change pension arrangements; or (iii) prevent GLF access should additional funds be required for operational purposes.

Consultations carried out under this Assessment clearly indicate that all stakeholders (i.e. DfT, DoT, shipping industry and the GLAs) are keen that separately Funded Pension Schemes should be established as soon as possible. The main aim is to cater for the future pension requirements of new employees, which will reduce reliance on current PAYG arrangements that are entirely dependent on future income from Light Dues. It would also be advantageous if existing employees could be encouraged to transfer into the new schemes. This option would need to be discussed with all interested parties to determine whether a suitable incentive package and transfer mechanism could be established.

8. The General Lighthouse Fund

The GLAs commenced preparations for future pension arrangements in 2005 with employee workshops and consultations, and comprehensive reports from pension consultants. Therefore, much of the initial groundwork has been completed. However, it is important that the GLAs hold updating consultations with their employees and consultants, especially, in view of the current economic conditions and the need to finalise the structure of the selected pension scheme(s) and their full cost implications (e.g. defined contribution or defined benefit schemes).

These activities should take place in 2010 with advice from the DfT as to when the Draft Marine Navigation Bill is likely to receive final Parliamentary approval.

One crucial aspect of the updating exercise will be to commission a new actuarial valuation and forecasts of future pension liabilities and costs associated with the existing PAYG arrangements and the new pension scheme(s) for the three GLAs. This is important in order to have clear estimates of the annual cost and benefit implications for the GLF, the GLAs and the beneficiaries. The commission should also include the development of a pension-planning model (PPM) that would provide an important addition to the forward planning functions of the GLF and the GLAs. The model could be developed by GLF/GLA financial staff and/or consultants. If the task is assigned to consultants, then the contract should include full transfer of the model and training in its use to ensure that the necessary skills are retained and developed in house.

8.5 Stakeholder Engagement and the GLF

Discussions with senior representatives of the Chamber of Shipping indicate that the industry is fully engaged with a clear understanding of GLF operations and management, GLF financial accounts and GLF reserves. The stakeholders have ready access to the annual reports and financial accounts, plus full cooperation from the DfT/GLF Accountant if additional information is requested.

The industry stakeholders are also fully engaged through the LAC, LFC and periodically in the GLF's Investment Committee. Notwithstanding the current levels of cooperation and transparent availability of GLF financial information, industry stakeholders are keen to emphasise their primary focus on the level and structure of Light Dues, GLA operating costs and investment programmes and the level of the GLF Operating Reserve Fund. These issues have been addressed in this Chapter and elsewhere in this Report.

8. The General Lighthouse Fund

8.6 Towards a Strategy for the General Lighthouse Fund

In light of the evidence set out in this Chapter, we have a number of proposals for how management of the GLF should be taken forward, alongside the other issues and proposals set out under the other four themes in this Report.

8.6.1 Short-Term Actions

Firstly, management of the GLF should make clear a division between the placement and management of Investment Funds into the GLAs Pension Contributions Fund (PCF) and the Operating Reserve Fund (ORF).

This is because, at present, the GLF's available Investment Funds are treated as a combined package that is placed with two investment management companies. As noted, since their appointment in 2006, the performance of the investment managers has been poor to moderate albeit in a difficult financial climate. One of the main recommendations from the GAD in 2009 was the need for a clear division between the placement and management of the PCF and the ORF. We support this recommendation and propose that it should be actioned as a priority by mid 2010.

We support the GAD proposal that the PCF should be placed in a Diversified Growth investment vehicle that would aim to generate long-term absolute returns above an inflation or cash benchmark. Management of the PCF should be subject to a new tender process so that a new investment management company could be appointed by mid- 2010.

We also offer support to the GAD proposal that placement of the ORF should follow a Stable Value strategy, which would also be subject to a new tender process so that a new investment management company could be appointed by mid-2010.

In addition, the GLF Investment Committee should be subject to modest amendments in its operation and management in order to generate more cost-effective supervision of the investment fund managers. Whilst the operation of the Investment Committee provides a useful mechanism for monitoring and supervising the performance of the fund managers, it can be slow in responding to clear signs of poor to moderate performance. In order to sharpen the process, the following changes could be made reasonably quickly and easily:

- Committee meetings – every six months instead of quarterly. This would be more cost-effective and reduce the focus on short-term movements in the investment markets;
- Committee membership – (i) reduction in numbers to one representative from DfT/DoT and the GLAs (nominated by the three GLAs, with appropriate investment experience), plus the GLF Accountant; and (ii) one senior independent investment advisor with broad relevant experience and up-to-date knowledge of investment markets; and
- regular reviews by the independent investment advisor, including comments on the investment strategies agreed with the contracted fund managers.

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In order to support the GLF, we recommend that the GLAs undertake a formal revaluation of their fixed assets every 5 to 10 years to ensure that values reflect the current condition, age and replacement costs of each fixed asset. At present, asset values are recorded in terms of historic costs. Therefore, over time, annual depreciation costs will become progressively out of line with current prices and real replacement costs. This observation applies especially to assets with long economic lives and potentially high replacement values.

The GLAs assert that asset revaluation surveys would be too expensive, despite the fact that there is a requirement in the UK's Financial Reporting Manual that the value of fixed assets should reflect current costs to the business. We therefore recommend that asset revaluations be undertaken at regular intervals in order to comply with best financial practice, to reflect International Financial Reporting Standards and to ensure that depreciation allowances in the Annual Accounts reflect current costs and are not undervalued.

In line with this proposal, the GLAs and GLF should establish their own capital replacement/investment funds that set aside financial resources for future replacement of existing capital assets and/or contributions for the procurement of new technical innovations that reflect agreed and fully justified investment programmes set out in the respective corporate plans. This recommendation will require the following steps, at least: (i) establishment of the fund(s) in separate bank account(s); (ii) preparation of specific guidelines for the management and operation of the fund(s); and (iii) preparation of specific approval process for the release of funds for asset procurement.

The above recommendations should be taken forward in parallel with proposals elsewhere in this Report on the appraisal of GLA capital investment and zero budgeting.

Finally, we suggest that the GLF should be renamed, potentially to the "General Navigation Fund" (or similar). This would reflect the modern nature of the service which the Fund and the GLAs provide to the Mariner, and would parallel our proposals for renaming Light Dues.

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8.6.2 Ensuring GLF Financial Stability

We believe that in future, DfT and all parties through the LFC, should focus on two key aspects to ensure the stability of the GLF. Specifically, we believe that Light Dues should be set for a minimum period ahead, for example against a five year time horizon[94], during which additional increases or decreases will only be considered by exception. We also recommend that alongside a given level of Light Dues, the GLAs should be required to set and achieve targets for real-term reductions in running costs and subsequent calls on the GLF. In this context, and in line with our recommendations in Chapter 6, it is important that the GLAs demonstrate the intention and ability to match expenditure to a forecast level of income, whether it is from the GLF or additional commercial income.

In the past, little attention has been given to the financial impact on the GLF of periodic downturns in shipping patterns and changes in the size and composition of the commercial shipping industry. These developments can have an important impact on the GLF's income stream from Light Dues, which in turn could expose the Fund to significant shortfalls in revenue and its ability to finance the normal day-to-day operations of the GLAs. This financial weakness was exposed over the past two years. At present, the GLF maintains financial reserves to cushion this weakness, but this does not represent efficient use of available resources – especially in the light of other financial recommendations set out above.

For the future, it is recommended that Light Dues and other charges on the maritime sector should be set for defined planning periods in advance which reflect agreed levels of expenditure by the GLAs, including targeted cost reduction programmes and tighter control of capital expenditure which require full financial and economic justification. Essentially, these recommendations highlight a stronger discipline for the GLAs to operate efficiently within the resources made available by Light Dues payers and not to assume that these resources will increase without good reason. Equally, the Light Dues periods provide the GLAs with certainty of funding across years so that capital and revenue expenditure can be planned accordingly.

In consultation with stakeholders, these recommendations should be embedded within a planning review conducted over agreed timescales. Financial Planning Models, proposed below, should be developed as an integral part of this process. These procedures should ensure transparency, close collaboration with industry stakeholders and users, and the medium- to long-term financial stability of the GLF.

8.6.3 The GLF in the Context of the UK and Ireland

We propose the establishment of two separate GLFs (or equivalent funding structures) as a more effective framework for the future management and operation of AtoN services for the UK and the Republic of Ireland. The Funds would be defined by national sovereignty and not geography. Such an arrangement should apply once there is a cessation of (existing) GLF payments towards the costs of provision in the Republic of Ireland.

The recommendation would:

- offer a more logical structure for the respective governments and GLAs;
- have the active support of the shipping industry;
- promote a more economic and fair distribution of the costs for providing the AtoN service;
- reduce the financial impact of variations in the foreign exchange rate; and
- encourage a more commercially-minded approach by the GLAs engendered by a keener management appreciation of key financial performance indicators (i.e. income and costs, and their inter-relationship).

[94]Five years is an indicative – but reasonable – time horizon. However, the DfT and all parties through the LFC should decide what time period is appropriate. The timescale for forward planning of income and expenditure from the GLF should also be considered in relation, but may not be identical, to any other time period of adjustment of the costs of AtoN provision in the Republic of Ireland and resulting burdens on the GLF, as discussed further in Chapter 9.

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This is seen as a longer-term objective and needs to be set in the context of the future strategy for recovering the costs of AtoN provision around Ireland through a greater onus on Republic of Ireland sources. However, if the two Governments agree that this is a key policy and strategic objective, then an action programme should be agreed in the short-term to ensure that all the necessary preparatory steps take place in order to avoid delay.

Steps should also be taken, in the meantime, to ensure more transparent accounting of UK and Irish income and expenditure within the existing GLF so that the UK contribution to covering the costs of Irish AtoN can be tracked, and reduced, over time. An incentivised funding model is discussed in Chapter 9.

During the period of transition, while the GLF contribution is reducing, there is a case for establishing a subsidiary fund within the GLF that clearly relates to funding for Ireland. Northern Ireland Light Dues income would be paid into the (main) GLF and the amount required to meet Northern Ireland costs would be transferred to the subsidiary fund, which would also receive Light Dues collected in the Republic of Ireland. Once the transition is complete, we see no advantage in retaining the subsidiary fund model.

The preparatory steps towards two GLFs, against an indicative timescale (the actual timescale is a matter for the negotiation between the UK and RoI Governments), could be as follows:

- 2010 – discussions between British and Irish Governments agree the policy framework for implementation. This should include the preparation and publication of discussion papers and outline proposals, including a timed programme; the incentivised model provides a basis for defining the financial basis on which future funding would operate;
- 2011 – stakeholder consultations, including British and Irish Governments, the shipping industry, representatives of other marine stakeholders, Scottish Parliament and Assembly for Northern Ireland and other relevant agencies; etc. The British and Irish Governments should publish the results of the consultations and the policy framework for implementation;
- 2012 and 2013 – the British and Irish Governments implement the final programme to establish two GLFs, including drafting legislation and regulations, external audit and separation of the GLF financial accounts by independent qualified accountants, and finalisation of management and organisational structure of the two GLFs; and
- 2014 and 2015 – enactment of the legislation to establish and operate two GLFs by the UK and Irish Parliaments.

The date of the formal establishment of the two GLFs and the commencement of separate operations will depend on agreement between the Governments with regard to the date on which the existing GLF contributes towards costs incurred in the Republic of Ireland; we cannot judge when that end date should be. This is discussed further in Chapter 9.

The process, timescales and linkages of such an approach should be considered within the context of agreed policy between the UK and Irish Governments in respect of providing and funding the AtoN around the coasts of the Republic. Within this we have proposed a funding model with incentives and cash limits, intended to ensure that the process has a defined end date; that date should not be open to extension, but could be brought forward if growth of the economy of the Republic of Ireland is such that Ireland is able to allocate additional funds to paying for its own AtoN.

8. The General Lighthouse Fund

8.6.4 Other Medium-Term Actions

In the medium-term, consideration should be given to reducing the size of the ORF which is not directly required for the normal commercial operations of the GLAs. Currently, funds in the ORF (circa £26 million) amount to more than 30% of annual income and direct operating costs, which appears high in view of the GLF's normally positive cash flow position and low financial risk structure. This has to be set against the fact that the ORF provides two months' operating reserve compared to a standard UK Government consultation period of three months, to change the arrangements for Light Dues or the management of the GLF. In this context, a phased reallocation of the ORF may be appropriate over a period of 5 to 10 years. This should be pursued in tandem with our proposals to ensure the financial stability of the GLF in relation to Light Dues income in light of the economic cycle and trends in shipping, and forecasts for GLA costs, as set out above.

In the current economic climate and the drive to generate more cost savings and efficiency improvements, we believe that the GLAs could undertake a comprehensive review for the phased disposal of surplus assets, which currently impose unnecessary fixed cost burdens on the GLAs and which could generate modest to large financial resources for the GLF. Capital assets that are surplus and/or not fully cost-effective have been identified by all three GLAs, but action over their disposal has been variable, as also noted in Chapter 6. Care should be taken in preparing the Terms of Reference for the study to ensure all potential disposable assets are identified, appropriate and realistic market valuations are presented and a fully justified disposal programme in order to optimise capital values.

Finally, in order to assist decision making and investment plans for the GLF, we suggest that two new planning models should be commissioned, one for pensions and one for integrated financial planning.

The GLAs commissioned the preparation of a pension forecasting study in 2004. The forecasting model was a proprietary asset of the consulting company and was not made available to the GLAs. Given the present economic conditions, the new pension initiatives under the Draft Marine Navigation Bill and the increasing financial burden of current and future pension obligations, it is recommended that the GLAs commission a new and comprehensive study that will update the future obligations of each GLA. The study and development of a Pension Planning Model (PPM) will provide an important addition to the forward planning functions of the GLAs and the GLF. The model could be developed by GLA/GLF staff (if the expertise exists in house) and/or external consultants, If the task is assigned to consultants, then the contract should include full transfer or the model and training in its use to ensure that the necessary skills are developed and retained in house.

In addition, an integrated Financial Planning Model (FPM) should be developed covering 5 to 10 years for the GLF in constant and nominal prices, with subsidiary linked modules for each GLA. Most medium to large public and private enterprises have developed sophisticated and/or basic financial planning models that are important tools in managing any modern business. The same applies to the GLF and the GLAs.

8. The General Lighthouse Fund

The main advantages of the FPM would provide the ability to track and test income and cost movements over time, test alternative scenarios for shipping movements/patterns and Light Dues (structure and level) and plan investment and loan/lease profiles. If taken forward, the model should include the following modules, at least: (a) summary results; (b) main assumptions and parameters; (c) shipping and charging projections; (d) investment forecasts; (e) revenue and expenditure statements; (f) balance sheets; and (g) cash flow projections.

The development and operation of the FPM would provide an important addition to the forward planning functions of the GLF and the GLAs. In addition, it would provide increased stability and transparency in relations with industry stakeholders who would also benefit from advance information on future levels of Light Dues.

The model could be developed by GLF/GLA staff, if the expertise exists in house, and/or external consultants. If the task is assigned to consultants, then the contract should include full transfer of the model(s) and training in their use to ensure that the necessary skills are developed and retained in house.

8.6.5 The Longer-Term

In the longer-term, consideration should be given to the establishment of two separate GLFs, one covering the UK and the other covering the RoI[95], as discussed above. The UK GLF would transfer funds to pay costs incurred for provision in Northern Ireland. It is assumed that actual provision in Northern Ireland would continue to be made by CIL. This proposal, and the transition towards it, is discussed further in Chapter 9.

[95]The alternative of an all Ireland GLF appears less satisfactory: for example, if Light Dues collected in Northern Ireland exceeded costs, the "profit" would then in effect be a subsidy to the Republic of Ireland provision. Equally, if there were a deficit in Northern Ireland the Republic of Ireland should not be called upon to contribute towards it.

Photo courtesy of CIL

9. The Relationship between the United Kingdom and Ireland >

9. The Relationship between the United Kingdom and Ireland

9.1 The Underlying Problem

9.1.1 History

The provision of AtoN in the British Isles goes back several centuries, and the institutions involved have survived many political changes, in particular the treaty of 1921 which established the Irish Free State and the partition of Ireland into the 6 counties of Northern Ireland and the 26 counties of the Free State, and subsequently the establishment of the Irish Republic. Through all of this, the CIL has remained as an all Ireland body, and importantly is seen today as an example of north-south cooperation; the Good Friday Agreement, which led to the establishment of power sharing in Northern Ireland, aspires to bring about an increase in the number of cross border and all-Ireland bodies.

The situation with regard to AtoN for the Republic has come about largely because it remained "under the radar" throughout the political changes that occurred in Ireland during the first half of the 20th century. However, this has led to various anomalies, in particular the fact that while the Republic of Ireland has obligations under SOLAS, it depends upon the UK Government to sanction funding from the GLF: at the same time, despite the fact that Northern Ireland is within the UK, there is, in CIL, an all Ireland provider of AtoN which delivers provision within Northern Ireland waters, and that provider is based in the Republic of Ireland. This is not a model that would be invented if starting afresh, and while it has worked, strains are beginning to show, especially with regard to how those who pay Light Dues view matters.

The issues relating to cooperation between the UK and Ireland therefore have to be seen from three perspectives, namely that of the shipping industry (who pay the Light Dues), that of the Republic of Ireland Government and that of the UK Government, in order to develop options that might address some or all of the issues that each party has identified.

The Commissioners of the Irish Lights provide AtoN around the whole of the Island of Ireland, with a total running cost of €21.1 million in 2008/09 (Table 6.7). In the same period total operating costs were €26.4 million including pensions, amortization and depreciation. In 2008/09 CIL spent €3.8 million on fixed assets.

Light Dues for the Island of Ireland are collected in Sterling in Northern Ireland and in Euros in the Republic; in Northern Ireland the system for collection is the same as in Great Britain, while in the Republic Ireland Dues are collected by Customs, who have the power to enforce payments in the Republic. €33.64 million were advanced from the GLF in 2008/09 which, as discussed below, was significantly greater than the level of Light Dues actually collected.

9. The Relationship between the United Kingdom and Ireland

9.1.2 Impacts on Costs - the Economy and the Euro

The analysis undertaken in Chapter 6 on costs of provision suggests that elements of operating costs in Ireland (CIL) are higher than elsewhere; our analysis suggests that this is principally due to the cumulative effects of wage inflation in the Republic together with public sector payment structures, which have led to high per capita staff costs at CIL when measured in Euros. From a UK (including UK shipping industry) perspective these effects are magnified by the significant increase in the strength of the Euro. The Euro increased in value against Sterling by 17% between October 2000 and May 2003, then fell by 7% to January 2007, and then by a further 28% between January 2007 and October 2009[96]. However, this is not the complete picture: as discussed below, SOLAS obligations, geography and technology determine an irreducible minimum cost base at any given level of wages and the exchange rate.

Republic of Ireland wage levels and the Euro exchange rate are determined through wider economic forces. During the period of Euro appreciation, the Republic of Ireland was also one of the fastest growing economies in Europe which exerted upward pressure on wage and price levels partly because Ireland needed to attract talent from abroad to sustain growth. Following the "credit crunch" Ireland's economy is facing painful readjustments especially within the public sector, including wage reductions. Any proposals need to recognise that there are constraints in terms of making adjustments which apply across the public sector in Ireland.

The need to reduce wage rates is broadly recognised across the Irish public sector and CIL is expected to follow reductions elsewhere in the Irish Civil Service. The fact that wage levels rather than excessive staff numbers at CIL is the principal source of higher costs means that costs can be reduced through wages policy rather than the more painful and protracted process of making staff redundant, which would also begin to impact on Ireland's ability to meet SOLAS obligations.

The future course of the Euro is less certain. Given the present fragile state of UK economy, the Euro seems more likely to appreciate against Sterling than to depreciate; however, at the time of writing the crisis over the Greek economy could have adverse consequences for the Euro. Appreciation of the Euro would inevitably mean further reductions in costs and wages in Ireland; therefore in Sterling terms it is entirely possible that CIL costs will fall by a smaller proportion than CIL costs (and wages) do in Euro terms.

The other side of a further appreciation of the Euro is that, if it is expected to be sustained into the longer term, CIL is in a much better position to exploit out-sourcing to the UK, which would be a low cost provider in Euro terms. CIL would then have the option of retaining some or all of its own facilities and capabilities, or outsourcing some activities to the UK. For example, and as discussed in Chapter 5, there is scope to focus all or a significant proportion of buoy operations for the southern Irish Sea on one site: a combination of a strong Euro and high wage costs in Ireland clearly works in favour of a UK location. Trinity House's facility at Swansea is a possible location for such work, but equally, when considering such possibilities, CIL could consider outsourcing some activities to Scotland or possibly to a location in Northern Ireland, where there is a long standing maritime engineering tradition. Outsourcing to the private sector either in Ireland or the UK could also be considered; as there are numerous options and permutations, we would suggest that a full option generation and business case exercise is required to determine the optimum approach.

[96]Bank of England monthly average spot exchange rates.

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9.1.3 Geography and Technology

Factors of geography and technology affect what AtoN are provided, how they are provided and the costs of provision, and these factors constrain what can ultimately be achieved in terms of reducing costs and/or levels of provision. The problem of geography is that many stretches of the coast of Great Britain and Ireland require conventional aids (under SOLAS) but have low levels of shipping activity. The most rugged and difficult coasts are also generally the least populated and the ports also tend to be less busy, with few ships calling within these areas, and therefore limited amounts of Light Dues revenues will be attributed to such areas. At the same time, levels of passing shipping may be high, but these cannot be charged for passage under international law and therefore enjoy a "free ride".

With regard to the technology, its defining characteristic is that it is generally indivisible – if to meet safety requirements a lighthouse or a buoy with a certain technical capacity must be provided at a particular location, then it is not possible to provide half a lighthouse just because there is a limited amount of shipping. It is therefore not possible to adjust supply to the size of the market, in contrast to many other areas of public sector activity.

While elsewhere in this Assessment we have questioned the risk assessment process, which might help to identify where aids can be removed or scaled back, where an aid is required the technical requirement of that aid and its maintenance regime largely shapes its whole-life cost profile. The efficiency of the provider determines the actual cost of capital investment and of on-going maintenance, but technical and safety / risk aspects determine what is required, and indivisibility implies that the individual facility cannot be slimmed down just because there is a limited "market" from which to collect Light Dues.

9.1.4 Cross-Subsidisation

Together geography and technology define a large element of the problem which underpins the financing of aids in Ireland. A large proportion of costs are unavoidable because of safety obligations and in the case of Ireland these costs must be incurred despite the relative lack of shipping that could be charged Light Dues. On top of this basic imbalance, and as discussed further below, there are two further factors which depress the actual amount of Light Dues collected in the Republic of Ireland:

- first, ships which sail between Great Britain and the Republic of Ireland have the option of paying their Light Dues in either jurisdiction and at the current rate in Euros payment in the UK is cheaper; and
- second, a high proportion of shipping serving the Republic of Ireland comprises ferries and others which make frequent voyages, but these pay for only 9 under the current cap system.

Together these factors mean that a high degree of geographic cross subsidy is intrinsic to the system and cannot be avoided if SOLAS obligations are to be met. It follows that shipping paying Light Dues at ports in areas where shipping activity is intense (such as the south east of England) will inevitably have to contribute towards paying for provision of aids in areas where shipping activity is thin. In other words, some form and level of cross-subsidisation is inevitable.

This subsidisation, which is unavoidable within a system where costs are recovered within the shipping sector, currently takes place within the integrated system of AtoN provision, collection and financing, with high intensity areas subsidising those areas with limited shipping activity, but which still incur costs for provision. The alternative would be for sectors other than shipping, including individual citizens, to contribute towards the costs of AtoN provision within a particular geography. Under this approach businesses and/or individuals would see their tax bills increase in order to pay for AtoN.

9. The Relationship between the United Kingdom and Ireland

The issue as espoused by ship owners is that while cross-subsidisation is acceptable within national frontiers (that is, within the UK), it is not acceptable for one sovereign state to subsidise another, unless the financial benefits from integration through economies of scale and learning outweigh the costs that would be experienced through non-integrated provision. As applied to UK and Irish provision, the issue is whether the economies attributable to the tri-GLA structure are sufficiently large such that they outweigh the impact of cross subsidisation within that structure.

While the quantification of these economies has proved elusive, they undoubtedly exist; however, while these economies arise within the tri-GLA structure they are not dependent on that structure – as discussed above, they could be achieved even if the funding of provision in the Republic of Ireland came entirely from Irish sources.

A possible alternative to the present system of integration is more locally based provision of AtoN (but within a defined set of standards and regulation); this would imply differential charging in local areas. While this would eliminate cross subsidisation between areas If applied at a small spatial level (stretches of the coastline for example), this would also undermine the economies of scale available from a more integrated system. It would not eliminate costs in areas of the coast where there are no or only very small ports: such costs would have to be met from somewhere, whether from general (local) taxation or from higher local Light Dues. In looking at provision for Ireland, complete dis-integration (whether on a geographic or political basis) would potentially sacrifice some or all of the economies involved in, for example, having a common AtoN strategy, risk assessment, sharing the use of GLA ships and assets and in technical research, and the economies of learning from best practice that goes on through the current system of IGCs. However, such an outcome could potentially be avoided through contractual agreements and agreements to continue joint working.

From the shipping industry perspective, dis-integration would not only reduce economies of scale but for shipping between Great Britain and the Republic of Ireland (or Ireland as a whole) would mean that Light Dues or some other payments would be required in both GB (UK) and Ireland (Republic of Ireland); this would impact on Irish Sea ferries in particular, while reducing the level of Light Dues for other shipping.

The foregoing provided the setting; the following sections look at the financial flows consequent on the present system and levels of shipping.

9. The Relationship between the United Kingdom and Ireland

9.1.5 Costs, Revenues and Subsidies

At present it is agreed that 85% of CIL's costs are assumed to be attributable to the Republic of Ireland, and 15% of costs to Northern Ireland. Republic of Ireland sources, which comprise RoI Light Dues and the DoT, pay 50% of the 85% of CIL costs attributable to the Republic. Put another way, 42.5% of CIL's costs are met from RoI sources.

However, as shown in Table 9.1, the Republic of Ireland generates only around £3.3 million in Light Dues revenues when converted to Sterling. Northern Ireland generates £0.57 million.

Converting this to Euros, Ireland generates €4.68 million, which means that there is a deficit of €16.4 million against running costs alone. The deficits are covered by the GLF and the Irish Exchequer. The formula on which this is undertaken is shown below in section 9.1.6.

Part of the reason for the deficit is of course the level of costs incurred by CIL, which as discussed in Chapter 6 are considerably higher than either TH or NLB. However, even allowing for a 20% cut in running costs and ignoring capital costs, the deficit would still be over €12 million merely against running costs.

Therefore the fundamental issue is one of revenue and as discussed below, the causes of the revenue shortfall are largely due to the nature of shipping serving Ireland.

First, as shown in Table 9.1, Ireland's shipping is dominated by small ships, focused on ferry and small feeder and coastal trades. The predominance of small ships depresses the value of Light Dues per certificate.

Second, Irish ports record around 27,500 port calls per annum, but only 2,300 certificates are issued. This reflects the fact that high frequency ships such as ferries pay for only 9 voyages (currently), so that a high proportion of voyages are uncharged. Analysis of port data shows that Ireland receives 10.3% of all calls, but the Light Dues data show that Ireland issues only 8.5% of certificates, which suggests that the voyage cap acts to Ireland's detriment, although not hugely so when compared with the British Isles as a whole.

Third, Light Dues can be paid in either jurisdiction, and at the current Sterling - Euro rate it is much more attractive for any ship visiting both Ireland and the UK to pay in Sterling in the UK.

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Table 9.1 – Number and Values of Light Due Certificates Issued

	United Kingdom		Republic of Ireland	
Ship size band	**Number of Certificates**	**Value of Certificates**	**Number of Certificates**	**Value of Certificates**
Up to 9,999 NRT	14,738	£ 13,336,026	1,451	€ 1,891,465
10,000 - 19,999 NRT	2,812	£ 13,716,588	101	€ 704,117
20,000 - 34,999 NRT	2,091	£ 19,973,250	93	€ 1,219,457
35,000 - 49,999 NRT	823	£ 10,111,609	4	€ 72,800
50,000 - 74,999 NRT	675	£ 8,284,963	13	€ 236,600
75,000 - 99,999 NRT	24	£ 294,000	0	€ -
100,000 NRT +	18	£ 220,500	0	€ -
TOTALS	21,181	£ 65,936,936	1,662	€ 4,124,439
Average Value Per Certificate		£ 3,113		€ 2,482
TOTALS in £ (1)		£ 65,936,936		£ 3,296,780
Average values in £		£ 3,113		£ 1,984
	Great Britain		**All Ireland**	
	Number of Certificates	Value of Certificates	Number of Certificates	Value of Certificates
TOTALS in £ (1)	20,593	£ 65,368,097	2,251	£ 3,865,619
Average values		£ 3,174		£ 1,717

Source TH Light Dues Data

Note 1: Ireland totals which are shown in £ were converted at average monthly exchange rate.

9. The Relationship between the United Kingdom and Ireland

9.1.6 The Extent of the Subsidy

It is clear that there is a subsidy towards the Republic of Ireland, and we have attempted to quantify this using data on calls at Irish ports. Based on the 9 voyage cap, the 35,000 NRT, and the rate of £0.39, and assuming 50% of the revenues from all chargeable voyages which called at an Irish port were attributed to either the Republic of Ireland or to Northern Ireland, we have estimated the following:

Total revenue: all Ireland	£8.98 million
Total revenue: Republic of Ireland	£6.08 million
Total revenue Northern Ireland	£2.90 million

Using the data in Table 9.1, it is evident that the Republic of Ireland collects just over half of what might reasonably be considered attributable to Republic of Ireland related traffic, and similarly Ireland as a whole collects less than half what would be attributable to all Ireland related traffic.

On the basis of a 50 – 50 Ireland / GB allocation, therefore, we estimate that the all Ireland deficit against running costs would be approximately €11 million rather than €16.4 million.

The predominance of high frequency ships is a major factor in this, for example, raising the voyage cap to 12 adds €0.98 million to Light Dues revenues, but a 52 voyage cap would add just over €7 million, still on the basis of a 50 – 50 Ireland / GB allocation of revenues.

Application of a flat rate per day per GRT model to Ireland as a whole would generate €21 million if applied at a rate of marginally over 10 cents per GRT. The same model applied only to the Republic of Ireland at a rate of 14.5 cents per GRT per day would generate €20 million.

The foregoing therefore highlights the scale and source of the deficit between costs and revenues in Ireland, and outlines the underlying causes. Consequently, while cost reduction by CIL represents a key area for action, it is evident that without action to address either Light Dues or some other sources of funding within the Republic of Ireland, the gap will never be cut to zero. The alternative of reducing costs to such an extent that Ireland's international obligations under SOLAS cannot be met is not regarded as an option.

Accordingly, much of what follows focuses on how the funding gap may be bridged.

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9.1.7 Current Financial Arrangements

As outlined above, it is currently agreed that 85% of CIL's costs are assumed to be attributable to the Republic of Ireland, and 15% of costs to Northern Ireland. Republic of Ireland sources, which comprise RoI Light Dues and the DoT, pay 50% of the 85% of CIL costs attributable to the Republic. Put another way, 42.5% of CIL's costs for Ireland as a whole are met from RoI sources.

This can best be explained by an example: here, for illustration, CILs funding requirements are assumed to be €35,000,000.

CIL costs		€35,000,000
Allocation of costs ROI	85% of CIL costs	€29,750,000
Allocation of costs NI	15% of CIL costs	€5,250,000
ROI's share of cost allocation	50% of 85% = 42.5% of CIL costs	€14,875,000
Assume all Ireland Light Dues		€7,700,000
Assume ROI Light Dues	Assume 65% of all Ireland Light Dues	€5,005,000
ROI funding total		€14,875,000
DoT		€9,870,000
ROI Light Dues		€5,005,000
GLF		€20,125,000
TOTAL FUNDING		€35,000,000

The remaining CIL costs (including all Northern Ireland costs) are paid from the GLF; GLF resources include Northern Ireland Light Dues payments which are transferred through the GLF.

Under this arrangement, the GLF will always pick up a predictable share of total costs, regardless of how much revenue is collected in Ireland as a whole or the split between the Republic and Northern Ireland. Table 9.2 shows the proportions of CIL costs paid by the GLF, from Republic of Ireland Light Dues and from the DoT on the basis that all Ireland Dues amount to 50% of total costs; it is based on a given sum for total CIL costs. The results are shown under three different assumptions for the proportion of Republic of Ireland Dues within total Ireland Dues.

Under this arrangement, regardless of the proportion of all Ireland Dues in relation to CIL costs, the GLF contribution remains at 57.5%. This is because the higher the ratio of all Ireland Dues to relevant CIL costs, the more money is recycled through the Northern Ireland contribution; when the Republic of Ireland's share of the all Ireland Light Dues increases, the DoT element declines, but the GLF share remains the same. This arrangement provides an incentive to increase Republic of Ireland Light Dues from the DoT perspective, but it will have no impact on what the GLF has to contribute to Ireland as a whole (for any given total cost). If CIL costs fall, the proportions do not change but the absolute amounts do decline pro-rata, and there is therefore an incentive to reduce total costs, but not to earn more in income. This is an important omission, as our analysis shows that income generation is the critical step for identifying the issues identified.

Table 9.2 – Distribution of Payments by Source

	Proportion of RoI Dues Within Total Dues in Ireland		
	40%	60%	80%
GLF	58%	58%	58%
RoI Dues	20%	30%	40%
DoT	23%	13%	3%

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9.1.8 The Effects of the Current Light Dues System

As described above, the Republic of Ireland Government makes a financial contribution towards CIL's costs because of a shortfall in revenues collected in Irish ports. The option of paying Light Dues in the UK or in the Republic of Ireland for vessels that call at ports in each jurisdiction, combined with the value of the Euro to the Pound, means that revenue which is partly attributable as a Republic of Ireland voyage is (in most cases) not collected in, and therefore not attributed to the Republic of Ireland. This is a factor within the observed level of shortfall in revenues that remains to be made up through the Irish Exchequer contribution. The following analysis, which was provided by CIL, illustrates the point.

UK: Net Registered Tonnage Paying Light Dues entering UK Ports

206,111,000 + 1,878,000 = 207,989,000 x 0.35p = £72,796,150

Gross Registered Tonnage of Shipping entering UK Ports

2,036,392,000 + 147,133,000 = 2,183,525,000

Light Dues collected per GRT in UK

£72,796,150 / 2,183,525,000 = £0.0333 per GRT

RoI: Net Registered Tonnage Paying Light Dues entering RoI Ports

8,193,000 x 0.52 cent = €4,260,360

Gross Registered Tonnage of Shipping entering RoI Ports = 229,031,000

Light Dues collected per GRT in RoI

4,260,000 / 229,031,000 = €0.0186 per GRT

At a conversion rate of €1 = £0.9, the sum per GRT in the RoI = £.0167, which is half the UK rate per GRT.

However, analysis of port data indicates that ports in Ireland as a whole account for some 10% of all port calls and 7.5% of shipping tonnage (GRT)[97]. The port data show that the volume of traffic to and from Ireland is limited, and indeed is broadly in line with Ireland's share of population within the British Isles. Revenue potential is of course not limited to around 10% of total British Isles revenue, and as most Irish traffic is likely to be price inelastic, higher charges within a significantly changed charge / tax regime would be attainable. This is discussed further below.

[97]This is an estimate as some ports record all calls while others record the first call of each day by ships such as ferries which make frequent calls. This is not a serious problem at the aggregate level, but may over or understate the division of traffic between Northern Ireland and the Republic.

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9.2 Alternative Perspectives

9.2.1 Overview

More so than other areas covered by this Assessment, different stakeholders have differing perspectives on the nature of the problem and the immediate priorities for addressing it.

The **shipping industry**, in principle, has a valid perspective on the balance of AtoN costs and revenues in Ireland. In essence, Light Dues are higher in the UK than they would be if Ireland met its costs in full. There are five related and fundamental problems most in the industry are therefore hoping will be addressed by our Assessment:

- as a generalisation, there is strong dislike of paying Light Dues by ship owners, which they perceive to be a tax which pays for something from which they say they receive no benefit;
- as funds from the GLF are used to pay costs in the Republic of Ireland, ship owners using UK ports perceive this to be a mis-use of the revenues (which are perceived to be tax revenues) that are collected from them;
- ship owners perceive the structure of costs to be unfair and the costs of provision to be excessively high, especially in the case of CIL, as already discussed in Chapter 6;
- there is a perception that the current tri-GLA structure does not deliver a level of economies of scale or integration that would justify continuing with such a structure: ship owners would prefer to off-load the costs of CIL and accept what they see as a small loss in benefits from integration; and
- the basis on which Light Dues are set and collected exacerbates an intrinsic problem of cross-subsidisation; one part of the English coast accounts for a sizeable proportion of total revenues, and while cross subsidisation to other parts of the UK is regarded as acceptable (being within national frontiers), extending this to the Republic of Ireland is clearly not acceptable to the shipping industry.

From the perspective of the **Irish Government**, the short term problems are fundamentally about costs and the difficulty of meeting a shortfall in Light Dues revenues from Government resources, something which is exacerbated by the current very serious economic situation in the Republic.

From the perspective of the **UK Government**, there is pressure from the shipping industry to reduce Light Dues and to reduce payments to CIL from the GLF. The industry has highlighted the costs in Northern Ireland under the present arrangements and believes that if AtoN in Northern Ireland were provided by Trinity House or NLB, costs would be reduced. However, the UK Government also recognises the wider value of having CIL as an all Ireland body, in terms of the Good Friday Agreement, which declares an intention to foster all-Ireland co-operation and associated institutions. It is an issue for the UK Government as to whether any additional costs associated with retaining an all-Ireland body should be met by the GLF or from within other funding available to support the Peace Process.

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9.2.2 Funding by the Irish Government

The Irish Government already has some incentive to address the issues discussed in this Assessment, in the form of severe financial constraints due to the current recession and the high value of the Euro, which affects Ireland's export prices. During the period of sustained economic growth which ended in 2008/09, Ireland became a high wage economy, partly in order to attract the skills required to sustain growth of its high technology manufacturing sectors and its service industries. One consequence of this was an increase in the costs of running the Irish Civil Service, where increases in wages had necessarily kept pace with the private sector, as indeed did wages at CIL.

Currently wage costs are high in most sectors of the economy, and the strength of the Euro means that costs such as those of CIL, when converted into Sterling at the prevailing exchange rate, are significantly out of line with UK costs in similar sectors. As long as Ireland is in the Euro Zone, the economic "medicine" will involve reductions in money wages in order to reduce real wages; such cuts will have to be severe both to reduce the burden on the Irish Exchequer and to re-start economic growth by reducing export prices, in order to make Ireland more competitive as an exporter and to attract fresh inward investment as the world economy grows.

In addition to wage reductions, the Irish Government is seeking to reduce public spending, and this will necessarily include payments for the provision of AtoN. Unfortunately, these pressures occur at exactly the same time as the shipping industry is seeking to reduce its costs and the UK Government has limited financial room for manoeuvre.

9.2.3 Constraints on the UK Government

From the UK Government perspective, one issue is to ensure that the costs of AtoN provision are driven down and that its contribution with regard to the provision of aids in Ireland is at least held down if not reduced. At the same time, however, we believe the UK Government also recognises the wider political value of retaining some form of cross border working in Ireland with regard to AtoN.

Ireland is also among the UK's most important trading partners, and at a time when the UK economy is unusually reliant on export-led growth, the last thing the UK would presumably wish to see is an economic crisis in a major trading partner, especially when such a crisis could affect the whole of the Euro Zone economy and therefore have major negative repercussions for UK exports. While the need to keep undue pressure off the Irish Government may not figure in the calculus of the ship owners, our view is that this is highly relevant to any short term proposals: longer term, when it is hoped that Ireland's "tiger economy" has recovered, the options available to address how Ireland pay for its AtoN will be more extensive than they appear to be at present.

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9.3 Aims and Objectives

In order to address the issues of concern to the shipping industry and the UK Government, there is patently a need to reduce costs of provision by CIL and at the same time to increase revenues. However, this process cannot be accomplished overnight, first because there are costs involved in slimming down or restructuring any organisation, and second because this is not the best time in the economic cycle to impose significant additional costs on the shipping industry and consequently on its customers who depend on shipping for exports, imports of retail goods, tourists and supplies of raw and semi-finished materials.

While cost reduction and revenue enhancement are the remedies, in devising a strategy it is important to be clear and precise about the objectives and to ensure all parties agree to these; hence it is necessary to consider:

- what is the intended end-point?
- how quickly is that end point to be achieved?

The position of the UK Government was set out in January 2004[98]; this stated that the UK Government would work towards ensuring that the Republic of Ireland would meet in full its own costs for the provision of AtoN. This is a position shared by much of the shipping industry.

In this Assessment therefore, we have taken the view that this remains the objective. The second issue is a practical and political one, namely over what timescale is this to be achieved. As discussed below, there is potential for the Republic of Ireland to meet its costs, but only through the introduction either of additional hypothecated taxes, or through an increase in general taxation. However, given the economic situation in Ireland and Ireland's importance as a destination for UK trade, an overly rapid timescale may prove counterproductive at a macro-economic level, if trade with Ireland were to contract because of a deeper recession there. Nonetheless, despite the statement above quoted from 2004, six years have produced no significant change, and therefore a definite "road map" for the elimination of the GLF subsidy is required. Therefore we suggest:

- an absolute end date which both Governments commit to and that they agree cannot be extended (but which can be brought forward), on which the payments from the GLF over and above meeting costs attributable to Northern Ireland will cease; and
- a commitment to reducing the adjustment period according to an agreed formula; this could for example be geared to the actual performance of the Irish economy[99].

The end date in question has to be subject to negotiation between the Republic of Ireland and UK Governments. We offer no guidance on this, apart from making the obvious point that very rapid adjustment in the current economic climate could put an excessive strain on the Republic of Ireland budget deficit, while a long adjustment period would tend to produce inaction for the first few years followed by attempts to renegotiate as the deadline approached. Neither is a desirable outcome. Somewhere between these extremes is a negotiable and workable agreement on the maximum adjustment period; once agreed we would suggest it should be incapable of further extension.

[98]**Mr. Jamieson:** We accept that the Republic of Ireland should meet the full costs of provision of their Aids to Navigation. We remain committed to renegotiating the current agreement to achieve this and are arranging to meet the Irish Government in May to take the matter forward. http://www.publications.parliament.uk/pa/cm200304/cmhansrd/vo040419/text/40419w86.htm

[99]For example if growth in Ireland is predicted at 2% per annum over the next 10 years, every 1% achieved above that would reduce the end date by a year, but under-performance would not extend the timetable.

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9.4 Developing a Strategy

9.4.1 A Financial Mechanism

The recent fall off in shipping traffic due to economic recession has brought the need to develop a clear strategy and timetable to address issues relating to Ireland into sharp relief. Even without the reduction in traffic, the costs of provision, the sharing of costs between the Republic and Northern Ireland and the formulae for Light Dues payments were all matters that needed attention, but the recession has highlighted and exacerbated the underlying problems while also placing additional demands on the Irish Exchequer at the worst point in the economic cycle.

Even into the medium term it is likely that the resources available to the Irish Government to meet its share of payments will be significantly squeezed due to sustained cuts in public sector spending in Ireland. It is difficult to know the outcome of a severe and prolonged squeeze. Nonetheless, as outlined above, there is a need for a clear formula for running down the GLF payment towards Republic of Ireland costs to zero. As discussed above, the timescale for this must be agreed between the Republic of Ireland and UK Governments.

We believe that a clear formula could provide the impetus to address costs and revenues by the Irish Government over a sensible timescale. A key component of this could be to develop an alternative arrangement to the current GLF formula which would provide a greater incentive to drive down costs and at the same time to increase revenues. Table 9.3 serves to illustrate a mechanism and its potential annual funding amounts on the basis of the following assumptions:

- CIL costs are initially €35m and are reduced by 2.5% per annum (compound);
- all Ireland Dues can be increased by 5% per annum (compound);
- the GLF contribution is capped initially at half of the gap between CIL costs and all Ireland Light Dues, but that this factor declines by 20% per annum; and
- the gap has to be filled by a RoI Exchequer payment, which could be from general taxation or from other shipping-related charges other than Light Dues.

It must be stressed that this is purely for illustration and that there is no implied timescale here; the timescale will be a matter for negotiation between Governments. What it does show is that with a clear path for the GLF contribution but linked to both Dues collected and CIL costs, there is an incentive for DoT to take a much stronger line in terms of CIL's costs, but also with generating income either through Light Dues or as other income.

Table 9.3 – Incentivised Structure for GLF Contributions: All Costs and Revenues in €

	Base Year	Year 1	Year 2	Year 3	Year 4	Year 5
CIL Costs	35,000,000	34,125,000	33,271,875	32,440,078	31,629,076	30,838,349
Ireland Dues	10,000,000	10,500,000	11,025,000	11,576,250	12,155,063	12,762,816
GLF Contribution	12,500,000	9,450,000	7,119,000	5,341,140	3,988,278	2,961,495
12,500,000	12,500,000	14,175,000	15,127,875	15,522,688	15,485,736	15,114,038

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What is evident even with this incentivised model is that the GLF would be left to make a contribution, albeit one which declines steeply. Realistically however, CIL costs will reach a point where they are to all intents and purposes irreducible or at least irreducible without falling below standards of provision that DoT. DfT or the Northern Ireland Assembly (on behalf of Northern Ireland) would regard as acceptable in terms of meeting international obligations under SOLAS.

In looking at how best – and how rapidly – to implement this model, it is important to ensure that in the short term additional taxes do not lead to other problems for the Republic's economy, not least because of the wider issues of trade with the UK. The staged reduction in GLF contributions that would be achieved through application of the formula suggested above would enable change to take place gradually but within the framework of a "road map" that would in time lead to CIL's costs for the Republic of Ireland being met entirely from RoI sources. The "road map" would explicitly define a maximum period over which the required changes should be enacted.

An initial gradual change is indicated in recognition of wider economic circumstances; thereafter the rate of change will be determined by the period that both Governments agree for reducing the GLF contribution to zero. A short "road map period" would imply a sharp acceleration in the rate of change. Therefore while a formula linked to shipping levels and Light Dues is sensible to effect gradual – but incentivised - change initially, it would be preferable to set annual cash limits on the GLF contribution after an agreed initial transition period[100]. Linking the GLF contribution to Light Dues and costs initially would then provide incentives to take action on costs and revenues, while sensible, and reducing, annual cash limits could then be set on the basis of monitored progress, but with a view to reducing the GLF contribution to zero by the agreed end year.

If the GLF contribution is structured in this manner, Light Dues revenues from Northern Ireland need no longer flow through the GLF: they could flow direct to CIL (assuming that CIL remains the all-Ireland provider of AtoN). If the Light Dues formula is changed as proposed in Chapter 7 of this Report, Northern Ireland would potentially generate a small surplus (assuming 15% of CIL's costs are attributable to Northern Ireland). While the surplus on Light Dues is expected to be small, it will be necessary to consider where it should go: this is discussed below.

9.4.2 The Light Dues Formula

As discussed in Chapter 7 we have identified an approach to changing the formula for Light Dues in order to achieve a system that delivers a more proportionate set of charges, so that the playing field is, if not entirely level, at least displays a flatter topography than under the present system. It is proposed to move towards the fully revised formula in stages, to enable the shipping industry to plan its own charges and investment in capacity ahead of the changes.

The analysis underlying the development of the proposals on Light Dues applies a principle of proportionate taxation; this has been applied at the level of the British Isles as a whole, reflecting the structure of governance and funding which exists. As this structure will exist until the Republic of Ireland meets all of its AtoN costs from Republic of Ireland sources, we would suggest that the underlying principles should apply to the British Isles as a whole until the end point for Republic of Ireland financing of AtoN is achieved. If this approach is adopted, the Republic of Ireland would apply the same charges as the UK (in Euros) and would receive half of all receipts attributable to UK-Ireland shipping.

[100]As the GLF is a Sterling fund, cash limits should be set in Sterling; appreciation of the Euro would then increase the need for additional Republic of Ireland funding but would also reduce the costs to CIL of outsourcing to the UK.

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The precise financial implications of this for the mechanisms needed to raise additional revenues in the Republic of Ireland, and the rates that would need to be set, will require consideration by the Irish Government; however, in broad terms it is evident that application of uniform rates will mean that most of the required additional resources will need to come from other shipping related charges, as discussed below, or from general taxation. The alternative of applying higher Light Dues in the Republic of Ireland (which could also employ a different formula) would violate the principle of tax fairness at the British Isles level, which in our view is an unsatisfactory approach so long as the present financial system with the GLF contribution remains in place.

As the end point approaches where the Republic of Ireland meets all of its AtoN costs from Republic of Ireland sources, the Irish Government should consider whether to continue with the uniform rate model for Light Dues supplemented by additional tax revenues or adopt its own Light Dues model. As the nature of shipping and the performance of both the UK and Republic of Ireland economies could change significantly over the road map period, it would be premature to speculate about the best course of action in the medium term.

While a uniform approach to Light Dues is proposed during this road map period, at the end point the Republic of Ireland would be free to set its own Light Dues rates. The total funding requirement within the Republic of Ireland would not change at this time, but the Irish Government might, at the end point, decide to adjust the funding "mix". One option would be to increase the proportion of total funding from Light Dues and to reduce other taxes or charges, or to reduce the amount from general taxation.

Under this scenario, ships using Irish ports would face higher Light Dues (or changes in other charges[101]), while ships using British ports (and possibly Northern Ireland ports, but see subsequent discussion) would pay less at these ports, because the Republic of Ireland element of costs would be removed from the GLF. The consequences of this reduction for different parts of the shipping industry would depend on the formula for levying Light Dues, which was discussed in Chapter 7.

[101]This is discussed more fully in subsequent sections, in particular with regard to Northern Ireland.

9.4.3 Northern Ireland

While the proposed approach to a strategy for funding Republic of Ireland AtoN from Irish sources is focussed on the Republic, the strategy must also take account of both provision in, and funding for, Northern Ireland.

During the road map period, it is proposed that a uniform Light Dues formula should apply throughout the British Isles. During that period the Republic of Ireland Government will have to increase the funding of AtoN for the Republic from RoI sources. This might be from general taxation, in which case issues relating to port competition do not arise. However, an option for the Irish Government is to raise revenues from shipping and / or from shipping related activity, which would give rise to the possibility of shipping in Northern Ireland facing much lower charges than those on shipping in the Republic.

One important issue during the road map period is, therefore, the extent to which Northern Ireland broadly follows any increases in shipping related charges which may be applied in the Republic of Ireland. The case for doing so is to avoid the unwanted external effects on Northern Ireland of port competition, which could arise if there are sufficiently large differentials in costs between the use of ports in the North compared with the South, and which would stimulate tourist and / or HGV traffic to change its use of ports.

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Here it is worth making the following observations:

- first, the differences in costs between the Republic of Ireland and Northern Ireland would have to be substantial for there to be more than a marginal impact on the choice of ports, especially for freight traffic, because of the costs of additional travel by road that would be involved; there are already differentials in port charges and in fuel costs between the Republic of Ireland and Northern Ireland;
- second, adopting policies to increase port charges in Northern Ireland runs counter to current policy, which is to promote port competition; and
- third, legislation would be required to enable the Northern Ireland Executive to levy passenger charges or green taxes, and it might not be possible either to pass legislation or to implement it to coincide with the start of the road map period (I.e. in the short term).

The likely differentials in the absence of harmonisation and their impacts on travel choices need further investigation. However, a rough calculation based on the costs to a party of four with a car suggest that a per passenger charge of €5 and a car charge of €20 in the Republic of Ireland would be almost double the cost (in fuel) of a return car trip between Belfast and Dublin. Therefore if all of the funding gap in the Republic of Ireland is addressed through additional shipping related charges, there could be an impact, even if spread over passengers, passengers' vehicles and freight.

While this is a "back of the envelope" calculation, it does suggest that cost differentials between Northern Ireland and the Republic of Ireland could be large enough to have an effect at the margin[102]. The scale of potential cost differences depends on the "funding cocktail" adopted by the RoI Government to fund the gap between Light Dues and costs in the Republic; a single charge such as one on tourists and their cars would potentially lead to large cost differences but only for tourists, while a broad base, including port charges and possibly general taxation, would potentially result in insignificant cost differences for users of ports North and South of the border.

This is an important consideration as any re-allocation of trade and tourist traffic would have impacts on the economies of North and South, and on the wider environment, the scale of any impacts through reallocation of traffic is suggested as an area for further investigation. We are also aware that Northern Ireland policy would normally be to follow the UK and that harmonisation might not be feasible for policy or practical reasons, but we would suggest that a decision on harmonisation should be based on the evidence on potential traffic diversion, and also that due consideration should be given to the potential benefits to Northern Ireland of having additional tax revenues available for local expenditure. It is also expected that during the road map period Northern Ireland would generate a surplus of Light Dues revenues over the costs of AtoN that would be attributable to Northern Ireland. This raises the (possibly thorny) issue of what to do with such a surplus. The options are:

- to pay the surplus into the GLF (which would continue for the UK or GB once the Republic of Ireland funds its AtoN entirely from RoI sources);
- to pay the surplus to a budget holding body for the Republic; or
- to retain the surplus for use within Northern Ireland.

With a devolved Government in Northern Ireland it could be argued that additional charges applied to shipping (in excess of the costs of provision) will be passed on to citizens of Northern Ireland in higher prices of imports and higher ferry fares, and therefore that to offset this the Northern Ireland Assembly should retain the revenues. However, if applied consistently, the reverse would apply to Scotland, where there is a deficit of costs over revenues, and for consistency the Scottish Government would be required to make up the deficit. There is therefore a case for paying the Light Dues surplus into the GLF.

The same argument would not apply to revenues raised from any other levies that would be used to harmonise payments between North and South to avoid a competitive situation arising to the detriment of levels of road traffic and CO2 emissions. Alternative options for revenue generation are discussed below.

[102]Even if there is a large cost difference, visitors may not wish to spend time driving between Belfast and Dublin if their destination is in the south of Ireland, for example; equally, faced with a cost difference and these options, a visitor might decide not to visit Ireland at all.

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9.5 Cost Reduction & Revenue Generation

While costs form one part of the issue, revenue is arguably the more important. There is a strong case for harmonisation of Light Dues within the British Isles at least during the "road map period", especially as it is recognised that the nature of shipping serving Ireland as a whole, the voyage cap system and the way revenues collected for Irish traffic are attributed all contribute to giving a distorted picture of the income that arises because of Ireland traffic. The proposals for moving over time towards a flat payment system will address all of these and confer some benefit on the Republic of Ireland.

However, the proposed reform of the Light Dues system is not going to eliminate a shortfall for the Republic of Ireland, and the conclusion for analysis of revenue potential is that other sources of revenue will be needed, unless the Republic of Ireland decides to abandon the harmonisation of Light Dues within the British Isles (at least during the road map period). The specific issue of revenue potential was investigated using port data, and the analysis indicates that Ireland as a whole might generate 10% of total British Isles revenues if all rates were equalised (in Sterling); this is based on analysis of port calls and ships' sizes (GRT).

Therefore even though the voyage caps limit the Dues that can be collected from ferries, which constitute a major part of shipping into Ireland, the port data show that the volume of traffic to and from Ireland is limited. The obvious conclusion from this is that, even if Ireland as a whole were able to extract fees from all of its shipping, rates would have to be higher in Ireland than in Great Britain compared with a model in which Light Dues are pooled and shortfalls are made up from the GLF and the Irish Exchequer (or in some other way).

If the Republic of Ireland did decide to abandon harmonisation in the short term, the critical issue is what would the level of rates have to be? There is, as discussed above, the added issue of rates in Northern Ireland and the extent to which a degree of harmonisation is desirable.

Within a voyage capped system the rate per ton would have to be increased more steeply than if all days[103] were charged, because the revenue base (those voyages eligible to pay a charge) would be very narrow in relation to the type of shipping that serves Irish markets. Irish services are also likely to be quite price inelastic, and Light Dues are a relatively small element within costs, so it is unlikely that such changes would have much impact on trade[104]. That is not to say that changes would be meekly accepted by ship owners, but we calculate that the impact on fares and charges would be small, and for passengers the increases would be much smaller than the additional charges that have been faced by air passengers, which appear to have very little impact on Ireland's aviation industry. It would therefore be surprising if ship owners were unable to pass on a high proportion of their increased costs to customers, certainly as the economy begins to recover.

[103]As discussed in Chapter 7, a charge covering all of a day after a first arrival at a port is preferred.

[104]However, at very high rates for Ireland as a whole, the UK Government might well decide that rates in Northern Ireland should more closely reflect rates in Great Britain, and therefore there will in practice exist a ceiling on rates. This would be politically determined by the UK Government and the NI Assembly, but any effective ceiling would imply the continuing need for Irish Government payments from sources other than shipping charges to meet AtoN costs in Ireland.

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As well as, or as an alternative to, changing the structure and formulae for Light Dues payments, the options available to the Republic of Ireland Government to increase its revenues, to save costs or to reduce the support required by CIL include:

- a significant reduction in provision and/or maintenance of general lights, taking provision as close as possible to the minimum in line with SOLAS and IALA standards;
- increased outsourcing of work to low cost countries which can provide the required depth and quality of work (principally the UK);
- to transfer significant numbers of lights to port authorities, which would recover costs through increases in port fees: this would reduce the costs falling on CIL;
- an extension of CIL's role to the provision of local lights in the state owned ports, which could be charged for separately from general lights; this would potentially be more readily accepted as a charge (rather than a tax), and one which would always be identifiable as an Irish revenue;
- additional charges imposed on cargo and passengers, including possible "green taxes"; and
- charging for leisure sailors.

A description and assessment of these options is presented below[105].

[105]All of the estimates presented are approximate and income estimates based on an analysis of port data. These are nonetheless indicative of what impacts might be achieved.

9.5.1 Changes in Provision and Sourcing of Inputs

It is extremely difficult to quantify how far provision could be squeezed before running into potential issues with regard to endangering safety at sea; however, the technical analysis suggests that perhaps a cost reduction of 10% could be achieved, before taking account of possible downward changes in wages and salaries. All such scope to reduce costs must be among the options for detailed investigation with regard to specific aids and locations.

It may be possible to achieve an even greater reduction in provision and/or maintenance of general lights, taking provision as close as possible to what would be in line with SOLAS and IALA standards. CIL's Corporate Plan identifies the following costs for 2010/11:

• Lighthouses	€7,168,000
• Major floating aids	€ 125,000
• Buoys and beacons	€618,000
• Operations	€6,982,000
• Ship (excluding lease costs)	€2,907,000
Total	€17,800,000

A 10% cut in these areas would save €1.8 million, a 20% cut would save €3.6 million. These are useful savings, which would be welcomed by DoT, but because of the current formula, a 20% saving would reduce DoT's contribution by an estimated €1m to €1.1m. Such a saving is worthwhile but is hardly dramatic from an Irish Government perspective. Analysis using the current sharing of costs formula shows that increasing all Ireland Light Dues by 25% would have the same impact on DoT's contribution. As Dues per GRT of shipping in the Republic of Ireland are half the rate for the UK, an increase in all-Ireland Dues of around 35% combined with a 10% reduction in costs of provision would achieve a reduction in the DoT contribution of just over €4.0m.

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9.5.2 Outsourcing

As indicated above, the case for increased outsourcing strengthens considerably if the relative Sterling – Euro exchange rates remains where it is at present, or moves in favour of the Euro. CIL would then continue its specifier role but become a manager and procurer of more functions while reducing its own provider functions. This is a model which has been followed by several industries; most notably the logistics industry where the most successful firms have become knowledge based procurers and managers with very limited in-house provision or assets such as vehicles or warehouses.

9.5.3 Provision of Local Lights

The transfer of lights to port authorities to reduce CIL's cost base would not eliminate the costs (and ports might contract with CIL to provide and maintain their lights), but it would reduce the costs that CIL would report as general lights and would increase revenues if contracted by port authorities; CIL would of course have to make a profit on such port activity for this to be worthwhile, as there would be costs involved in serving the ports.

Similarly, as many ports are state owned, CIL could be given responsibility for their lights and allowed to charge separate fees for such aids; as above CIL would have to make a profit on this activity.

While legislation would be required, it should be possible to transfer significant numbers of lights to port authorities: this would recover costs through increases in port charges. Such a measure would reduce the costs falling on CIL, but would raise port dues. Port dues are, however, viewed as a charge for services and are charged on a flat rate basis (or at a rate which increases with vessel size, to reflect dredging costs), so that the increase in port costs would be spread more evenly across ships using Irish ports. As with the measures outlined above, the resulting impact on DoT's contribution is reduced through the formula currently used for cost sharing, so the impact through cost saving is relatively small.

However, Light Dues would remain unchanged (assuming no adjustment to the formula), but DoT would gain revenue from additional port dues in the Republic, as the major ports are in state hands. If €5 million of CIL's costs could be "transferred" in this way, the DoT's share of funding CIL would fall by some €2.1 million. However, additional port dues at 5cents per GRT per call would add a further €8 million in revenue, which would be offset by additional port related costs. If these amounted to the €5 million transferred (i.e. assuming no efficiency or other savings), there would still be a net gain of €3 million in port "profits", and DoT's net contribution would be reduced by just over €5.0 million. If the charge were applied per day we estimate that a charge of 10 cents per GRT per day would raise some €7.5 million.

A related option is to extend CIL's role to the provision of local lights in the state owned ports, which could be charged for in additional port dues and separately from general lights. Under this option, port revenue for local lights becomes pure profit because port costs associated with local lights becomes zero. If it is assumed that the extra costs incurred by CIL to provide local lights are the same as the costs that the port incurred to provide these services, then all of the additional revenue from port charges for local lights money from extra port costs is gain to DoT (the extra costs to CIL are offset by the reduction in port costs). As above, additional port charges at 5cents per GRT per call would add a €8.7 million in revenue, which in this case would all accrue to DoT. As with port charges, if the charge were applied per day we estimate using port data that the charge of 5 cents per GRT per day would raise some €7 million[106]. This option is more attractive because DoT does not have to share the benefits of a reduction in CIL costs with the GLF. To effect this, the provision of local lights would have to be undertaken through an arm's length company, in order to keep costs and revenues separate from core CIL operations.

[106]According to port data, the Republic of Ireland has no very high frequency ships, consequently there is very little difference in total revenues between a per call and a per day system; in contrast, Northern Ireland has a small number of very high frequency ships and therefore there is a greater difference in total revenues between a per call and a per day charge.

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9.5.4 Other Charges on Cargo and Passengers

The option exists simply to increase port charges and use the revenue to help fund Republic of Ireland AtoN; port charges are one version of an additional charge but can be presented as an actual charge for the services delivered by ports for conservancy, dredging, local lights etc. Ports (state owned) could increase charges for services (and the revenue potential from even a small charge is considerable), but the imposition of a tax per container or per tonne of cargo would potentially give rise to a range of problems as discussed below.

The option exists to impose a separate charge on cargo and passengers landed or leaving the Republic of Ireland. The presentation of any charge on the movement of goods would have to be given careful consideration, as there may be objections on the grounds that such a charge would be construed as a tariff, which is not permitted under EU legislation[107]. There would also be a presentational issue locally, as a charge on imports would increase the prices of goods and impact on the retail price index: if applied to exports (only, or in addition to imports) it would also increase export costs, albeit marginally.

A passenger charge would be construed as a tax on tourism, and would attract criticism on the grounds that once passed on in ticket prices it would improve the competitiveness of air services relative to ferries.

The options to use cargo and passenger charges to reduce the (net) burden on the Irish Exchequer involve what are in effect hypothecated taxes, and not true "User Pays" options. They could be implemented within the present system, but at the expense of at least appearing to dismantle the present unified system.

A tax on entering or departing passengers could raise useful amounts of revenue, although it would be necessary to devise the best way of administering the charges, for which legislation would potentially be required. As with airport charges, the charge could be collected by the port, or added in to ticket prices by the operator and then paid by the operator to the Exchequer. As there are fewer ports than ferry companies operating in the Republic, the port option may be simpler to implement.

While passenger numbers were known to be down by some 8% in the first half of 2009, 2008 data show some 1,535,000 arrivals from the UK and 120,000 from the continent to the Republic of Ireland and 1,097,000 from UK into Northern Ireland. Assuming 2008 passenger levels and applied at the level of the Republic only, a charge of €2 per passenger would yield around €3.3m if such a small change in cost had virtually no impact on demand. A higher charge of €5 per passenger could yield between €7 million and €8 million, after allowing for a market response to the price change, which would include some diversion of traffic to Northern Ireland. However, with passenger numbers down in 2009, the potential revenues would be less than this, but still substantial.

A potentially better model, and one that would have presentational advantages, would be for the Irish Government to raise additional revenues through "green taxes" on transport, and arguably given environmental concerns this should represent the least unacceptable direction for raising tax revenues at least in the short term. Specifically in relation to covering outgoings for AtoN provision, an example of a "green tax" would be the imposition of ferry passenger charges at the same time as increasing airport tax. Going further (and greener), a tax could be imposed on cars arriving by ferry and based on engine size or CO2 emissions[108].

[107]It is not, for example, a temporary charge for something specific like building a rail access to a port from which users benefit, which would be permissible; however, neither is it a tariff to limit imports. The legality of an extra charge to contribute towards AtoN might in the end need to be tested against the relevant legislation.

[108]This analysis has not included goods vehicles, but a similar charge could be levied on such vehicles, and with variations based on weight or number of axles.

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In 2008 some 362,000 cars arrived into the Republic of Ireland from Great Britain by sea and 513,000 cars into Northern Ireland from Great Britain. A small number of cars also arrived from continental Europe into the Republic of Ireland. Car use is potentially more sensitive to price changes than passenger numbers; making an allowance for a reduction in traffic, a charge of €10 per car would raise around €3 million if applied only to cars coming by sea to the Republic, and €7.5 million if applied to the whole of Ireland.

The potential to raise large sums from any port charges on cargo or tourists and from these "green taxes" is circumscribed by what happens in Northern Ireland, because there will be a level of charge above which significant amounts of traffic would switch to Northern Ireland ports and use the land border. There is therefore a maximum amount of revenue that can be collected in this way, unless Northern Ireland aligns port and other charges with the Republic. It should also be noted that increased use of Northern Ireland ports and more road traffic across the border as well as more traffic on routes such as the A75 would be detrimental in terms of increased road traffic and overall CO2 emissions. A reasonable degree of alignment across the whole of Ireland is therefore desirable on both financial and environmental grounds.

9.5.5 Additional Charges and North–South Differentials

The potential to raise large sums from any port charges and from these "green taxes" in the RoI is to a degree circumscribed by what happens in Northern Ireland, because sufficiently large differentials in costs in favour of Northern Ireland will result in some shipping transferring from the Republic to the North. As discussed, alignment of charges on an all-Ireland basis would seem to us to be a better base from which to address revenues associated with port use notwithstanding the fact that Northern Ireland remains part of the UK and in general would be expected to follow UK policy on taxation.

It is self evident that revenues generated in the Republic of Ireland would flow to the RoI Exchequer; there is however an issue regarding the revenues that would be generated in Northern Ireland from passenger, car and/or cargo charges. This is an area for further consideration, but we would propose that the revenues accrue to the Northern Ireland Assembly; the revenues could then be used to fund development or other programmes or to reduce other local taxes.

9.5.6 Charging for Pleasure Craft

Pleasure craft such as yachts which leave territorial waters and therefore use general lights should be registered, for purposes of marine mortgages and in order to simplify procedures in foreign ports. However, registration is understood not to be compulsory, but rather that it is useful for providing documentation.

While a flat charge could be imposed on these provided the Government has access to registration data, as with the UK such craft can be registered anywhere. Therefore any significant charge would cause owners to register elsewhere. A separate compulsory registration scheme could be set up to address this, but consideration needs to be given to enforcement and associated costs.

If ownership of larger leisure vessels is similar per head of population to the UK, there may be some 3,000 boats "in scope"; at €150 each, the gross revenue potential is €450,000. However, a charge even as low as €150 might see large numbers of owners moving registration. The resulting revenues, while useful, might not justify the costs of setting up a scheme. Needless to say it would also be highly unpopular among one section of the public.

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9.5.7 Changing Light Dues in the Republic of Ireland

While there is a strong case for retaining a uniform system of Light Dues throughout the British Isles while the GLF contributes towards Republic of Ireland costs, increasing revenues by higher charges for AtoN is still an option for the Irish Government. The Government could therefore adopt its own structure and formula for Light Dues to raise additional revenues and to achieve a better system.

As discussed, a high proportion of Ireland's shipping is short sea, high frequency traffic either by cargo vessels or ferries, and a voyage cap has a stronger impact on revenue generation in Ireland than in the rest of the British Isles. The analysis of port data suggests that a rate per GRT per day of around 20 cents would be sufficient to meet all or a very substantial proportion of CIL's 2010/11 corporate plan budget[109]. This would be a very large increase in costs for vessels such as ferries, possibly as much as a twenty-fold increase in Light Dues over the current capped system, but an increase by a factor of three over the rate that would apply if the UK adopted the flat rate system as discussed in Chapter 7. Ferry operators would pass these charges on to passengers and vehicles, but similarly all other additional charges or taxes would also fall on passengers and vehicles.

Regardless of whether costs are recovered from Light Dues or other shipping related taxes and charges, the increase in costs facing passengers and firms in the manufacturing, processing and freight sectors travelling to / from the Republic of Ireland would be proportionately much larger than those that would face those in the UK (or in Great Britain if Northern Ireland broadly followed the rate structure and levels applying in the Republic of Ireland). The wider impacts of these increases on the economy of Ireland would therefore merit further assessment; it is suggested that this be undertaken at a suitable location on the road map for the reduction in the GLF contribution.

If the Irish Government did opt to change the structure of its Light Dues, the issue of differentials between Northern Ireland and the Republic would arise specifically in relation to Light Dues. It is likely that the differences in rates would have to be very significant to cause shipping to divert to the North; depending on cost reductions and the exchange rate, the rate in the Republic of Ireland might be three or four times that in Northern Ireland. The difference between North and South for a ship of 20,000 GRT and sailing almost every day might be of the order of £750,000 per annum, but expressed per day, per vehicle or per passenger this is a small sum. While in principle there may be a ceiling on rates that can be levied in the Republic of Ireland unless the same charging regime applies in both Northern Ireland as well, in reality this may not be an issue.

[109]The variations in the way different ports treat calls makes it impossible to be precise; if all of the calls recorded are actual calls, the rate required to cover costs would be 10 cents per ton per call. By applying sensitivity tests, it has been possible to establish that a rate of 25 cents per ton per call would be a top rate to cover costs even when high call frequencies are scaled to equate to days.

9. The Relationship between the United Kingdom and Ireland

9.5.8 Conclusions on Funding Sources

The Irish Government is aware of these possible sources of revenue, but over the course of the Assessment has taken the not unreasonable view that the system of Light Dues charges and of how revenues are attributed between the UK and Ireland should be addressed before additional charges or taxes are considered. However, the port data analysis shows that while revenues attributed to Ireland are less than would be the case if revenues were collected at all ports and if voyage and tonnage caps were abolished, it would still not be feasible to eliminate the gap between revenues that would be generated at a uniform rate for Light Dues for the British Isles and the costs of provision in Ireland.

Therefore for the gap to be addressed, either the rate for Light Dues and the charging formula must be changed in the Republic of Ireland, or additional charges and taxes will be required, or both. As discussed, there is a case for harmonisation of whatever charges or taxes are used, in order to avoid stimulating a re-allocation of goods vehicle and car traffic from the Republic of Ireland to Northern Ireland. The potential for this requires investigation; an initial assessment suggests the effects of cost differentials would be marginal if a broad "funding cocktail" is adopted in the Republic of Ireland, but could be large if a single levy such as a tax on cars landed were adopted. Any large cost differentials would then tend to impact on specific sectors of the economies of the Republic of Ireland and Northern Ireland and potentially on the wider environment.

The Irish Government has recognised that a conclusion pointing to a need to generate more revenue within the Republic was a likely outcome from the analysis, given the objective of meeting the costs of Irish AtoN provision from Irish sources. However, many of the potential measures that would be required in the RoI would be regarded as involving increases in taxation, rather than as increases in charges for specific services. This distinction is important, both politically and in economic terms – people and businesses will pay reasonable increases in charges more willingly and with fewer distorting effects than they will pay what are perceived to be taxes. Extra taxes would also be more politically and economically problematic at the present time. In particular, taxes which affected the cost of living would lead to resistance to pay restraint and reduction (in an environment where Trades Unions have a stronger role than they do in the UK), while taxes that affect specific sectors of the economy such as exporters and tourism would also be highly unpopular and might lead to loss of output and employment.

The purpose of the road map period and the incentivised model for GLF contributions is to provide some time for adjustment, but with a clear end point. However, given that the objective is to reduce GLF contributions to zero towards the costs of AtoN provision in the RoI, some additional revenues will be required, whether from shipping related activities or from more general taxation.

9. The Relationship between the United Kingdom and Ireland

9.6 Longer Term Options for AtoN Provision in Northern Ireland

During the proposed road map period we have assumed that CIL will continue to act as the all Ireland provider of AtoN. While there are various advantages in continuing with that arrangement following the road map period, Northern Ireland has three broad options, all of which have different consequences.

These are to:

- continue to use CIL as its AtoN provider and implement a Light Dues and other charges regime which broadly parallels that in the Republic of Ireland;
- continue to use CIL as AtoN provider but implement only rest of UK changes to Light Dues charges; or
- organise separate AtoN provision and implement only rest of UK changes to Light Dues charges.

These options are discussed in Chapter 10.

9. The Relationship between the United Kingdom and Ireland

9.7 Conclusions

Our analysis indicates that a combination of measures could be adopted that would enable all of CIL's costs within the Republic of Ireland to be covered from Irish sources. We believe that a time period and a formula could be applied which would incentivise necessary changes, including cost reduction at CIL, without sudden or major dislocation. The UK and Republic of Ireland Governments need to develop a similar road map, within which an end date is set which is not subject to extension, but which can be brought forward depending on the performance of the Irish economy.

The road map approach is intended to accelerate measures to reduce costs and address funding; changes in wage levels which will take place within the Republic of Ireland economy as a result of wider economic pressures will play a role here. The on-going strength of the Euro suggests that CIL should at least consider outsourcing elements of its work to a low cost environment, namely the UK, and re-define itself as a specification, procurement and management organisation, exploiting its knowledge base and expertise to generate maximum value for money from suppliers and maximise the benefits of a strong currency.

There is a strong case over the period in which the GLF contribution falls to zero for the Republic of Ireland to retain the principle of harmonisation of Light Dues within the British Isles. This implies a need in the Republic of Ireland either for other shipping related levies and taxes or for a larger share of CIL costs to be met from general taxation. Beyond that period, various options apply including funding entirely from new Light Dues rates and/or formula.

If the allocation of traffic between ports in Northern Ireland and the Republic is sensitive to the likely levels of differences in charges (on top of existing differences in port dues), there is a case for achieving a broad alignment of any additional shipping related charges on an all-Ireland basis, to avoid the negative effects of possible rate competition between ports in the Republic and Northern Ireland. Specifically for Light Dues (if the Republic of Ireland were to abandon harmonisation), the differential would have to be very large to make any impact on the distribution of shipping traffic between the Republic and Northern Ireland: while the difference per passenger is estimated to be quite small[110], at the margin price differentials do influence some choices, for example on tourists, and therefore the possibility of some impact on port use cannot be ruled out just because the cost differences are small.

The difficulties inherent in aligning levies on shipping in Northern Ireland and the Republic of Ireland with different currencies is also recognised; however, precise alignment is not required, rather that differences in costs to shipping through levies and charges should not be large enough to cause significant changes in shipping company choices of ports. Having said this, in terms of the AtoN charging system and formulae, it is desirable that Northern Ireland and the Republic operate the same approach and harmonise rates.

[110]In the case of Northern Ireland, passengers include both Northern Ireland residents travelling to / from the UK as well as tourists, while tourists are non Northern Ireland residents. The additional charge on passengers as a whole (through higher Light Dues) is much smaller than a charge solely on tourists. Similar considerations apply to the Republic of Ireland.

9. The Relationship between the United Kingdom and Ireland

While a unified scheme of Light Dues and/or other taxes (such as on tourists and their cars) would increase taxation marginally in Northern Ireland, Northern Ireland will benefit from the tax revenues. These revenues should accrue to the Northern Ireland Assembly which will have the opportunity to reduce some other taxes or to increase spending on other programmes. We have indicated that the small excess of Light Dues revenues over locally attributable costs in Northern Ireland should go to the GLF.

A small charge on passengers would generate respectable amounts of revenue and would be at a level at which the accusation of being a tax on tourism would hardly be justified; a tourist charge would be higher and might be more difficult to implement. Green taxes on cars (and goods vehicles) also generate healthy amounts of revenue and may be easier to present politically; however all of the gap were to be filled from this source, there is scope for a leakage of tourists from the Republic of Ireland to Northern Ireland. Adjusting CIL's role with regard to port lights and increasing port dues to (more than) cover costs would also generate revenue which would be aligned to provision of a service, rather than being a tax.

Compared with other sources of revenue, a charge for pleasure craft generates a small amount of revenue; the number of boats registered in the Republic is small and owners have the opportunity to register in UK or elsewhere, so there is a ceiling on revenues from this source, unless a compulsory registration scheme were introduced, based on the owners place of residence. A decision on this would be a political one, but the need for legislation to achieve compulsory registration, the possible costs of enforcement and the potentially low levels of revenue might rule this out, even though in terms of fairness there is a sound case for including pleasure craft.

Photo courtesy of TH

ATKINS

10. **Addressing Long-Term Fundamentals**
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10. Addressing Long-Term Fundamentals

10.1 Introduction

This chapter looks at more fundamental proposals that would need further development before detailed consideration or implementation, not least because they represent real changes in the structure of the system of planning, management and oversight of the provision of AtoN. The topics covered here are:

- the UK and Ireland especially with regard to provision for Northern Ireland;
- inter-GLA working;
- fundamental reform of the General Lighthouse Fund;
- the potential for separation of provider and specifier roles; and
- future role(s) of national Governments and the EU.

The longer term issues are all essentially structural, in one sense or another. They are long term because they will need time to be assessed and discussed within and between the UK and Irish Governments and potentially the EU, and they all involve fundamental changes, none of which need delay the implementation of the short term proposals.

We have, in the course of the Assessment, frequently commented that the system and structure is not one that would have been designed if starting with a blank sheet of paper: in particular:

- charging for the "use" of lights has a long history in the British Isles, pre-dating by several centuries the economic theory of public goods which would support the general taxation approach adopted in much of Europe rather than the "user pays" approach;
- the fact that the Irish Government has obligations under SOLAS but requires sanctions from the UK and funds from the GLF to meet these obligations;
- the existence of a single fund for two sovereign states and the provision of AtoN in Ireland by a single body, which is politically of considerable value but which complicates the funding of provision and the scale of cross subsidisation inherent in the system;
- the role of the GLF with regard to pensions as well as the source of finance for the lighthouse authorities; and
- the status of the GLAs as both the providers of AtoN and as quasi-regulators and specifiers of provision.

We have not included reform of the charging regime among issues for the long term, as we believe our recommendations on charging represent worthwhile and feasible reforms that can be implemented in the short term, following consultation and limited additional research. This research is required only to "tweak" the proposed regime so that it demonstrably tracks profitability as well as reasonably practical. We do not believe that the introduction of the proposed reforms to charging require primary legislation, and therefore we recommend that reform of charging along the lines proposed is treated as a short term imperative.

10. Addressing Long-Term Fundamentals

10.2 The UK and Ireland

10.2.1 Background

It is an anomaly that the RoI has legal obligations under SOLAS but is dependent on the UK DfT for sanctioning of the corporate plans of the AtoN provider for Ireland and to the GLF for funds to meet what now amounts to part of the cost of provision in the Republic. This has arisen from the history of the UK and Ireland in the 20th century and in particular from the fact that lighthouses were "under the radar" in the Treaty negotiations of 1921, in the subsequent ratification of the Treaty by the Dail in 1922 which established the Irish Free State, and in the 1937 Constitution which was then adopted when the Irish Republic was declared in 1949. The Commissioners of Irish Lights therefore remained as the provider throughout all of Ireland, despite the partition of Ireland at the time of the establishment of the Irish Free State.

As a consequence Light Dues that are collected in Ireland (by Customs) are cycled through the GLF, and expenditure by CIL was for most of the 20th century completely funded from the GLF. More recently it has been agreed by the Irish Government that it will make a direct Exchequer contribution to CIL's costs within (attributed to) the Republic.

Irish Light Dues have declined thanks to a combination of:

- the effects of low cost airlines on ferry passenger traffic;
- the effects of the voyage cap and rolling month on payments by ferries; and
- the option of paying in the UK in Sterling, which has become much more attractive due to a decline in the value of Sterling in relation to the Euro – this applies to shipping calling in both jurisdictions.

At the same time, CIL's costs in Sterling have risen sharply, especially in the last two years thanks to a combination of factors outside CIL's control, namely:

- the appreciation of the Euro, which increases how costs appear in Sterling: the Euro has appreciated by some 35% since 2007; and
- substantial increases in pay generally in the Republic of Ireland and public sector pay in particular; this was a consequence of the need to compete for skills within what was until recently a tight labour market which depended in part on attracting talent from outside Ireland to sustain rapid growth of the Irish economy.

While CIL's costs will be reduced through some further efficiency measures and by implementing pay cuts which are taking place across the public sector in the Republic, the issue of cross subsidisation of Ireland from the GLF - and therefore by ship owners who do not use Irish ports - remains a live issue.

10. Addressing Long-Term Fundamentals

10.2.2 Future Provision and Funding

Our Assessment has proposed:

- changing the overall Light Dues formula so that frequent ships pay a more realistic share of the costs of provision;
- Light Dues collected in respect of UK- Republic of Ireland traffic will be shared equally between both ends of the voyage, which will benefit Irish revenues;
- setting a formula for GLF contributions to decline over time, but which also provides incentives for more Light Dues revenues to be raised in Ireland;
- proposing changes in CIL's role which would enable additional revenues to be generated through charges for local lights through port dues, which are far less contentious to shipping interests than Lights Dues; and
- proposing additional taxes, partly to generate revenues and partly to achieve wider environmental objectives.

It is, in principle, possible for Ireland to be self financing in the short to medium term, depending on the appetite for legislation and additional taxation. However, we recognise fully that, within a difficult adjustment to wider macro-economic conditions, the present time is possibly the least advantageous time to introduce additional taxation. It is up to UK and Irish Ministers to agree the rate of decline of GLF contributions using the formula proposed, but if this approach is used it will leave the RoI Government with no alternative but to act to contain costs and to generate additional shipping-related revenues. This effect could be softened if as suggested half of all revenues attributable to Ireland – UK traffic were paid into a "pot" for Ireland from the GLF

The critical issues are in relation to Northern Ireland, as the choices on charges for AtoN will potentially have impacts on the economy. Northern Ireland has three broad options here, all of which have different consequences. These are to:

- continue to use CIL as AtoN provider and implement a regime which broadly parallels that in the Republic of Ireland;
- continue to use CIL as AtoN provider but implement only rest of UK changes to Light Dues charges; or
- organise separate AtoN provision and implement only rest of UK changes to Light Dues charges.

The first option will have the advantage that it will avoid competition developing between ports north and south of the border and also increasing use of the road network between north and south, which would be an adverse outcome for road users and the environment.

Northern Ireland generates around 40% of ship calls, but it is agreed that Northern Ireland accounts for only 15% of CIL costs. We have proposed that any excess of Light Dues in Northern Ireland over costs should pass to the GLF, but Northern Ireland would also generate other tax revenues if it were to harmonise charges with those in the Republic of Ireland, for example by imposing green taxes on cars landed.

In implementing the first option, an appropriate strategy for Northern Ireland would be to:

- set its additional shipping related charges / taxes at a level that would encourage a greater degree of competition between ports, but only to a level that did not result in unacceptable increases in road congestion or CO_2 emissions; and
- retain the proceeds from these taxes, for use for investment in other programmes being pursued by the Northern Ireland Assembly.

10. Addressing Long-Term Fundamentals

This strategy would not increase port competition to an unsustainable degree and Northern Ireland would benefit from additional tax receipts that could be used for other programmes, for example to support economic development. If the Republic of Ireland uses a broad funding mix to address the shortfall in funding of its AtoN (including some funding from general taxation), port competition is unlikely to be an issue. However, if the extra funding comes from, say, charges on tourists and their vehicles then, as discussed below, the differentials could be wide enough to affect some travel choices in the absence of North – South harmonisation.

Therefore if adopting the second option, Northern Ireland might attract a degree of re-allocation of HGV and car traffic through its ports because of differences in costs between North and South. The possible extent of this requires further investigation, but any significant re-allocation would impact on road traffic and emissions which would harm the Northern Ireland economy and environment.

The third option involves complete separation of provision and funding along national lines. This has the downside of removing an all-Ireland body at a time when the UK and Irish Governments are seeking to increase the number and range of such bodies. Provision in Northern Ireland by either TH or NLB (with the latter having responsibility for the Isle of Man) might then be marginally cheaper for Northern Ireland and the UK as a whole, enabling a slight decrease in Light Dues. However, this would increase any potentially adverse effects that would stem from increased competition for traffic between ports north and south of the border. One alternative would be to offer AtoN provision for Northern Ireland as a 5 or 7 year contract and allow each GLA (and possibly the private sector) to compete for it. A further alternative would be to agree a contract with CIL for purely political / all-Ireland purposes. In this case a market testing exercise might be used to establish any cost disadvantage arising from this arrangement; if there is a gap between CIL and an alternative provider, the difference should arguably be met by the UK Government and not the GLF.

10. Addressing Long-Term Fundamentals

10.2.3 Port Competition and Traffic Diversion

On port competition our view is that differences in Light Dues alone will not give rise to large adverse competitive effects, as increased Light Dues would be spread across all users of ferries and other vessels.

However, during the road map period there is a case for uniform Light Dues and therefore the Republic of Ireland would have to supplement Light Dues with other measures. The imposition of additional taxes on shipping and shipping related activity, such as a passenger or car landing charge, might have such an effect if the rates were sufficiently high and if Northern Ireland did not harmonise its charges with the Republic. We estimated that a charge per passenger of €5 and per car of €10 might generate a sum approaching €20 million if applied across Ireland, which would provide around €10 million of tax revenues to the Northern Ireland Assembly and a similar amount in the Republic of Ireland.

However, if the Republic of Ireland used such taxes to fund all of its AtoN shortfall, these rates would have to be roughly double those indicated, and if Northern Ireland did not also impose a charge it would lead to a difference of €10 per passenger and €20 and per car (i.e. €60 for a party of 4 with a car, which is almost double the cost of a return car journey between Belfast and Dublin. Such differences could be large enough to change some travel patterns in favour of Northern Ireland ports, which would in turn mean that the Republic would have a smaller tax base and would have to increase Light Dues rates or other charges.

We believe, therefore, that there is a case for Northern Ireland and the Republic to achieve and sustain a reasonable degree of harmonisation of charges and taxes related to shipping, including taxes on passengers and cars (and removing the effects of exchange rate movements as far as possible).

As noted above, any surplus on Light Dues would accrue to the GLF, but if the Northern Ireland Executive were able (and willing) to impose additional taxes such as green taxes on cars landed, Northern Ireland would then be able to retain surplus revenues and direct these to development programmes or possibly to the reduction in other taxes. Northern Ireland could of course reject this approach and set all of its charges at the same rates as the rest of the UK; whether this would do more than reallocate a very small amount of trade and tourism at the margin is a matter for further investigation.

In looking at how best – and how rapidly – to implement this, it is important to ensure that in the short term additional taxes do not lead to other problems for the Republic's economy, not least because of the wider issues of trade with the UK. The staged reduction in GLF contributions that would be achieved through application of the formula suggested in Chapter 9 would enable change to take place gradually but within the framework of a "road map" that would in time lead to CIL's costs being met entirely from Irish (north and south) sources.

Once all of CIL's costs can be met from Irish sources, there would be no need for Ireland to pay in to or draw funds from the existing GLF for operating or capital expenditure, although it might be desirable to structure the GLF so that it can act as a lender to Ireland for major capital items. Alternatively, in a scenario in which Ireland as a whole is self financing, it would be sensible to have its own Navigation Services Fund (or similar), which could be given borrowing powers and powers to issue bonds[111]. As this is a longer term issue we have not looked at options for such powers.

[111]The ability to do so may be constrained by the need for both the UK and RoI Governments to agree how to underwrite such borrowing as the NSF would have no liquid assets and its fixed assets (which are unlikely to be acceptable as security for borrowing) would be located on both sides of a national border.

10. Addressing Long-Term Fundamentals

10.3 Inter-GLA Working

From the user's perspective, the provision of AtoN in UK and Irish waters is an integrated system which covers a large sea area some of which includes major hazards. This is an excellent outcome, because a Mariner having to cope with three different systems would be one exposed to more risks. As most maritime incidents arise due to human error, anything that cost effectively reduces the scope for humans in control of a ship to make errors is desirable.

From a provider perspective, the degree of integration among GLAs is actually more limited than might be expected, when the system is looked at from the user's end of the telescope.

Our Assessment shows that the GLAs are aware of this and are working more closely together in a number of areas, securing a more strategic approach to the specification and provision of AtoN, and economies of scale and synergies in their operational and management systems and processes. Chapter 6 on synergies and efficiencies highlights a number of examples.

Tri-GLA working relationships have improved in recent years and the work of the JCG and IGCs has already been noted. These arrangements have promoted closer exchange of information, sharing of good practice and some joint activities, with resulting savings to the GLF, but allow flexibility for each GLA to reflect its different geography, operational challenges, legal and financial codes and corporate culture.

However, we have also noted that in many instances each GLA continues to set and maintain standards, implement operating procedures and working practices, or make planning and procurement decisions that are more related to its own individual objectives, priorities - and sometimes professional pride or reputation - than a full acceptance of the benefits of shared activities within a strategic framework. In many instances, the primary accountability is to supporting local operations and activities within each GLA territory rather than fully articulating and working towards achieving the systems and processes – and crucially the behaviours and culture – necessary to bring about a genuinely integrated, but regionally responsive, system.

Our response to this, set out in Chapter 6, is the creation of a new Joint Strategic Board in place of the existing JCG as the overarching decision-making and accountable body for AtoN specification and provision across the British Isles. To make this work, the JSB must have formal delegated authority from the three Boards in defined areas, including setting tri-GLA policy and strategy, agreeing common standards and processes, and defining specific measurable joint targets to achieve these outcomes across the British Isles as a whole. Each GLA (through its Chief Executive and Executive Directors) should be accountable to the JSB in the agreed areas of joint policy, strategy and targets, and should have a duty to act on its behalf.

In principle, the JSB will then have the authority, powers and resources to make the "benefits of an integrated system" more real and consistent than they appear to be, in many instances, at present.

In the short-term, we are proposing that the JSB should be established voluntarily without the need for legislation and should be given time to work on this basis. In principle, this could be early in 2010/11 and indeed we understand that the GLAs are already putting some arrangements in place. However, the Governments should monitor the effectiveness of initial changes, the level of buy-in and engagement demonstrated by all three GLAs, and the effectiveness of arrangements in relation to the Non-Executives; if voluntary arrangements do not deliver a step towards a set of integrated behaviours, systems and processes, they should consider whether there is a case for strengthening arrangements on a statutory basis, or more significant structural reform to the continuation of three GLAs.

10. Addressing Long-Term Fundamentals

10.4 The Case for Structural Change

There has been some discussion amongst interested parties and stakeholders both before, and during, our Assessment over the merits or otherwise of the amalgamation of the current three GLAs into a more integrated structure, either for the whole of the British Isles or at least through the merger within Great Britain of Trinity House and the Northern Lighthouse Board. Whatever the name of such an organisation, the arguments for its creation are similar; that amalgamation would remove the current triplication of AtoN specification and provision across the UK and Ireland, and that cost savings would accrue from the rationalisation of the corporate centres and back-office support functions within each GLA.

We have already noted that the current tri-GLA structure is not one that we would invent if starting from the circumstance of the twenty-first century; with a blank page, a single Lighthouse Authority, either stand-alone or within a larger agency with marine responsibilities, with regional bases and operations for England, Wales, Scotland and Ireland might be the preferred approach. In this context, it is patently obvious that such a structure would have the potential for economies of scale in operation and a leaner central and support function than the current three GLAs managed as three separate legal entities. Such a body would also have greater potential towards a single, unambiguous chain of command, capable of setting and operating a harmonised set of standards, processes and systems.

We do not, however, start with such a blank page and this creates a range of practical challenges, financial burdens and risks for any such restructuring proposal.

For example, the creation of a dual or single GLA structure would require primary legislation at least in the UK, and potentially in Ireland, together with practical arrangements for the transfer or disposal of the assets of the current GLAs and the transfer, relocation or redundancy of staff. This would not, therefore, be a quick or an easy win and it would come with substantial transitional and start-up costs for the new organisation.

Our thinking behind this opinion is broadly similar to that around our comments on whether the GLAs should adopt shared services. In essence, the GLAs do not have the large workforces, high volume of standardised activities or overlapping territories to make centralisation into a single entity an attractive option; even were a restructure achieved at minimal cost, the basic requirement for three or four operational bases across the British Isles would remain, and there would therefore still be a need for local back office staff to serve these on a regional basis. Likewise, whilst there would a financial benefit in operating a single GLA Board[112], the cost savings resulting from this would be partially eroded by increased travel and subsistence costs of senior management covering a larger geographical area, and need to retain a tier of middle management on a regional basis in England, Scotland and Ireland.

Restructuring of this kind would risk a loss of senior experience and local knowledge which allows each GLA to plan and deliver AtoN to a high standard, and with the support of local users and stakeholders, within its territory. Whilst we doubt that this, in itself, would raise a question over the UK and Ireland discharging their international obligations under SOLAS, we do not believe the risks are outweighed by any efficiency dividend which is sufficient to justify the change. The move to a single GLA would also be complicated by the costs and financing of AtoN in the Republic of Ireland with a risk of making these less, rather than more, transparent in any bilateral negotiations between the UK and Irish Governments, and therefore running counter to the proposals made elsewhere in this Report.

To conclude on this issue, our experience tells us that re-organisation of the tri-GLA structure is likely to be a largely wasteful exercise if undertaken now solely for the purposes of realising significant cost savings. Our strong preference is for the GLAs to continue to work together within the tri-GLA structure, but with greater focus on aligning standards, systems and processes where it is feasible, effective and efficient to do so. We believe that our proposals to create the Joint Strategic Board, outlined above, with strengthened scrutiny and challenge from the UK and Irish Governments, directly and through their Non-Executives, will provide a major incentive in this direction. These arrangements should be established and given an opportunity to work; only if the JSB demonstrably fails to deliver should further structural change be considered.

[112]With, for example, a Chief Executive and four Executive Directors, compared to 13 equivalent posts across all three GLAs at present.

10. Addressing Long-Term Fundamentals

10.5 The General Lighthouse Fund

The more fundamental issues with regard to the GLF are:

- what is its future once CIL's costs are covered entirely from either total Irish sources or from Republic of Ireland sources?
- are there specific interim arrangements that should be put in place while there is a transition from a situation requiring a GLF contribution to CILs costs to the point where such a contribution is unnecessary?

With an all-Ireland CIL and a funding mix that includes Northern Ireland[113], the GLF might not be required, as in principle Northern Ireland could simply pay its costs to CIL directly. In this context, it is reasonable to assume that Northern Ireland will gather more in Light Dues and other charges or taxes (on passengers and / or cars landed from ferries) than the Northern Ireland share of CIL's costs, and here our view is that any excess of Light Dues over costs should accrue to the GLF.

However, if any other charges or taxes (such as green taxes on cars landed) are adopted in Northern Ireland to achieve a degree of harmonisation with the Republic of Ireland, those tax revenues should accrue to the Northern Ireland Assembly. We would argue here that, as the taxes will have a small negative impact in Northern Ireland, expenditure of the excess revenues should redress the balance, while also potentially adding value by targeting specific programmes for development. We recognise that this would require further development of the powers of the Northern Ireland Executive, and that time may be required to implement this. We also recognise that Northern Ireland as part of the UK might decide to follow the rest of the UK on Light Dues and taxes. The potential for large cost differentials to emerge between Northern Ireland and the Republic in such circumstances, and the scope for re-routing of HGV and tourist traffic, needs further consideration.

The proposed changes to the GLF are of course predicated on the assumption that assets and pension liabilities can be addressed; if this persists as a problem, the pension element of the GLF would have to remain in being to deal with Irish pension liabilities.

If Northern Ireland were to opt out of an all Ireland arrangement then the GLF would need to remain as a UK body, as Northern Ireland would collect revenues[114] and remit these to the GLF. In this case the GLF would be the vehicle for payment to the AtoN provider for Northern Ireland.

With regard to transitional arrangements, these should be determined once it is clear that an end-state is agreed and is not going to be overturned through a change in government or a policy shift. The major transitional task is to address assets and pension issues, which needs to be undertaken regardless. At this time, it appears sensible to retain the GLF to provide the vehicle for the funding arrangements required to cover a (diminishing) share of CIL's costs. For transparency, this should be set up as a separate pot specifically for Ireland; consideration should be given to establishing it as a Euro fund.

[113]CIL would have to organise a system of collection of Light Dues in both jurisdictions and would have to design it so that changes in exchange rates would not emerge as an issue.

[114]In this case TH might continue in its role as collector of revenues.

10. Addressing Long-Term Fundamentals

10.6 Increasing Scrutiny of Expenditure Proposals

In many areas of the public sector (and not limited to the UK) it has been noted that the part of an organisation which provides a service is also the part that specifies what has to be provided. The classic example of this is health care, where the patient typically has insufficient skills, information or training to prescribe a treatment and consequently has to rely on the doctor's advice. However, the doctor is also the provider and his or her salary, promotion or research funding may depend on what treatment is prescribed. Where there is no check on this, providers can prescribe remedies that favour provider rather than client objectives[115].

This implies a need for greater – and where possible independent – scrutiny of proposals to spend money, but especially when the structure of an organisation does not separate the roles of specifier from that of service provider and proposer of spending plans.

At present both provider and specifier roles are performed within each GLA without strong external review, apart from the signing-off of Corporate Plans of the GLAs by the LFC, and periodic scrutiny by DfT and DoT. Most of those concerned have a maritime background and have a keen appreciation of the issues of maritime safety from the mariner's perspective. On the other hand, people dealing with road safety accept that roads could be safer and that a level of loss of life and serious injury has to be balanced against the disadvantages and costs involved in improving safety. This balance is weighed using cost benefit appraisal, and we have said elsewhere that we regard this as an essential tool for testing the value of discretionary spending, including capital works and major research programmes.

In situations where formal appraisal tools are used, there is usually also a clear division between the one proposing an investment or item of expenditure and the one who will ultimately sanction it or reject it. A clear separation, as in the case of submissions for road and rail schemes, is highly beneficial, and this works in delivering value for money because appraisal serves two purposes:

- it defines the distinct roles of proposer and appraiser, whose objectives are not aligned; and
- it addresses the problem of asymmetric information – the appraiser is able to specify what information must be provided in the appraisal, and generally has expertise in interpreting that information in an objective manner.

The lack of suitable appraisal tools is therefore one factor that has, all other things being equal greater potential to drive over- or inappropriate provision; it also tends to be a symptom of a situation where the proposer (normally also the provider) is not adequately challenged by a specifier. Where this challenge is lacking, it is often the case that all parties have common or aligned objectives. In contrast, where appraisal is central to decision making, objectives are less likely to be aligned with the specifier taking an approach more rooted in value for money considerations.

In the case of the AtoN assessment process, the process is risk oriented and both appraiser and proposer have the same objectives, namely to avoid what they perceive an unacceptable level of risk to mariners. There is therefore a situation where:

- the specifier has no or inadequate information on either the costs or the ultimate outcomes of a proposal and is therefore unable to consider whether the reduction in risk offered in a proposal is worth the money it will require to deliver it; and
- a close if not exact alignment of objectives on the part of both specifier and provider, such that neither might consider issues of cost to an equal level alongside reduction in risk.

[115]This is related to the issue of asymmetric information; one example is where the seller can persuade the buyer to buy more than is really necessary.

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Each GLA therefore has the potential to specify and provide a level of service which may be above that required to satisfy SOLAS and IALA obligations and standards, driven by a strongly held belief of the need to provide AtoN to the highest international standards, a desire to remain as World leaders with the international prestige that this provides and from a natural and understandable tendency to sustain the organisation and to use the capacity at its disposal. There is, in any organisation in which these roles are blurred or merged, a natural tendency to operate in a highly risk-averse manner without exploring how much provision could be removed without undermining the achievement of defined safety targets and statutory obligations. This outcome is not uncommon, especially where the outcomes are concerned with the potential loss of human life; the appeal to safety naturally induces caution, but as with the allocation of resources in medicine or road safety, values can be put on the marginal gains in safety and set against costs.

Chapter 5 demonstrated that the AtoN Review process, and therefore for issues of potential over-capacity to be addressed, is becoming more quantitative, for example through the use of AIS track analysis. This is to be welcomed. However, we remain concerned that the process may not provide the highest levels of scrutiny from the perspective of levels of provision, the costs of retaining that provision or the actual benefits accruing to users. Bodies such as the LAC, for whatever the extent of the AtoN array, will always seek to ensure that this is provided at least cost, but neither they, nor DfT nor DoT, have the in-house expertise to determine levels of provision independently of the GLAs themselves. There is also no external audit readily available which does not suffer from the same problem – an auditor whose objectives align with those of the GLAs will have a tendency to err on the side of caution rather than questioning whether levels of provision are, in some instances, higher than required by international standards.

A response to this is an explicit separation of the role of specifier of the provision of AtoN from that of provider. This can be achieved in two ways:

- by separating functions within an organisation so that there is a division between a department which specifies what is required and procures the capacity and skills to deliver this, chiefly but not exclusively, from other parts of the same organisation; and
- by establishing a completely separate body whose role is both to specify what AtoN are to be provided and to extract maximum value from providers, who should ideally be competing to satisfy the requirements specified for a given cost.

The GLAs argue that they effectively operate the first model – for example, TH has a Navigation Requirements Directorate which has separate responsibility for AtoN specification from the role of provision of marine operations – with scrutiny from Commissioners and Non-Executive Directors. The question is whether this arrangement goes far enough in splitting objectives, demonstrating transparency in decision making and providing external oversight in ensuring that value for money is delivered. One model put forward by a number of commentators involves an Independent Regulator that would approve AtoN provision, where that provision would be determined, and oversee the work of a Marine Navigation Aids Commission. In our view, this proposal does not create the right balance of power between specifier and provider, with the regulator potentially being either too small to undertake the scrutiny and audit role adequately, or too large and too expensive to be efficient and therefore acceptable to those paying Light Dues. In any case, the two Departments are familiar with the use of assessments involving trade-offs between safety benefits and other costs; in the case of AtoN they would be best placed to undertake this role at reasonable cost. We do not therefore support the creation of an Independent Regulator along the lines proposed.

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However, taking the separation of powers model further, there may be greater merit in the GLAs acting as specifiers for their respective areas, setting out the AtoN required and the basis for their maintenance, and then acting as procurers and managers of services from a range of external providers, potentially including those from the private sector. The level of AtoN specified would then be subject to external value for money review within the context of the GLF.

In this model, the GLAs might divest their technical and operational departments either to, or as, private sector providers. This could be done by giving the new entities initial contracts for provision. DfT and DoT would then take on the role of overseeing the specification bodies and the financial implications for the GLF and/or whatever alternative funding arrangements are put in place for the Republic of Ireland.

An alternative would be to establish a new specification body or bodies, either as a single body for the British Isles as a whole or one each for Scotland, England and Wales, and Ireland. Various options exist here, but whichever model was adopted, this new specifier body would have to be a more technically capable organisation than has recently been suggested. With this model, the GLAs would become providers and would have to compete for contracts procured and managed by the specification body or bodies.

The foregoing are the most radical options and much further analysis, including the requirement for primary legislation, transfer of liabilities under SOLAS, and market testing private sector interest in all aspects of GLA operations, would need to be undertaken before they could be seriously entertained.

A less radical option exists which involves incremental restructuring of the GLAs internally, but also collectively, to create an internal client group and an internal provider group. The internal client group could be at the individual GLA level, but the proposal to create the JSB also offers the opportunity to make this Board the client body within an internal separation of roles. As such this "client body" would:

- have budgetary responsibility for money spent from the GLF, and could operate to value for money targets set by the Departments;
- require individual GLAs to undertake appraisals of all large capital investments and revenue activities and take decisions on all such proposals;
- conduct its own specification of what AtoN are required on an area by area basis on a rolling programme basis, and require GLAs to provide these aids; and
- provide and then monitor the use of new assessment guidelines for smaller expenditure items, including expenditure in geographic areas that have not yet been the subject of an assessment by this body.

This model retains most aspects of the current system while providing a clearer distinction of roles and a separation of objectives which would appear more transparent to external scrutiny. It also defines a potential medium- to long-term role of the JSB which will be created as one of our short-term recommendations. To be fully effective, any client body will need to augment the current skill set in order to ensure it can provide the right degree of challenge to proposals which may be driven as much by technical disciplines as financial and economic imperatives.

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10.7 Future Role of the European Union

At present much of Europe funds its AtoN provision from general taxation. In many cases this reflects a particular philosophy of Government, but it also reflects the fact that many countries have coastlines that are shorter or much less hazardous than that of the UK and Ireland. Our consultations have also highlighted hidden competition between continental ports by way of port charges. There is a case for looking at all charges, including navigation charges, to ensure EU competition laws are being observed and for bringing navigation charges into line across Europe, not least in order to capture at an EU level the revenues from passing ships in British and Irish waters, which are currently "lost" but which would be captured where those passing ships use another port within the EU.

With the increasing growth of shipping for trade by EU countries, and the growing use of e-navigation, there is a case for seeking to make responsibility for AtoN provision and financing a European matter rather than an obligation of individual EU Member States. At the very least there is a case for further standardisation and commonality in provision throughout the European Union.

The case for such an approach is enhanced by the possibility that eLoran might be adopted as the European terrestrial navigation system, as this system will require transmitters across Europe, and such an investment may best undertaken as an EU rather than a national initiative.

The possibility also exists that Europe might also adopt a cost recovery system, although there is no indication of what that system would be based upon. In any event such a move should find favour with UK shipping interests, as a situation where the costs of AtoN are pooled across Europe could be expected to reduce costs in UK and Irish waters if a uniform European charge were introduced.

This is clearly a long term issue, but given the benefits of integration of AtoN provision to the user, there may be merits in considering the transfer of AtoN specification and provision from national jurisdiction to the European Union.

Photo courtesy of TH

11. **Conclusions and Recommendations**
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11. Conclusions and Recommendations

11.1 Overview

There is no doubt that the provision of marine AtoN around the UK and Ireland is undertaken to first class standards and with commitment, professionalism and diligence from all those concerned. The three GLAs have an impressive track record of technological innovation, excellence in operational practice, and investment in skills in order to serve some of the most challenging waters in the World. This enables both the UK and Irish Governments to meet their international obligations under the SOLAS Convention with confidence, and provides for the protection of human life, preservation of the marine environment and the maintenance of maritime trade on which the British Isles depends for its economic prosperity.

The current arrangements work – and work well – in their basic objective of ensuring mariner safety. However, they also come at a price – around £75 million a year – which is borne primarily by ship owners calling into UK and Irish ports. Despite over a decade of absolute or real-term reductions, these ship owners do not wish to see increases in Light Dues in the wake of a global economic recession when revenue has fallen and profit margins have been significantly eroded. Moreover, some aspects of AtoN provision are based on decisions and conventions set decades, indeed in some cases centuries, ago. This is, by almost universal agreement, not a system which would be designed today in the twenty-first century. In this respect, the tri-GLA structure with each Authority having its own operations, board structures and support functions, and the provision of AtoN around Ireland, largely paid for by a Fund administered by another sovereign state, are two particular anomalies which would not be invented now, and which, whilst having no detriment to maritime safety, are seen as increasing overall costs and burdens on ship owners.

In carrying out our Assessment, we have collected and analysed an extensive array of evidence, and spoken to a wide range of stakeholders who use, pay for, specify or provide AtoN across the British Isles. It is clear to us that the current arrangements can claim a number of strengths and achievements to commend them. However, it is equally evident that some policies, practices and structures are open to constructive challenge and more of a case for change. Our intention in this Report is not to sweep the current system away, but to build on the strengths which clearly exist, and identify and address those areas where improvements could be made.

11.2 Short-Term Recommendations

Our Assessment concludes with 52 specific areas of recommendation to the UK and Irish Governments, the GLAs and wider maritime community. These recommendations are structured under each of the five themes defined within our Terms of Reference. To recap, these are:

Two themes for the current operations of the General Lighthouse Authorities:

- technical and operational policies and practices in the specification and provision of AtoN; and
- corporate governance, operational and administrative efficiency, and tri-GLA synergy.

Three themes related to the wider context within which the GLAs operate:

- the level and structure of charging for AtoN and the future of Light Dues;
- the management, structure and future stability of the GLF; and
- future arrangements around the provision and funding of AtoN between the UK and Irish Governments.

The justification behind each recommendation has been set out in the relevant preceding Chapter of this Report and has been exposed to a process of examination, debate, confirmation or challenge from the Steering Group as the Assessment has progressed. We are therefore confident that our recommendations, whilst unlikely to have the acceptance or support of all parties on all issues, are robust, evidence based and provide the basis for action in the short-term and give way to broad options for consideration in the medium and long-term.

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11.2.1 Technical Recommendations (Chapter 5)

The GLAs undertake the specification and provision of AtoN to meet international obligations under the SOLAS Convention and standards set by IALA. Within this legislative context, we have made recommendations on the process through which AtoN requirements are reviewed and the medium- to long-term implications of e-Navigation. We consider the more efficient use of a number of the GLAs' operational assets, systems and processes, including vessels, monitoring centres and buoy yards.

We also consider the GLAs' role with respect to the superintendence and inspection of Local and Third Party AtoN.

T1: The GLAs should build on the 2010 AtoN Review process through comprehensive application of AIS analysis, the development of quantitative risk assessment and introduction of cost effectiveness and cost-benefit analysis.

The availability and use of AIS data is increasingly providing an enhanced basis for examining traffic levels and therefore for risk assessments which are a fundamental element in deploying, changing or decommissioning AtoN. AIS should continue to be developed by all three GLAs to its full potential, but with greater focus on quantification of risks within the overall review process.

The objective of conducting a qualitative risk analysis is to acquire safety against recognised risks and to increase the alertness of all plant, equipment and personnel who are vulnerable to them. Quantitative risk analysis is more focused on the implementation of safety measures that have been established, in order to protect against defined risks. By using a quantitative approach, it may be possible to create a more analytical interpretation that can clearly represent which risk-resolving measures have been most well-suited to various project needs.

There is also a need for greater input to navigation expenditure from a cost and value for money perspective so that decision making is not entirely focussed on risk avoidance. Cost effectiveness analysis should be applied to options where expenditure is non-discretionary, and cost benefit analysis where expenditure is discretionary.

T2: The use of Cost Benefit/Cost Effectiveness Analysis should be introduced into GLA decision making, initially for all capital projects over £500,000; a more proportionate light-touch but systematic appraisal approach should be adopted for projects under this value.

Initially cost benefit analysis should be applied in a formal manner that is compliant with HM Treasury Green Book / ROI Department of Finance project appraisal guidance to proposals for capital projects costing over £500,000. A more proportionate approach is needed for smaller projects, but this should still provide a fit for purpose, systematic way of looking at the costs and benefits of proposals. Cost Effectiveness Analysis should be applied to options where expenditure is non-discretionary, where the focus is on the best value option to deliver specific outputs.

T3: All major GLA-related technology-led spending, where there is scope to spend more than £500,000 over the next 3 years, should, where practicable, be subjected to a pause whilst an appraisal is undertaken to determine their medium- to long-term costs and benefits and suitability for continued support from the GLF.

There is the possibility that some technology-led spending will generate no returns if that technology is not taken up at least at a European level, and in some cases the ability to earn returns is outside the control of the GLAs. It is therefore appropriate to take stock and to apply formal appraisal methods to any large scale programme that is likely to consume £500,000 or more over the next three years. Such review will be subject to any existing contractual matters regarding third party involvement in research & development.

There is a need for any proposal to demonstrate paybacks in financial and economic terms to the GLAs and to the support provided through the GLF within clear time horizons.

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T4: The DfT and DoT should consider alternative methods of funding for the terrestrial based radio back up to GPS. Whilst recognising the sacrosanct "user pays" principle, the need for this service is essentially driven by standards of navigation aboard international shipping and should not be a charge on ships using UK and Irish ports.

It is expected that e-Loran will undergo a formal appraisal under Recommendation T3; within that appraisal consideration should be given as to whether it is appropriate for current and future expenditure in this area to continue to be funded primarily from the GLF. If not, but continued research and development is deemed important, then the UK and Irish Governments should investigate alternative means of financial support.

T5: The GLAs should consider and implement the recommendations of the C-MAR Fleet Review in a manner which balances the benefits of central management of all GLA vessels with ongoing reductions in operating costs.

The GLAs have developed joint proposals, at varying stages of Board approval, for co-ordinated fleet management which are stated to be less costly to implement than the C-MAR proposals, but which may forego some of the benefits of a single manager for the fleet as a whole.

The DfT should subject both options to an operational, financial and economic appraisal so that the advantages and disadvantages of each approach can be assessed, before a final decision is taken.

T6: The GLAs should prepare a business case considering the costs and benefits of centralising AtoN Monitoring and Control, subject to the key practical, technical and governance issues being identified and resolved.

At present, each GLA maintains its own AtoN Monitoring and Control Centre, based respectively in Harwich, Edinburgh and Dun Laoghaire and manned 24 hours a day 365 days of the year. This is logical given that they currently look after their own assets. However, whilst precise technology and working practices do vary across the three sites, the basic monitoring and control function is common to each. If the tri-GLA structure becomes more integrated in the future there is potential to combine these facilities into two or a single site.

Were such a course to be taken there are a number of practical, technological and governance issues to resolved. However, if robustly project managed, we see no reason why centralisation cannot be achieved within one year, resulting in operating cost reductions within a short period, and a sufficient pay-back period to justify the investment from the GLF. We propose that alongside closer collaboration over management of their fleet, the GLAs therefore progress options and a business case for such a project through the relevant IGC(s).

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T7: A comprehensive review of capacity, capability and importance to marine and engineering operations of the four main GLA buoy yards should be undertaken. A particular focus should be the current provision at Swansea and Dun Laoghaire and the review should consider a wide range of operational, economic, financial and governance issues in determining the way forward.

We have concluded that there is spare buoy yard capacity across the GLAs. However, we make no firm recommendation in this Report on whether this should result in the closure of any individual facility at this time. The issues, particularly around Swansea and Dun Laoghaire, are multi-faceted and require further analysis.

The geography that has to be served by the GLAs suggests that there is a need for at least one buoy yard in the area from Penzance to somewhere between the Clyde and the Solway, be this Swansea, Dun Laoghaire or a new site. Accordingly an in depth appraisal is required, first to identify all options and then to carry out a formal appraisal of the most promising options. This appraisal, carried out by the GLAs with the findings presented to the two Governments, should consider among other things the safety and benefit of the Mariner, the need for resilience and flexibility in GLA marine operations, the alternative use value of the existing buoy yards and current and future running costs.

The latter should take into account the higher costs of covering AtoN provision in Ireland in Euros compared to current and likely future rates of exchange with Sterling, as well as the wider recommendations for the relationship between the UK and Ireland presented in this Assessment.

T8: The current practice of GLA superintendence and inspection of Local and Third party AtoN should be reviewed, either with a view to the GLAs levying a charge for such services or for the introduction of a system of self-certification, subject to legal assessment and suitable compliance and enforcement penalties being developed and put in place.

Legal advice should be sought over whether the GLAs should continue, but be permitted to charge for, inspections of Local and Third Party AtoN as the GLAs would potentially be in the position of monopoly providers, and consequently a regulatory regime may be required to set prices. If permitted, a charging regime would generate additional income.

The alternative of self certification would provide an opportunity to reduce GLA costs, both in terms of ship operations and back office administration. Any replacement arrangements should contain a number of elements as listed below:

- a clear asset register to identify primary responsibility for deployment, operation and maintenance of different types of AtoN. This process may result in a kind of gap analysis in terms of what legislation applies to whom, and why;
- the GLAs should continue to have a role in defining what AtoN must be fitted to offshore structures and to have an advisory role in defining what AtoN LLAs are required to maintain;
- clear identification of the prosecuting authority and legal sanctions for non compliance with self certification requirements ; and
- unannounced inspections and provision for whistle-blowing by passing ships.

In determining any way forward, consultation with a wide range of stakeholders will be essential, and any self-certification regime must not result in a standard of AtoN provision which is inferior to the current arrangements.

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11.2.2 GLA Corporate Governance (Chapter 6)

Although the GLAs carry out largely similar tasks, the structure, corporate governance and staffing arrangements of each organisation are different. We make a number of recommendations through which executive decision making could be made more efficient, effective and open to support, scrutiny and challenge. In particular, we propose the creation of a new Joint Strategic Board to more clearly identify, deliver and demonstrate the benefits of a truly integrated system of AtoN provision across the whole of the British Isles.

CG1: Corporate governance at NLB and CIL should be reviewed to give consideration to the large number of appointed and ex-officio Commissioners being replaced by a smaller number of non-Executive Directors.

Statutory reforms to NLB and CIL will require legislation in both the UK and Ireland. Since this will take some time progress through both Parliaments, we recommend that both GLAs develop and adopt transitional governance arrangements in the interim period. In the case of NLB, this is likely to be based on the Management Board to which the Commissioners have already delegated responsibility for key activities; more substantial change will be required within CIL, especially with regards to DoT and DfT input into the nomination of Commissioners, but practical arrangements could be progressed relatively quickly in agreement with the Board.

The effect of these changes will not be to result in direct cost savings in themselves. They will, however, we believe, improve non-executive support to NLB and CIL senior management, and provide stronger and more transparent mechanisms for scrutiny and constructive challenge of executive decisions. This will result in management decisions which promote cost effectiveness and efficiency in the discharge of GLA statutory obligations.

CG2: DoT (and DfT for Northern Ireland) should take a stronger role in appointing and providing guidance for CIL Commissioners.

Irrespective of primary legislation coming forward, in considering corporate governance changes to the CIL Board, a number of the Commissioners or Non-Executive Directors should be nominated as representatives of the Department of Transport and be in position to raise concerns and issues directly with Irish Ministers. The DfT should also have a role, alongside DoT, in nominating at least one Non-Executive Director with responsibility for Northern Ireland.

CG3: DfT and DoT should maintain strong links with their nominated Commissioners/Non-Executive Directors to ensure that the actions of the Executive is appropriately supported, scrutinised and challenged.

The effectiveness of existing and future DfT and DoT nominations for Non-Executive Directors and Commissioners in supporting, scrutinising and challenging the decisions of the GLA Executives will be maximised only if the two Departments appoint candidates with the experience, skills and time to fulfil the role, provide clear guidance and advice and allow access to senior Officials and Ministers for the discussion of areas of concern. We are satisfied that this is now the case for TH Non-Executive Directors in respect of DfT, but this hasn't always been so, and the Department should ensure that current good practice is continued and extended to new arrangements for NLB and CIL.

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CG4: The role of CIL's Board in respect of ICT should be reviewed.

Both TH and NLB have a Chief Executive plus three Directors ("Executive Chairman" in the case of TH). CIL, on the other hand, has a Chief Executive plus four Directors, including a Directorate specifically for ICT compared to TH and NLB where all support services are under a single Director.

This arrangement reflects CIL's strong belief in the value of ICT in modernising its operational and business processes and ultimately resulting in lower costs to the organisation. Whilst we do not question this belief per se, it does increase the cost of management overheads and could therefore represent an opportunity for some marginal cost savings. If the current structure continues, we suggest that CIL seeks to get maximum value out of it by using the Directorate to promote stronger ICT development across all three GLAs in a more co-ordinated manner.

CG5: The post of Executive Chairman of Trinity House should be retained, but kept under regular review by Non-Executive Directors and DfT.

Whilst best practice in corporate governance would be for the positions of Chief Executive and Chairman to be split, there is no evidence that combination of roles has weakened good governance of Trinity House and there is therefore limited case for reform provided the Non-Executive Directors continue to review the position each year, "comply or explain" and report any concerns to the Secretary of State.

In defining any future governance arrangements, NLB and CIL should start with the presumption of separating the roles of Chairman and Chief Executive and seek to depart from this only if they believe – and can demonstrate – that combination of the roles is effective, efficient and offset by clear checks and balances within the overall governance structure.

CG6: Senior management reward arrangements across the GLAs, particularly CIL, should be reviewed with a view to reflecting market benchmarks, rewarding performance against stretching targets and providing a stronger link between management decisions and corporate objectives.

Benchmarked figures indicate an extremely high cost for CIL staff and senior management, in comparison to TH and NLB. Whilst much of this difference can be accounted for through changes in exchange rate between Sterling and the Euro, and wider public sector wage inflation in Ireland, this shows that CIL has by far the highest cost per unit output of the three organisations; this flows through to increased burdens in funding Irish AtoN provision from the GLF.

CIL policies and practices for setting senior management pay, terms and conditions should be reviewed in order to benchmark against market trends in Ireland, provide a comparison with TH and NLB and set appropriate levels of individual reward and motivation. There is scope to consider the introduction of Performance-Related Pay as part of this review, but we understand this is unlikely to be encouraged by the Irish Government at present. In addition, the precise scale and timing of introduction of any PRP arrangements should reflect presumptions in favour of wider pay restraint within CIL in future years.

Performance-Related Pay for senior managers at TH and NLB should relate to the demonstrable achievement of stretching targets set out not only in the individual GLA Corporate Plans, but, where relevant, tri-GLA performance as set by the Joint Strategic Board.

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CG7: The GLAs should establish a Joint Strategic Board to provide leadership on key strategic directions, systems and processes and development of further tri-GLA activities.

Tri-GLA governance arrangements should be substantially strengthened through the creation of a new Joint Strategic Board (JSB) in place of the existing Joint Consultative Group as the overarching decision making and accountable body for AtoN specification and provision across the British Isles.

Whilst each GLA should remain a separate legal entity, the JSB would have the formal delegated authority from the three Boards to set tri-GLA policy and strategy, determine agreed outcomes and define specific measurable targets to achieve these outcomes across the British Isles as a whole. The Board should provide guidance and direction to the Chief Executives and their Executive Directors in implementing the key actions required to achieve the targets and to hold them to account for their performance in so doing. It should also provide a stronger framework for the work of the Inter-GLA Committees, benchmark performance against key metrics and provide the principal interface with the DfT and DoT on strategic issues.

We do not propose a specific structure, constitution or modus operandi for the JSB. However, we believe that under any arrangements, membership of the JSB should include strong representation from Non-Executives alongside the three Chief Executives and appropriate arrangements should be agreed to appoint a Chair who will then act as the representative on behalf of all three GLAs for the purposes of reporting or seeking approvals from the two Governments.

In the short-term, the JSB could be established voluntarily without the need for legislation and should be given time to work on this basis. However, the Governments should monitor the effectiveness of initial changes; if voluntary arrangements prove problematic, they should consider whether there is a case for strengthening arrangements on a statutory basis.

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11.2.3 GLA Efficiency and Synergy (Chapter 6)

The GLAs have made substantial progress in achieving a range of efficiencies and cost savings within their operations and support functions. These have supported absolute or real-term reductions in Light Dues. We recognise that the GLAs are strongly committed to continue to drive cost reductions in a number of areas and we put forward a number of recommendations, either in relation to one-off efficiencies or ongoing changes to corporate behaviours or processes, which will assist them in doing this, either individually or through shared activities. Some of our proposals will secure immediate or short-term reductions in GLA costs whilst others will be seen over a number of years.

We also examine the potential for the GLAs to secure additional commercial income under the Draft Marine Navigation Bill.

ES1: The GLAs should establish comprehensive benchmarking of key cost, staff and other metrics around their operations, central and support functions.

The GLAs should develop an appropriate set of tri-GLA metrics for key aspects of their operations, staffing, costs and resources and performance, and seek agreement from the two Governments and the LAC for these measures to be collected, analysed and reported in a consistent manner. Data reported against these metrics should be subject to periodic validation and audit, as well as allowing benchmarking against comparable organisations in other sectors.

The GLAs should endeavour to have the new set of metrics developed, agreed and with population of the baseline data for the commencement of the 2011/12 financial year. The JSB should also work to set a number of strategic performance targets against the metrics with suitable milestones, so that progress can be monitored at appropriate intervals.

ES2: Without detriment to mariner safety, the GLAs should target real-term reductions in running costs, committing at five year intervals, to a cost reduction target such that expenditure is lowered in real terms over the period.

The GLAs are currently budgeting to maintain running costs about level in real terms over the next few years; in other words, costs are budgeted to rise in line with inflation. With the exception of CIL, no efficiency improvements are envisaged which will sustainably reduce net expenditure in real terms on a sustained basis. Whilst accepting that the GLAs have taken considerable steps to reduce their running costs over the past decade, we believe this limits the degree of ambition on the part of the GLAs and also insufficient leverage from the two Governments and the LAC to push non-essential costs down.

Given this position, the only way to obtain such efficiency savings is to impose "top-down" a cost reduction target. This would take the form of a RPI-x % formula, with x being subject to negotiation between the GLAs and DfT, scrutiny and challenge through Non-Executive Directors and Commissioners, and monitoring through the LFC. To allow a degree of flexibility (i) x might be allowed to vary between the GLAs based on historic performance and the perceived scope for cost reductions, and (ii) performance against the target measured over a five year period rather than against each year's outturn.

11. Conclusions and Recommendations

ES3: In line with recent practice, the GLAs should continue to dispose of surplus assets where these are no longer necessary for operational purposes and where there is a net financial benefit to the GLF.

A review of each GLA's latest Annual Reports shows that there are few tangible assets which are surplus to current operational requirements. However, we understand that TH has recently put its former Penzance depot on the market, with the net proceeds of any sale likely to provide a one-off benefit to the GLF.

TH also owns a number of surplus properties related to its old offices in Harwich. The market value of these properties has reduced substantially in the recession and rather than an asset sale at the current time, a medium-term strategy around redevelopment of the area with other partners is regarded by TH as more appropriate.

As suggested in Recommendation GF7 below, the GLAs should review the phased disposal of other surplus assets, for example those resulting from implementation of successive AtoN Reviews, and should sell, or transfer the ongoing liabilities of, these assets in a manner likely to maximise the net benefits for the GLF.

ES4: The GLAs should target one-off and ongoing savings in the costs of their core operations.

It has been noted that the GLAs have achieved a range of efficiencies and savings within, and across their operations. The efficiencies produced by these have resulted in substantial reductions in headcount. Whilst there is no obvious equivalent "step change" in resources and costs looking ahead, new technologies and operational practices continue to offer scope for significant savings through reduced need for physical AtoN, more cost effective maintenance requirements and more efficient operational practices.

Opportunities which should be targeted by the GLAs include:

- implementation of the C-MAR or equivalent proposals for central fleet management;
- identification and rationalisation or use for commercial activities of spare vessel and buoy yard capacity, including a review of buoy yard capacity at Swansea and Dun Laoghaire;
- centralisation of AtoN Monitoring and Control;
- further quantification of the AtoN Review and risk assessment process, including the development and application of appraisal techniques considering costs and benefits;
- reduced AtoN maintenance requirements through the application of low intervention technology;
- the introduction of Cost Benefit or Cost Effectiveness Analysis into all GLA investment decisions over an agreed threshold; and
- the introduction of a system of self-certification or charging for inspection of local and third party AtoN.

Specific actions to develop options and implement key actions against these areas should be developed by the JSB, including identifying the need for appropriate transitional or start-up investment. The impacts of all the changes should be kept under review and used to inform future operational practice and use of GLA assets.

11. Conclusions and Recommendations

ES5: Capital expenditure should be subject to a Zero-Budget approach with a more rigorous and competitive process such that only essential and added-value items are approved.

Through their Corporate Plans, and supporting documentation, GLAs should provide a stronger business case for each capital project. This is consistent with Recommendation ES4. Essential expenditure would have the strongest weighting and highest probability of approval, with benchmarking used to challenge asset replacement costs where it is possible to make comparisons.

Expenditures which aim at realising savings in operational costs will also be rewarded. Other expenditures would score less and consequently have a lower probability of approval.

The objective is not necessarily to reduce the overall capital budget for the GLAs, but to ensure that only the most critical and advantageous proposals are taken forward. We would also propose that capital budgets are negotiated collectively across all GLAs, rather than individually for each organisation. This would potentially introduce a degree of competition into the process and reward initiative and innovation. In principle, such an approach could be introduced from 2011/12 onwards.

ES6: Future GLA pay awards should continue to reflect HM Treasury Pay Remit Guidance (for TH and NLB) or similar Irish Government Advice (for CIL).

Above inflation pay awards render it more difficult to realise a real term reduction in running costs given that staffing accounts for around 50%-60% of total GLA costs. Such developments also strengthen the argument for outsourcing the provision of some GLA functions to the private sector on the basis that private sector pay and terms and conditions are more flexible.

On this basis, the GLAs should seek to hold down pay awards in future years where such a policy is in line with guidance on public sector pay issued by the UK and Irish Governments. In the case of CIL, this includes real-term pay reductions in 2010.

ES7: In targeting cost reductions, the GLAs should take a particular focus in reducing the cost of their support services as a proportion of running costs over the next five years.

It has been noted that the GLAs employ a slightly higher than expected proportion of their staff in support services. If the GLAs were to set a target to align with an agreed benchmark then this would imply a reduction in staff and staff costs. This would be off-set by a one-off redundancy charge, unless some of the reduction can be achieved by means of natural wastage or early retirement.

It is unrealistic to expect such savings to be made overnight; they would need to be phased in and considerable work would need to be undertaken on job evaluation and opportunities for job sharing and outsourcing. Moreover, in practice we would expect the GLAs to look at sharing activities such that one would take over or assume the lead for a function. Thus, the headcount reductions may be distributed across the GLAs disproportionately.

Even if the GLAs were not to commit to a specific target percentage, they should be required to publish figures on support services headcount and costs as a percentage of the GLA total, having first agreed a common definition of these services and a common methodology for allocating and apportioning overheads to these services. They should then benchmark their performance.

11. Conclusions and Recommendations

ES8: The GLAs should consider whether their allocation of resources to marketing & public relations is efficient and effective including within the context of opportunities emerging from the Draft Marine Navigation Bill.

TH should compare its resourcing of marketing and public relations with NLB and CIL, review the effectiveness of this Department, and consider whether some functions could be discontinued, outsourced or carried out jointly with the other GLAs.

The GLAs collectively should develop and publish metrics on the costs involved in generating commercial income. They should explore options for common business development and marketing activity around the tri-GLA structure, whilst preserving the use of local brands in their respective territories.

ES9: The current arrangements for R&RNAV should be reviewed to ensure core benefits for the GLAs are maintained, non essential activities are fully justified, and additional funding and commercial income is secured in order to reduce the burden on the GLF.

Options should be developed for re-organising R&RNAV, either as an "internal consultancy" within the tri-GLA structure or potentially as an arms-length company, which would continue to support vital GLA strategy, engineering and operational requirements, but with freedom to seek funding from other sources for non-core activities or to sell its services commercially. The latter will be enabled under the provisions of the Draft Marine Navigation Bill.

The intention of the proposals is to ensure that the GLAs continue to benefit from much of the work that R&RNAV does, but that medium- and long-term technology development and research is supported by a broader range of activities and funds outside the GLF and that the work the unit does is exploited commercially. We believe the effect of these changes may not be to necessarily reduce the overall level of resources committed to R&RNAV, but to achieve a balance in these resources between the GLF, other support mechanisms and commercial income.

A change of this kind will require a shift in culture, mindset and management of R&RNAV and will not be achieved overnight. The GLAs, through the JSB, should undertake a review to develop and assess options, understand costs, risks and benefits in further detail before final decisions are considered.

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ES10: The GLAs should consider opportunities for further local outsourcing or contracting out of central office and support functions.

The GLAs already undertake selective outsourcing of a range of activities where they consider it appropriate and cost effective to do so. There may be potential for the GLAs to pursue further "granular" outsourcing of services over and above the levels currently undertaken, and indeed to set individual or joint targets through the Corporate Planning process, subject to outsourced provision being demonstrably more cost effective or better quality than in-house arrangements.

A more detailed investigation within and across all three GLAs should be conducted to get a detailed picture of current practice and the potential for savings and other benefits from increasing levels of outsourcing. For support functions, actual cost savings are likely to be relatively small in comparison to introducing common activities. However, consideration of selective outsourcing, or in the case of areas already outsourced, comparisons with the costs of bringing provision back in-house, should be undertaken by all the GLAs as part of the process of continually reviewing the value for money of their different functions.

Where there is potential to outsource, or to retender an outsourced contract, the GLAs should consider the additional benefits which might be derived from doing so on a joint basis. In considering outsourcing any activity, it is also important that the GLAs retain an internal "intelligent buyer" capability in order to procure, manage and monitor outsourced work effectively.

ES11: NLB should seek to maximise the cost effectiveness of its current occupation of its Head Office in Edinburgh while continuing to consider options for alternative suitable, lower cost accommodation in the medium-term.

We agree with NLB's position that continued occupancy of its Head Office in George Street is the best approach to its accommodation requirements in the current economic climate. However, the current proposals for refurbishment should be revisited to examine whether there are non-essential elements which be reduced or deferred, whether additional income can be secured from the rental of space not required for NLB use, and to determine the impact of any improvements on the future sale value of the property. Options should continue to be examined around whether the refurbishment should be financed from the GLF as a lump sum, or financed over time, for example by taking a mortgage on the property.

In the medium term, NLB should undertake periodic revaluations of George Street and, depending on market conditions, should consider options for relocation of their HQ to a suitable facility, based on outright purchase or leasing, provided such an approach fits operational requirements and would produce a net benefit for the GLF.

11. Conclusions and Recommendations

ES12: Rather than adopt shared services, the GLAs should pursue increasing the number of shared activities around selected certain back office/administrative functions, with an early focus on increasing the extent of common procurement.

Based on our experience in the development and implementation of shared service facilities within the private and public sectors we are confident that the cost of setting up a GLA Shared Service Centre, or the transfer of GLA back office transactions to a third party facility, would be unlikely to deliver significant savings capable of supporting a strong business case over a reasonable timescale at the current time.

One of the potential efficiencies in shared services is ensuring common, shared processes and activities. The savings associated with these shared activities can be realised outside a formal shared service function, and we recommend that the GLAs pursue this course.

Areas for the greatest potential savings for the GLAs include procurement and common IT platforms and management. There is likely to be less potential for significant savings in finance or HR systems without introducing common systems and processes.

As a priority, the GLAs should seek to target greater volumes of common procurement as a shared activity through IGC 10.

ES13: The GLAs should explore opportunities for sharing and integrating their Information Technology systems and processes.

Whilst it may be possible in the longer term to consolidate and integrate GLA ICT systems to a much greater extent than at present, the cost of doing so as a short-term measure at this time would be likely to outweigh any benefits. We also see little present case for the wholesale outsourcing of ICT across the GLAs to one or more third party service providers, compared to more selective "granular" outsourcing of specific functions determined on a case by case basis.

Any potential for substantial savings on ICT is likely to come from the development of 'cloud computing' which is developing rapidly across the public and in the private sector outsourcing market. In the meantime, inter-GLA procurement for some ICT hardware and software items will lead to standardisation and better prospects for obtaining bulk discounts. This applies equally to capital items as well as some consumables and services.

In principle, procurement of a selected group of items could be led by one of the GLAs, advised and supported by CIL's ICT Director, so providing benefits both in the form of improved value for money, but also a reduction in the overhead cost.

11. Conclusions and Recommendations

ES14: The GLAs should continue to focus on raising commercial income, including planning in a coordinated way for exploiting potential additional sources of income which may result from the Draft Marine Navigation Bill.

In taking advantage of the provisions of the Draft Marine Navigation Bill, we recommend that the GLAs coordinate preparation of future income projections, based on an agreed common set of assumptions over market opportunities, GLA competitive advantage and positioning. The costs of marketing, business development and delivering services to commercial clients should also be set out, including the procurement of additional assets or staff over and above existing GLA operations. These joint forecasts should be subject to examination as part of the established Corporate Planning process.

The GLAs should ensure that their operations are closely integrated to ensure that customers benefit in full from the combination of tri-GLA assets and capabilities, that marketing and business development is co-ordinated (whilst recognising the value of "local" brands and capabilities), and that commercial work is efficiently and appropriately balanced with ongoing statutory responsibilities. Where income is received in relation to tri-GLA contracts, revenue should be apportioned in relation to the volume of work undertaken by each GLA as well as to the lead GLA which holds the relevant contract.

Further investigation should be carried out into the potential role of consultancy activities, especially within the context of the future role and function of R&RNAV.

11. Conclusions and Recommendations

11.2.4 Charging and Light Dues (Chapter 7)

The current structure of Light Dues, through which ship owners support the provision of AtoN in the British Isles, has evolved over many years. Whilst this structure has the support of the LAC and does deliver income to the General Lighthouse Fund which is sufficient to cover GLA activities, our Terms of Reference have required us to consider other options. In this context, we believe moving to a flat structure for Light Dues, with a lower headline rate, abolition of the tonnage cap and significant changes to the current voyage cap, would deliver an outcome where the amount paid annually by a ship is more proportionate to that ship's level of activity.

We also consider and make recommendations on the case for widening collection of income to groups of marine users who do not currently pay Light Dues.

C1: All commercial shipping, apart from named exceptions, whose voyages extend beyond port limits, and all pleasure craft over a defined size should pay a £100 per annum fee as one contribution to the costs of a system of maritime safety in UK and Irish waters. Subject to the establishment of a basis for invoicing and for enforcement, this regime should be introduced as soon as practicable, but not later than 2012. The UK and Irish Governments should consider the introduction of compulsory registers for all craft over a specified length, based on the owner's normal place of residence rather than where a vessel is kept.

It is in the interests of overall fairness that the burden of paying for the costs of AtoN should be shared out as widely as possible among users of UK and Irish waters by reducing the numbers of ships that are exempt from paying. By increasing the numbers eligible to pay a levy, the rate at which the activity related levy is set can be reduced for all payers in order to raise any given target amount of revenue.

Leisure sailors who sail outside harbour limits have the same opportunities to use and to benefit from AtoN as commercial shipping and should therefore not be exempt from making a contribution to the costs of provision of AtoN. The use of the MCA's Part I and Part III register in the UK and its equivalent in Ireland would in principle provide the fairest alignment between the opportunity to use AtoN and to pay for them. However, there are known to be problems with the accuracy and currency of the register, and there is also the risk that owners may prefer to register abroad than to pay the levy. Consequently consideration should be given to a compulsory registration scheme for craft over a defined length; the scheme would be based on ownership and the owner's normal place of residence, not on the location of the vessel. A £100 fee could raise around £5 million to £6 million, which would accrue to the GLF.

An effective compulsory registration scheme would also enable a higher rate to be charged without leakage of revenues due to registration abroad. To ensure revenue protection is maximised, the registration scheme must have an effective means of enforcement.

Leisure vessels and others under 250 GRT should pay only this annual fee and be exempt from charges based on GRT and numbers of voyages.

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C2: All commercial shipping of over 250 GRT and whose voyages extend beyond port limits should be charged Light Dues, in addition to a £100 per annum charge, on the basis of a charge per GRT and per day. This regime should be introduced gradually by means of a system of day "bands" with lower charges applying as the number of days of operation increases. The details including the rates should be determined as a priority so that this regime can be introduced in 2011 or 2012.

The system of tonnage and voyage caps and the rolling month system are effectively forms of exemptions. Once over a cap, a further increase in size or in voyage frequency is exempt from further payment. It is in the interests of overall fairness that the burden of paying for the costs of AtoN should be shared out as widely as possible and this is best achieved by reducing the numbers of occasions on which ships are exempt from paying and eliminating the exemption on marginal tonnage once the tonnage cap is exceeded.

A flat system based on GRT and charged per day provides a method of charging which is demonstrably more proportionate to the profitability of operating in UK and Irish waters. This system should be introduced gradually, to enable the shipping industry to adjust and plan ahead. Initially a system with day bands with lower charges applying to higher levels of operation will avoid a sudden increase in Light Dues for ships such as ferries; over time the differentials between bands should be reduced until a flat rate applies. This system will also significantly lower the rate payable per GRT. Such a system is intended broadly to equalise the amounts paid through the levy in relation to profitability of shipping operations in UK and Irish waters, taking one year with another over the economic cycle.

C3: Consideration should be given to developing the "banded day" system with payment incentives for ships making frequent calls. The operator / ship owner should be encouraged to forward pay for a "block" of voyages on the basis of a defined route; it is proposed that forward payments will be monthly or quarterly, and with an additional discount for quarterly forward payment. When an operator / ship owner pays for the month or quarter ahead, the charge relates to the route for which payment is made, not the individual vessel.

The banded day system will introduce some additional complexity in terms of how it will be implemented and enforced for ships which make frequent calls at UK and Irish ports. As most such vessels pay for future voyages at present, the introduction of incentives for annual or quarterly forward payment should be introduced in order to reduce the workload involved in collection from ships such as ferries and coastal shipping. The present collection system would continue to operate for ships which make less frequent use of British and Irish ports.

C4: Cost effective payment mechanisms for the proposed flat rate charge system should be developed as a matter of priority.

As the proposed system is simple and transparent it should be feasible to implement it in 2012 subject to ensuring that payment mechanisms can be put in place in that timescale. Ships that make frequent voyages on fixed routes should be offered a quarterly payment regime with discounts for pre-payment. Where pre-payment is made, provision should be made to substitute vessels with only an adjustment based on GRT. Shipping agents should continue to issue certificates for less frequent shipping.

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C5: The UK and Irish Governments should agree the details of a banded day system with differential rates applied to the bands; financial modelling will be required to confirm the rate to be set for Light Dues, after allowing for demands on the GLF and the potential revenues from leisure vessels; this should also be undertaken as a matter of urgency with a view to introducing the reformed system in 2012.

The Assessment has used port data to estimate likely charges based on day bands and rate differentials; the estimates are reasonably robust, but port records are not wholly aligned across all ports and there are minor imperfections in the data. Further work is required to clean and check the data to ensure it provides a fully consistent and robust base on which to undertake financial modelling.

The UK and Irish Governments should consider the details of the banded day proposal and the time period over which to reduce differential charges between the day bands. A financial model is required which will bring together the enhanced port data, predicted demands on the GLF over the next 3-5 years, and forecasts of shipping activity and revenues from leisure sailors, as a basis for calculating the required rates that will be required.

C6: DfT and DoT should establish a robust procedure for monitoring changes in shipping costs in collaboration with the shipping industry during the first 2 years of operation of the system and consult with shipping and other interests in order to make appropriate adjustments to the rate differentials between bands over subsequent years.

It is recognised that moving towards the proposed flat rate system could be undertaken rapidly or over a longer period of time; a rapid change would quickly eliminate the distortions inherent in the capped system, but such a rapid change may cause difficulties for parts of the shipping industry. Similarly, the use of large differentials between day bands would increase the total rate per GRT per day while suppressing levels of payment by ships operating all or much of the year. The initial differentials and the speed with which they are reduced is a matter for the UK and Irish Governments. Consultation and monitoring should be undertaken during the implementation period; the shipping industry is encouraged to participate widely in this and to provide evidence regarding the effects of changes on revenues and profits.

C7: Light Dues should be re-named as a Marine Navigation Levy (or equivalent).

The term Light Dues fails fully to convey what the Dues are contributing to and representations have been made by various parties for a change of name. This may be the subject of further consultation but in any revised name it is desirable to avoid the terms "service" and "charge"; ship owners do not believe AtoN are a service and there are technical and legal issues associated with calling it a charge. A levy implies a contribution to overall costs rather than payment for use.

11. Conclusions and Recommendations

11.2.5 Management of the General Lighthouse Fund (Chapter 8)

The financial performance of the General Lighthouse Fund has varied significantly over the last five years, through a combination of the decline in income from Light Dues, increasing liabilities and poor performance of investment funds. We make a number of recommendations which, in combination with reductions in the GLA cost base and changes to the level and structure of Light Dues, will ensure the stability of the GLF over time, improve its capacity to sustainably support GLA activities and provide a solution to increasing pension liabilities separately from operational requirements. This will yield benefits for all stakeholders.

GF1: The GLF should make clear a division between the placement and management of Investment Funds into a GLA Pension Contributions Fund and an Operating Reserve Fund.

At present, the GLF's available Investment Funds are treated as a combined package that is placed with two investment management companies. Since their appointment in 2006, the performance of the investment managers has been poor to moderate in a difficult financial climate. In August 2009, the DfT (on the advice of the GLF Investment Committee) commissioned the Government Actuary's Department (GAD) to review performance and make recommendations for the future. One of the main recommendations was the need for a clear division between the placement and management of the Pension Contributions Funds and the Operating Reserve Fund.

We support this recommendation and propose that it should be actioned by mid-2010.

GF2: The GLF should place the GLAs Pension Contributions Fund with a newly appointed investment fund manager.

We support the GAD proposal that the Pension Contributions Fund should be placed in a Diversified Growth investment vehicle that would aim to generate long-term absolute returns above an inflation or cash benchmark. Management of the PCF should be subject to a new tender process so that a new investment management company could be appointed by 2nd quarter 2010.

GF3: The GLF should place the Operating Reserve Fund with a newly appointed investment fund manager.

We offer support to the GAD proposal that placement of the Operating Reserve Fund should follow a Stable Value strategy, which would also be subject to a new tender process so that a new investment management company could be appointed by mid- 2010.

GF4: The GLF Investment Committee should be subject to modest amendments in its operation and management in order to generate more cost-effective supervision of the investment fund managers.

The operation of the Investment Committee provides a useful mechanism for monitoring and supervising the performance of the fund managers. However, it can be slow and bureaucratic in responding to clear signs of poor to moderate performance. In order to sharpen the process, the following is proposed:

- Committee meetings – every six months instead of quarterly. This would be more cost-effective and reduce the focus on short-term movements in the investment markets;
- Committee membership – (i) reduction in numbers to one representative from DfT/DoT and the GLAs (nominated by the three GLAs, with appropriate investment experience), plus the GLF Accountant; and (ii) one senior independent investment advisor with broad relevant experience and up-to-date knowledge of investment markets; and
- regular reviews by the independent investment advisor, including comments on the investment strategies agreed with the contracted fund managers.

11. Conclusions and Recommendations

GF5: GLA/GLF fixed assets should be subject to regular periodic revaluation.

The GLAs and the GLF should conduct a formal revaluation of their fixed assets every 5 to 10 years to ensure that values reflect the current condition, age and replacement costs of each fixed asset. At present, asset values are recorded in terms of historic costs. Therefore, over time, annual depreciation costs will become progressively out of line with current prices and real replacement costs. This observation applies especially to assets with long economic lives and potentially high replacement values.

GF6: The GLAs and the GLF should establish their own capital replacement/investment funds.

The GLAs and GLF should establish their own capital replacement/investment funds that set aside financial resources for future replacement of existing capital assets and/or contributions for the procurement of new technical innovations that reflect agreed and fully justified investment programmes set out in the respective corporate plans. This recommendation will require the following steps, at least: (i) establishment of the fund(s) in separate bank account(s); (ii) preparation of specific guidelines for the management and operation of the fund(s); and (iii) preparation of a specific approval process for the release of funds for asset procurement.

GF7: The GLAs should undertake a comprehensive review for phased disposal of surplus assets.

In line with Recommendation ES3, in the current economic climate and the drive to generate more cost savings and efficiency improvements, this review should focus on surplus assets which impose unnecessary fixed cost burdens on the GLAs, and could generate modest to large financial resources for the GLF. However, care should be taken in preparing the review to ensure: (i) all potential disposable assets are identified; (ii) appropriate and realistic market valuations are presented; and (iii) a fully justified disposal programme is developed in order to optimise capital values.

GF8: Consideration should be given to reducing the size of the Operating Reserve Fund held by the GLF which is not directly required for the normal commercial operations of the GLAs.

In view of the GLF's normally positive cash flow position and low risk financial structure, it is appropriate to raise the question as to why the ORF is maintained at its current level. Currently, funds in the ORF of around £26 million amount to more than 30% of GLF annual income and direct operating costs respectively.

In this context, the level of the ORF should be kept under review and a phased reallocation of the Fund may be appropriate over a period of 5 to 10 years in favour of new or replacement capital investment, the moderation of future changes in Light Dues or a combination of the two.

This recommendation should be considered, and actioned, alongside Recommendations GF9 and GF10 which will provide increased financial stability for the GLF and allow better forward planning of income and expenditure.

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GF9: DfT, in consultation with the LAC and all parties through the LFC, should consider the setting of Light Dues and Income Reserves to secure the Financial Stability of the GLF in the face of cycles within the economy and shipping trends.

In the past, little attention has been given to the financial impact on the GLF of periodic downturns in shipping patterns and changes in the size and composition of the commercial shipping industry. This financial weakness has been exposed over the past two years with a shortfall in revenue and the Fund's ability to finance the normal day-to- day operations of the GLAs, resulting in an increase in Light Dues. At present, the GLF maintains financial reserves to cushion this weakness, but this does not represent efficient use of available resources.

In parallel with Recommendation GF8 above, we believe that in future all parties, through the LFC, should focus on two key aspects to ensure the stability of the GLF. Specifically, we believe that the Light Dues rate per GRT per day and the differential charges that apply to different day bands should, following consultation, be set for a minimum period ahead, for example against a five year time horizon, during which additional increases or decreases will only be considered by exception.

We also recommend that alongside a given level of Light Dues, the GLAs should be required to set and achieve targets for real-term reductions in running costs, and tighter control of capital expenditure, and subsequent calls on the GLF. In this context, and in line with our recommendations on GLA efficiency and synergy above, it is important that the GLAs demonstrate their ability to match expenditure to a forecast level of income, whether it is from the GLF and additional commercial income. Separately an incentivised model has been proposed to reduce the GLF contribution towards CIL's costs for the RoI.

In consultation with stakeholders, these recommendations should be embedded within a planning review at regular intervals, for example every five years. The review should be supported by appropriate planning tools (GF10) and will improve transparency, identification and management of risk, constructive collaboration between stakeholders and long-term stability of the GLF.

GF10: The GLAs and the GLF should commission the preparation of a Pension Planning Model (PPM) and an integrated Financial Planning Model (FPM).

Given the present economic conditions, the new pension initiatives under the Draft Marine Navigation Bill and the increasing financial burden of current and future pension obligations, we recommend that the GLAs undertake a study that will update the future obligations of each GLA. The study and development of a Pension Planning Model (PPM) will provide an important addition to the forward planning functions of the GLAs and the GLF.

The GLAs should also develop an integrated Financial Planning Model (FPM) covering 5 to 10 years for the GLF in constant and nominal prices, with subsidiary linked modules for each GLA. The main advantages of the FPM would provide the ability to track and test income and cost movements over time, test alternative scenarios for shipping movements/patterns and Light Dues and support investment planning.

The development and operation of the PPM and FPM would provide an important addition to the forward planning functions of the GLF and the GLAs. In addition, they would provide increased stability and transparency in relations with industry stakeholders who would also benefit from advance information on future Light Dues.

GF11: The GLF should be renamed the General Navigation Fund (or similar).

The GLF should be renamed to reflect the modern and sophisticated nature of the activities that the Fund and the GLAs undertake for the benefit of all mariners.

11. Conclusions and Recommendations

11.2.6 The UK and Ireland (Chapter 9)

The increasing burden of supporting the costs of Irish Lights from a Fund and Light Dues administered principally in the UK has been one of the most intractable aspects of our Assessment and links to a number of recommendations discussed under the other themes. Discussions on the key issues have been ongoing between the UK and Irish Governments in parallel with our work and we propose these develop a "road map" which will allow CIL's costs within the Republic of Ireland to be covered wholly by Irish sources within an agreed time period and formula whist retaining the benefits of the tri-GLA structure.

UKI1: The UK and Irish Governments should agree an incentivised restructure of GLF contributions to Ireland to begin in parallel with a new charging system.

The GLF contribution to Ireland will be reduced through a combination of reductions in the costs of AtoN provision and increased Light Dues revenues. To make significant cuts in the GLF contribution and to reduce it to zero within a defined timescale (which is to be agreed between the UK and RoI Governments), requires a different formula to the one used at present. The new model should provide clear and strong incentives to generate revenues and reduce costs while also providing a predictable cash flow from the GLF. Cash limits could be imposed on the GLF contribution or a formula could be used that links GLF funding to Irish costs but on a tapering basis; it will be for the UK and Irish Governments to agree a formula and timescale for an orderly disengagement of the GLF.

UKI2: During the period in which the GLF contributes towards costs in the Republic of Ireland, the UK and Irish Governments should implement a per GRT per banded day Light Dues charge and all revenues attributable to Republic of Ireland traffic should be divided between Ireland and Great Britain.

It is important that Ireland moves towards a lower level of dependence on transfers from the GLF and from the RoI Government, and therefore needs to secure its due share of revenue generated from the revised Light Dues system. As the RoI is part of an integrated system, the application of the proportionate taxation principle should apply to the British Isles as a whole and therefore the same system and rates should apply (adjusted for the Sterling - Euro exchange rate).

Ireland will enjoy some increase in Light Dues revenues from this arrangement but there will remain a funding gap between costs of provision in the RoI and Light Dues revenues. With a declining GLF contribution this gap has to be filled by other means.

11. Conclusions and Recommendations

UKI3: The UK and Irish Governments should consider additional sources of revenue including a charge on leisure sailors, charges on passengers, cars landed and cargo; and to consult on implementation on an all Ireland basis.

The RoI Exchequer will be required to fund the gap between CIL costs and Light Dues revenues; however, there will be adequate scope to increase Irish Exchequer revenues from additional charges in order to meet this commitment provided the decline in the GLF contribution is phased sensibly, with due recognition of current economic circumstances. Numerous options have been identified, including "green taxes" on cars and other vehicles arriving by ferry, and additional charges or levies on goods moving through the ports. All of the additional charges should be replicated within Northern Ireland, to avoid creating competition between the jurisdictions for port traffic. It is proposed that such additional revenues generated in Northern Ireland would accrue to the Northern Ireland Assembly.

UKI4: DoT should consider changing the statutory role of CIL with regard to the provision of Local AtoN in state owned ports and to increase port dues.

Dues in the state owned ports could be increased simply to raise additional revenues, but a restructuring of CIL's role and the provision of port AtoN may provide an opportunity both to reduce overall costs through economies of scale and to restructure and increase port revenues.

UKI5: If the present Sterling – Euro exchange rate appears likely to persist into the medium term and wage and other costs in the Republic of Ireland are not expected to decline sharply, CIL should bring forward consideration of out-sourcing work to the UK as a lower cost provider.

As discussed below, a longer term issue is whether the GLAs should separate their provider role from that of specifier, in order to put pressure on costs of provision and as a way of ensuring plans for provision can be appraised robustly. If the Euro remains strong, CIL should consider a more rapid adoption of the specifier model and out-source activities to the UK. Potential providers include TH and NLB but also the private sector in England, Scotland, Wales and Northern Ireland.

11. Conclusions and Recommendations

11.3 Longer-Term Considerations

As discussed in Chapter 10, the longer term issues are all essentially structural, and are long term because they will need time to be assessed and discussed within and between the UK and Irish Governments (and potentially the European Union) and some may require primary legislation. We believe none of the long term observations and proposals need delay the implementation of the short term proposals, which should indeed be monitored for their effectiveness before more significant proposals are considered.

The short term proposals will, we believe, provide the basis for starting to address the charging/cost recovery system and raising revenues in Ireland, both of which underlie the short term dissatisfaction with how the system operates at present. Other issues remain, including:

- the anomaly with regard to the Irish Government and its SOLAS obligations;
- the existence of a single GLF covering expenditure in two sovereign states;
- Inter-GLA working and the case for structural re-organisation, at least in Great Britain;
- the role of the GLF with regard to pensions as well as the main source of finance for AtoN;
- the status of the GLAs as both the providers, quasi-regulators and specifiers of AtoN and whether these roles are clearly and transparently separated; and
- the future role of the European Union and Member States.

11.3.1 The UK and Ireland

If and when all of CIL's costs can be met from Irish sources, there would be no need for the RoI to pay in to or draw funds from the existing GLF for operating or capital expenditure, although it might be desirable to structure the GLF so that it can act as a lender to Ireland for major capital items. One model may be to have a subsidiary GLF for Ireland to act as combined budget holder for the RoI and Northern Ireland.

Under our proposals for charging, Northern Ireland would almost certainly garner a surplus of revenues over its share of CIL costs. These should be returned to the UK GLF, as the UK Government continues to have responsibility for SOLAS obligations in Northern Ireland. The funds required to meet costs in Northern Ireland should be transferred to the budget holder for the Republic, which would be the funding body for CIL. This could be an entirely separate fund, or it could be a subsidiary fund of the UK GLF; this is discussed further below.

Within the strategy set out above, consideration could be given to the establishment of two separate GLFs, or equivalent funding structures, with one covering the UK and one covering the RoI. The alternative of a subsidiary fund within a single GLF could also be considered, at least as a stepping stone within the period in which the GLF contribution towards funding of CIL costs in the RoI is reduced to zero.

In either case, the RoI Government would share responsibility for this fund with the UK, as both Governments have SOLAS responsibilities for their jurisdictions. Again in either case Ireland would then have both its responsibilities under SOLAS and the powers to deliver against these for its jurisdiction.

As discussed in Chapter 9, there should be a planned reduction and eventual cessation of GLF funding to the RoI. Planning for this should begin in the near future with a view to an agreed road map. The UK GLF would continue to transfer of the sum of Light Dues collected in Northern Ireland that match the costs of AtoN provision attributable to Northern Ireland. In parallel, Ireland should begin a transition to financial self sufficiency through a number of the proposals set out in this Report.

11. Conclusions and Recommendations

11.3.2 Establishment of Two GLFs

Active consideration and implementation of this recommendation will require stakeholder consultations, detailed discussions between the UK and Irish Governments, external audit and separation of the GLF accounts, drafting and enactment of the necessary legislation and regulations by both Governments.

11.3.3 Further Structural Change to the GLAs

In the short-term, we see a weak case for the amalgamation of TH and the NLB, or the creation of a so-called "Super-GLA" for the British Isles, as has been suggested by a minority of stakeholders. This is because the financial costs would outweigh the benefits, and because the JSB proposed as a short-term measure should be properly implemented and given an opportunity to drive tri-GLA working, whilst retaining regional flexibility, local knowledge and stakeholder relationships.

We do believe, however, that the effectiveness of the JSB, whether established on a voluntary or statutory basis, should be closely monitored by DfT (and DoT in relation to CIL). If, after a reasonable period, it is clear that the anticipated benefits of strategic decision making and implementation through the individual GLAs are not evident in practice, then more significant structural change should be considered, certainly in relation to TH and NLB, possibly for the creation of a new UK Lighthouse Authority or the incorporation of AtoN specification into another Government Agency. This should only be considered if absolutely necessary to overcome demonstrable weaknesses in the revised arrangements. Any reform of this kind would also need to reflect developments in the powers and responsibilities of the Scottish Government, within or outwith the United Kingdom, in the interim.

11.3.4 The Roles of Specifier and Provider

Despite recent and ongoing improvements, the AtoN assessment process requires a stronger means by which all proposals can be subjected to greater degrees of challenge, especially from a value for money perspective. In any organisation where the specifier and provider are within the same organisation and where there is a lack in skills or knowledge to undertake this challenge role, we believe there is merit in assessing whether and how best to separate these roles.

The GLAs believe that they already separate the roles of specifier and provider through their internal structures. The question is whether this arrangement goes far enough in splitting objectives, demonstrating transparency in decision making and providing external oversight in ensuring that value for money is delivered.

Having considered various models, we do consider that the restructuring of the GLAs to create an internal client group and an internal provider group may have merit. This model retains most aspects of the current system while providing a clear distinction of roles and a separation of objectives.

The internal client group could be at the individual GLA level, but our proposal to create a Joint Strategy Board also offers the opportunity to make this the client body in due course. If so, the JSB, accountable to the DfT and DoT, should have budgetary responsibility and operate within value for money targets, oversee appraisals of capital and revenue expenditure, conduct its own assessments of what AtoN are required, and monitor expenditure against stretching budgets.

11.3.5 The European Union

There is a strong case for seeking to make AtoN provision and financing a European Union responsibility rather than one solely for Member States.

At present we believe there is an element of hidden competition between continental ports through subsidies to port dues and through not levying charges for navigation services, and as with the UK and Ireland there is an economic and potentially a legal case for addressing such issues, while also capturing at an EU level revenues from ships which pass through the waters of Member States without contributing at all to the costs of providing AtoN by those states. We suggest that the UK and Irish Governments should make preliminary investigations into competition matters in the shipping and ports sector, with a view to pursuing proposals for reforms of port and navigation charges in the longer-term.

Photo courtesy of TH

Appendices
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Appendices

Appendix A - Stakeholder Engagement

The following stakeholders were engaged during the conduct of this Assessment:

Department for Transport (UK)
Department of Transport (RoI)

Trinity House
Northern Lighthouse Board
Commissioners of Irish Lights

Lights Advisory Committee
British Chamber of Shipping
Independent Light Dues Forum

Shipping Industry Representatives

Port Representatives

Irish Cruising Club
Maritime and Coastguard Agency
Nautical Institute
Nautilus
Royal Yachting Association
Royal National Lifeboat Association
UK Harbour Masters Association
West Highland Anchorages & Moorings Association

Appendices

Appendix B - Tabular Analysis of Light Dues Payments

In Chapter 7 we set out analysis of charging under the cap and taper systems. This appendix provides tabular data which provides further detail on the charging outcomes. In both cases the analysis uses port data with ships grouped into size bands and with port calls for each size band also sub-divided into bands.

The first table has been calculated using port data on numbers of calls rather than days, but a similar conclusion would emerge using days.

Table B.1 shows Light Dues in relation to the estimated average charge per ship call and per ship call per GRT under the cap system. As discussed in Chapter 7, under a flat rate system (which in principle is the most proportionate available):

- the index of cost per ship per call would be an increasing linear function of ship size measured (here) as GRT; graphically this is an upward sloping straight line which passes through the origin;
- the index of cost per ship per call per GRT always has a value of one.

Table B.1 shows that the index of cost per ship per call varies widely. Large ships (over what we defined as the cap for the purposes of this analysis) making infrequent calls pay almost 13 times the average, while those large ships which make frequent calls pay around 3 times the average despite their size.

Those paying below the average include ships making frequent calls and smaller ships. The analysis by call and per GRT shows the effects of the caps more clearly, as it strips out the effect of size. As noted, the proportionate value in the final column of the table would be one. Those ships paying above the proportionate value are all those that make few calls, while those making frequent calls pay below the proportionate rate. As the total revenue to be raised is given, this shows that the low frequency ships are cross-subsidising those making more frequent calls.

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Table B.1 - Index of Light Dues as a Multiple of Calculated Average Charges per Ship-Call and per Ship-Call per GRT under the Cap System

Ships (Number)	Average tons (GRT)	Calls	Index of Cost per Ship-Call	Index Cost per Ship-Call per 1,000 GRT
64	158,432	1.7	12.76	1.12
1	158,432	30.4	2.94	0.26
26	138,726	2.0	12.76	1.28
1	138,726	26.2	3.41	0.34
59	110,470	4.2	12.76	1.60
3	110,470	37.0	2.42	0.30
183	93,036	4.6	12.76	1.90
5	93,036	25.0	3.57	0.53
232	85,011	2.6	12.76	2.08
3	85,011	27.9	3.21	0.52
202	74,791	4.6	12.76	2.37
10	74,791	26.4	3.38	0.63
258	63,988	3.7	12.19	2.64
18	63,988	25.5	3.34	0.72
451	56,010	3.4	10.67	2.64
25	56,010	33.3	2.24	0.56
7	56,010	178.0	0.42	0.10
469	44,128	2.9	8.41	2.64
8	44,128	19.9	2.96	0.93
5	44,128	312.2	0.19	0.06
714	34,457	3.1	6.56	2.64
6	34,457	441.8	0.10	0.04
6	34,457	278.6	0.16	0.07
7	34,457	163.9	0.28	0.11
1	34,457	61.5	0.75	0.30
16	34,457	24.3	1.89	0.76
1256	24,776	3.3	4.72	2.64
7	24,776	436.9	0.08	0.04
13	24,776	294.0	0.11	0.06
21	24,776	162.8	0.20	0.11
8	24,776	58.5	0.57	0.32
43	24,776	24.7	1.34	0.75
1048	14,637	3.4	2.79	2.64
3	14,637	730.2	0.03	0.03
2	14,637	599.1	0.03	0.03
8	14,637	447.9	0.04	0.04
13	14,637	298.0	0.07	0.06
19	14,637	141.4	0.14	0.13
17	14,637	70.7	0.28	0.26

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Ships (Number)	Average tons (GRT)	Calls	Index of Cost per Ship-Call	Index Cost per Ship-Call per 1,000 GRT
113	14,637	27.4	0.71	0.67
1036	7,355	3.6	1.40	2.64
2	7,355	670.2	0.01	0.03
3	7,355	464.8	0.02	0.04
9	7,355	323.6	0.03	0.06
48	7,355	142.6	0.07	0.13
38	7,355	63.4	0.15	0.29
171	7,355	29.3	0.33	0.63
714	3,774	4.3	0.72	2.64
12	3,774	297.4	0.02	0.06
61	3,774	135.4	0.04	0.14
39	3,774	62.4	0.08	0.30
157	3,774	29.5	0.17	0.63
644	2,592	5.7	0.49	2.64
1	2,592	643.9	0.01	0.03
4	2,592	282.6	0.01	0.07
73	2,592	125.3	0.03	0.15
67	2,592	66.4	0.05	0.28
327	2,592	29.1	0.12	0.64
514	1,550	5.2	0.30	2.64
3	1,550	340.7	0.01	0.05
21	1,550	123.5	0.02	0.15
64	1,550	64.4	0.03	0.29
217	1,550	28.1	0.07	0.66
525	495	5.5	0.09	2.64
2	495	411.3	0.00	0.04
2	495	262.4	0.00	0.07
27	495	133.9	0.00	0.14
14	495	65.8	0.01	0.28
109	495	25.0	0.03	0.74

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One alternative payment system involves a taper applied to calls, so that the cost of an additional call declines as the total number of calls increases; a similar taper can be applied to tons, so that the marginal cost of a larger vessel diminishes as size increases. As explained in Chapter 7, a ton taper is used for charges for air transport navigation services, where a square root formula is used – for aviation, it should be recalled that no call taper is applied.

Table B.2 shows the outcomes for charging based on a taper applied only to calls, using the formula:

Call factor = $10^{0.85 \text{ Log calls}}$.

This applies a relatively steep discount to calls, although not as steep as the square root formula. Using this formula, a ship making 5 calls is charged for 3.9, a ship making 20 calls is charged for 12.8 and one making 200 calls is charged for 90.3. Under a square root formula, 200 calls would be charged as 14.1; as can be seen, the application of even a low exponent has a strong tapering effect, reducing the number of eligible calls to which a charge is applied.

As can be seen in Table B.2, the distribution of the charge per call per 1000 GRT around the proportionate value (of 1) is smaller than under the voyage cap system. The largest charge per call per GRT is 1.59 which is paid by ships in the largest tonnage group which make small numbers of calls, while the lowest charge is 0.62, which is paid by ships in a low GRT group which make very large numbers of calls.

The taper system therefore also involves cross subsidisation with low frequency and large ships paying more and higher frequency ships paying less than the proportionate charge. However, the degree of cross subsidy under the taper system is less than under the current cap system.

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Table B.2 - Index of Light Dues as a Multiple of Calculated Average Charges per Ship-Call and Per Ship-Call per 1,000 GRT under a Taper System for Calls

Ships (Number)	Average Tons (GRT)	Calls	Cost per Ship-Call	Cost per Ship-Call per 1,000 GRT
64	158,432	1.75	19.33	1.59
1	158,432	35	12.33	1.02
26	138,726	2.1	16.47	1.55
1	138,726	30	11.05	1.04
59	110,470	4.5	11.70	1.38
3	110,470	43	8.34	0.98
183	93,036	4.9	9.73	1.36
5	93,036	28.6	7.46	1.05
232	85,011	2.75	9.69	1.49
3	85,011	32	6.71	1.03
202	74,791	4.9	7.82	1.36
10	74,791	30.3	5.95	1.04
258	63,988	3.93	6.91	1.41
18	63,988	29	5.12	1.04
451	56,010	3.57	6.14	1.43
25	56,010	38.5	4.30	1.00
7	56,010	220.9	3.31	0.77
469	44,128	2.99	4.97	1.47
8	44,128	22.5	3.67	1.09
5	44,128	396.6	2.39	0.71
714	34,457	3.3	3.82	1.45
6	34,457	569.5	1.77	0.67
6	34,457	352.2	1.90	0.72
7	34,457	202.7	2.06	0.78
1	34,457	73	2.40	0.91
16	34,457	27.8	2.78	1.05
1256	24,776	3.45	2.73	1.44
7	24,776	562.9	1.27	0.67
13	24,776	372.5	1.35	0.71
21	24,776	201.2	1.48	0.78
8	24,776	69.3	1.74	0.92
43	24,776	28.2	1.99	1.05
1048	14,637	3.56	1.61	1.43
3	14,637	961.0	0.69	0.62
2	14,637	782.0	0.71	0.64
8	14,637	577.6	0.75	0.67
13	14,637	377.8	0.80	0.71
19	14,637	173.8	0.90	0.80

Appendices

Ships (Number)	Average Tons (GRT)	Calls	Cost per Ship-Call	Cost per Ship-Call per 1,000 GRT
17	14,637	84.5	1.00	0.89
113	14,637	31.5	1.16	1.03
1036	7,355	3.8	0.80	1.41
2	7,355	879.0	0.35	0.63
3	7,355	600.3	0.37	0.66
9	7,355	411.7	0.40	0.70
48	7,355	175.4	0.45	0.80
38	7,355	75.4	0.51	0.91
171	7,355	33.7	0.58	1.02
714	3,774	4.5	0.40	1.38
12	3,774	377	0.21	0.71
61	3,774	166.1	0.23	0.80
39	3,774	74.2	0.26	0.91
157	3,774	33.9	0.30	1.02
644	2,592	6.1	0.26	1.32
1	2,592	843.0	0.13	0.63
4	2,592	357.5	0.14	0.72
73	2,592	153.3	0.16	0.81
67	2,592	79.0	0.18	0.90
327	2,592	33.4	0.20	1.02
514	1,550	5.6	0.16	1.34
3	1,550	434.3	0.08	0.70
21	1,550	151.0	0.10	0.82
64	1,550	76.6	0.11	0.90
217	1,550	32.2	0.12	1.03
525	495	5.9	0.05	1.33
2	495	528.5	0.03	0.68
2	495	331	0.03	0.73
27	495	164.2	0.03	0.81
14	495	78.3	0.03	0.90
109	495	28.5	0.04	1.05

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