

DECREASING OUR CARBON FOOTPRINT

MOVING MORE FREIGHT ONTO THE INLAND WATERWAYS OF ENGLAND AND WALES

Inland Waterways Advisory Council

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Inland Waterways Advisory Council

City Road Lock
38 Graham Street
London N1 8JX

Tel: 020 7253 1745
Fax: 020 7490 7656
Email: iwac@iwac.gsi.gov.uk

Website: www.iwac.org.uk

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Introduction

1. This paper sets out the current situation regarding freight on the inland waterway network in England and Wales. It provides recommendations on how waterborne freight could be increased in the future.
2. For many years there has been a view that because Britain's inland waterways are typically small and, because we can use our coastline to transport freight between ports, there is little opportunity and little need to develop freight transportation on the inland waterways. IWAC believes that waterborne freight transport could make a useful contribution towards meeting the UK Government's commitment to reducing carbon emissions by 60% by 2050.
3. Researchers from the Tyndall Centre for Climate Change Research presented estimates at the April 2006 Sea and Water conference which showed that moving freight by road produces emissions of 0.08 tonnes of carbon for every thousand freight tonne-kilometres¹. By comparison, it estimated that moving freight by water produces emissions of only 0.02 tonnes of carbon per thousand freight tonne-kilometres. Using these figures, transporting the same tonnage of freight by water instead of road has the potential to reduce by three quarters the amount of carbon emitted.
4. It is clear from examples of successful inland waterway traffic in the UK and elsewhere in Europe that our larger inland waterways can provide a viable and environmentally friendly means of transporting freight and that such freight operations can co-exist in harmony with other waterway uses.

The Inland Waterway Freight Network

5. For ease of description for this report, we have categorised the inland waterway freight network into the following:
 - a) principal inland freight waterways;
 - b) main British Waterways (BW) freight waterways;
 - c) intermediate and "other Freight Potential" waterways; and
 - d) smaller waterways.

¹ A tonne kilometre is the movement of freight achieved when one tonne of cargo is transported one kilometre. Thus, for example, a journey of 10 kilometres by a barge carrying 500 tonnes represents a moment of 5000 tonne-kilometres.

Principal inland freight waterways

6. These can accommodate vessels in excess of 1350 tonnes payload and are mostly managed by port authorities on tidal rivers or ship canals. Examples include the Thames tideway and branches, the Mersey/Manchester Ship Canal, the Humber and the more seaward parts of the Rivers Trent and Yorkshire Ouse, the Severn Estuary, the Dee Estuary, the tidal Nene to Wisbech and some shorter tidal waterways, mainly in eastern England, on the south coast and in the West Country.

Main BW freight waterways

7. These are smaller waterways with significant freight potential for internal barge traffic, managed by BW and designated as Commercial Waterways under the 1968 Transport Act. They generally can accommodate vessels of between 350 and 1000 tonnes payload, though a 2km stretch of the Yorkshire Ouse can accommodate payloads up to (and greater than) 1350 tonnes. They include some tidal rivers but consist mainly of non-tidal rivers and canals. Examples include the River Lee system, the more inland parts of the Rivers Trent and Yorkshire Ouse, the Aire & Calder Navigation to Leeds and Wakefield, the Sheffield & South Yorkshire Navigation to Rotherham, the Gloucester & Sharpness Canal/River Severn to Worcester and the River Weaver.

Intermediate and “other Freight Potential” Waterways

8. These have capacity for vessels carrying several hundred tonnes. They include the River Hull which is managed by the local authority and carries substantial traffic. However, most of these waterways have no freight use at present though have the potential to do so. Examples include the Yare to Cantley, managed by the Broads Authority (BA), as well as the non-tidal Thames and parts of the River Great Ouse system, managed by the Environment Agency (EA).

Smaller waterways

9. These comprise the majority of the waterways managed by BW, EA and BA, along with some waterways managed by independent trusts, local authorities, internal drainage boards or private companies. They have limited freight potential, in some cases having a maximum payload capacity of 100 tonnes. Examples include 'broad' rivers and canals typically up to 5m beam, such as the Grand Union Canal, River Soar, Leeds & Liverpool Canal, River Avon (Warwicks) and the Chelmer and Blackwater Navigation.

Inland Waterway Freight Traffic

10. According to UK Government statistics, total traffic on the UK inland waterways network in 2006 amounted to 51.0 million tonnes lifted and total freight movement of 1.7 billion tonne-kilometres. These statistics are detailed in the table below, reproduced from DfT Transport Statistics Bulletin; Waterborne Freight in the UK 2006, available online at:

<http://www.dft.gov.uk/pgr/statistics/datatablespublications/maritime/waterborne/waterbornefreight2006>

Table 1.1: Waterborne transport within the United Kingdom, 1995-2006

a) Goods lifted	million tonnes											
	1995	1996	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006
UK inland waters traffic												
Non-seagoing traffic												
Internal	6.6	5.7	4.8	4.3	4.3	4.3	4.3	4.0	3.2	2.6	3.4	3.6
Seagoing traffic (by route)												
Coastwise	9.0	9.3	8.2	9.6	8.7	9.3	8.8	6.8	7.4	7.2	8.6	8.5
Foreign	32.7	32.0	34.6	35.3	33.9	30.8	33.4	32.0	31.8	30.1	32.0	34.0
One-port	12.5	10.2	10.9	8.2	7.0	4.5	7.0	6.2	5.0	4.7	4.8	4.9
Total	60.7	57.2	58.5	57.3	53.8	49.0	53.5	49.0	47.4	44.6	48.7	51.0
Coastwise traffic between UK ports¹	67.7	70.9	71.1	77.3	73.0	63.1	58.5	59.5	58.5	59.8	65.1	58.1
One-port traffic of UK ports¹	36.4	33.5	31.3	32.6	33.3	39.3	35.1	43.7	39.0	34.8	32.3	30.6
All traffic^{1,2}	143.4	142.1	141.8	149.4	144.5	137.4	131.3	139.1	132.5	127.2	132.8	126.3
b) Goods moved												
	billion tonne-kilometres											
	1995	1996	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006
UK inland waters traffic												
Non-seagoing traffic												
Internal	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2
Seagoing traffic (by route)												
Coastwise	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2
Foreign	1.2	1.2	1.3	1.3	1.3	1.0	1.1	1.1	1.0	1.0	1.1	1.1
One-port	0.3	0.3	0.3	0.3	0.3	0.2	0.3	0.3	0.2	0.2	0.2	0.2
Total	1.9	1.9	1.9	2.0	1.9	1.7	1.8	1.7	1.6	1.5	1.6	1.7
Coastwise traffic between UK ports¹	41.0	45.4	40.4	45.0	40.6	36.5	34.1	35.1	33.3	35.4	39.4	32.4
One-port traffic of UK ports¹	10.2	7.9	5.7	10.0	16.2	29.7	23.3	30.8	26.4	22.9	20.3	18.2
All traffic^{1,2}	53.1	55.3	48.1	56.9	58.7	67.4	58.8	67.2	60.9	59.4	60.9	51.8

¹ More accurate recording of the origin and destination of crude oil traffic from 2000 onwards has meant that figures for coastwise and one-port traffic are not directly comparable with previous years.

² The 'All traffic' figures in table 1 (a) for all years and in table 1 (b) from 2000 onwards are calculated by the addition of the totals for coastwise traffic and one-port traffic together with the internal and foreign components of inland waters traffic. See Appendix 1 for more details

11. Traffic on the inland waterways comprises the following:

- a) Traffic with its origin, route and destination entirely within inland waters accounting for 3.6 million tonnes lifted and 200 million tonne-kilometres of goods moved. After remaining relatively stable from 1998 to 2002 following a period of significant decline, internal traffics fell further through 2003 and 2004; a major part of this reduction being the loss of coal traffic to Ferrybridge Power Station due to a change in the sourcing of coal for reasons of sulphur content. However, the latest statistics show an increase from 2.6 million tonnes in 2004 to 3.4 million tonnes in 2005 and 3.6 million tonnes in 2006.
- b) Traffic entering inland waterways from sea in vessels from other UK ports. The statistics identify genuine inland penetration of river-sea ships, excluding journeys which are essentially seagoing traffic to and from major seaboard ports. Thus traffic included in the inland waterway statistics is in direct competition with land based modes, over the whole distance in the case of journeys from other mainland UK coastal or inland ports. Such 'coastwise' traffic accounts for about twice as much tonnage on inland waterways as purely internal traffic. This traffic also saw a decline in 2004, with a strong recovery in 2005 followed by a very slight reduction in 2006.
- c) Traffic entering inland waterways to or from foreign coastal or inland ports or offshore operations (e.g. oil rigs, sea dredging sites). Again the statistics exclude essentially maritime operations, so traffic included in the inland waterway statistics is in direct competition with land based transport modes during its passage along the inland waterway. Some of these foreign traffics are carried by waterway to and from ports well inland in continental Europe, sometimes in a single ship movement from, for example, Paris, Maastricht, Liège or inland ports on the Rhine, or via transshipment to or from barges from a wide range of locations. Foreign traffics in seagoing vessels account for over 60% of freight lifted and moved on UK inland waterways.

12. Dry and liquid bulk cargoes remain important on inland waterways, with volumes of both increasing after the low point in 2003-2004. However, the wider trend of greater use of containers in transport is mirrored on the inland waterways, with unitised (essentially containerised) cargo tonnages rising rapidly and general cargo declining. Unitised cargo now accounts for about a quarter of freight movements on UK inland waterways, in terms of both tonnage and tonne-km. Agricultural (grain), steel and forestry products also feature significantly.

13. Most of the traffic, both internal and seagoing is carried on the UK's tidal inland waterways, of which the Thames tideway system is by far the most important. Other major areas of activity are the Humber based waterways, including the non-tidal Aire & Calder system, and the Mersey system, including the non-tidal Manchester Ship Canal. The only other non-tidal waterway with sufficient traffic to feature in the statistics is the River Severn, where aggregate transport has recently started after a period when no significant use was made of the waterway for freight.

14. In summary, after a period of decline, inland waterway freight traffic in the UK appears to have increased slightly and stabilised, demonstrating continuing demand for transport of dry and liquid bulk cargoes (such as quarried materials, cement, grain and oils) and a rapidly increasing demand for transport of containerised goods. This is concentrated on the larger waterways in larger vessels.

Current UK Government Policy

15. Policy regarding freight on the inland waterways in England and Wales is provided by the document 'Waterways for Tomorrow', published in 2000 by the (then) Department for Environment, Transport and Regions.
16. UK Government policy supports the transfer of freight from road to water where appropriate. It recognises that most freight transfer occurs on tidal waters, much of the freight on non-tidal waterways moves to or from tidal waters, many of the larger types of waterway could take more traffic and that small waterways have no significant role to play for freight but remain suitable for niche markets.

Progress Since 2000

17. The following important milestones have taken place in the last few years:
- The Freight Study Group (FSG) was set up by UK Government to produce a report; it published '*Freight on Water: A new perspective*' in 2002. This identified a "real demand for freight on the inland waterways, mainly in the traditional high volume, low value cargoes on the larger navigations" but identified some factors inhibiting this, "such as the condition of the infrastructure and vessels, the shortage of skippers and crew, and the approach adopted to freight by some navigation authorities". They recommended greater UK Government encouragement for freight on inland waterways, that freight should be part of the remit of navigation authorities, that waste authorities should look to use of waterways and that the planning system should be more positive towards use of waterways for freight. They also proposed improvements to waterway infrastructure, better regulation of vessel standards and crewing and identified the need for active marketing of waterways for freight.
 - The FSG report led to the establishment of Sea and Water as a promotion centre for short-sea and inland waterway freight transport. This body now has members from across the inland waterways and short-sea shipping sectors. It has produced a Case for Water document and a freight waterways business directory, as well as lobbying and running conferences and other activities to raise the profile of waterborne freight.

- The UK Government's Freight Facilities Grant scheme for waterway infrastructure was extended to include a grant (Waterborne Freight Grant) to contribute to revenue costs. Grants can be paid where transfer of freight from road to water can be shown to have environmental benefits and the traffic would not be viable without grant. However, the Department for Transport (DfT) kept the rule whereby grant is not payable if the use of water transport is required by a planning condition. More positively DfT has made arrangements to support waterway transport of aggregates through the Aggregates Levy Sustainability Fund and has established a single point of contact for matters relating to inland waterway freight.
18. A number of studies have also been completed since 2000. These provide guidance either on waterborne freight or on the potential to increase waterborne freight on UK inland waterways:
- The Association of Inland Navigation Authorities (AINA) produced 'A Strategy for Freight on Britain's Inland Waterways' in 2001. It explicitly excluded consideration of shipping opportunities associated with the estuarial waterways and ship canals, where it accepts that the bulk of any increase in traffic would occur. It covered waterways from the smaller narrow canals accommodating boats of a maximum 25 tonnes capacity to waterways such as the Aire & Calder Navigation, accommodating 700 tonne vessels. AINA concluded that there were no realistic opportunities for making a significant impact on the national freight transport picture by transfer of freight to smaller waterways, with a maximum vessel capacity of less than 100 tonnes but that these waterways had a potential role for niche markets on a local basis.
 - AINA also produced a good practice guide on Planning for Freight on the Inland Waterways for DfT and Defra, in consultation with the Office of the Deputy Prime Minister. This gives guidance for both planners and potential waterway users and includes case studies on planning issues on larger tidal waterways and smaller canals.
 - The West London Canal Network Study for BW and Transport for London, undertaken by Peter Brett Associates in 2005, examined opportunities on the Grand Union and Regents Canals in the west London area. They concluded there was a shortage of suitable sites for significant freight transfer along the canals, although there were many sites where small scale simple loading/unloading operations could occur. They identified opportunities for waterway transport of waste and recyclables and of construction materials and concluded that the main opportunities were on lock free lengths of canal.
 - The Midlands Freight Quality Partnership and BW are currently undertaking a study on freight opportunities on smaller canals where there are long levels and few locks and where there is a network of canals in an urban and industrial area.
 - BW has undertaken confidential studies on Aire & Calder Navigation on the possibility of establishing container traffics to Leeds and has acquired use of a wharf in Leeds for this purpose.

- DfT has carried out studies on the potential of inland waterways for transport of abnormal indivisible loads (AIL) and supported construction of a specialist vessel for this use. Several successful movements of AIL for the electricity industry have been undertaken.

The Effect of Current Policies on Waterborne Freight

19. To date, these initiatives have had a small effect on the tonnage of freight transported by water. Tonnages continued to fall until 2004, exacerbated by a significant decrease in internal non-seagoing tonnages reflected by the loss of waterborne coal traffic in Yorkshire due to power companies' decisions unrelated to transport. Freight traffic on the inland waterways has continued to comprise mainly liquid bulks (for example oils), solid bulks (for example, aggregates, cement, grain, waste and recyclables) and materials such as steel. Unitised traffics (containers and trailers) have increased whilst, in line with trends across the freight transport sector generally, non-unitised general cargo traffics have continued to decline. Freight traffic has continued to be concentrated mainly on the larger tidal waterways and ship canals, as well as on some of the BW 'commercial' waterways.
20. However in 2006 there was a small upturn in tonnage for solely internal traffic on the inland waterways, whilst traffic entering inland waterways from the sea via other UK ports showed a very slight decline. Overall, this gives reason for a small degree of optimism.
21. IWAC considers that there are a number of very positive signs of an increasing awareness of the potential for greater use of freight transfer on the waterways and this is assisted by increasing environmental awareness and pressures. Encouraging signs include:
 - a) DfT has established a single point of contact for matters relating to inland waterway freight;
 - b) the steelworks at Rotherham are being served by barges via a dedicated wharf;
 - c) the canal to Rotherham is accommodating a new oil traffic in 700 tonne vessels;
 - d) a waterside energy from waste facility has been approved at Belvedere, allowing continued use of the Thames for transport of a significant proportion of London's domestic waste;
 - e) aggregates are being successfully transported on the River Severn - the first freight on this waterway for some years;
 - f) a carrier has invested in new oil tanker barges for use on the Aire & Calder Navigation in Yorkshire;
 - g) a container feeder service has started to operate to the Manchester end of the Manchester Ship Canal, using temporary facilities, and proposals for a new, multimodal terminal (at Port Salford) to accommodate such traffics are progressing well;

- h) small scale traffics have been established and are being developed on the Grand Union and Regents Canals in London, including aggregates from Denham, waste to Old Oak and construction traffic to Kings Place;
- i) the new Prescott Lock on the Bow Back Rivers is being constructed, enabling 350-tonne barges to access the Olympic site;
- j) proposals for a new inland port at Weston alongside the Manchester Ship Canal and the Weaver Navigation are being promoted, with the support of the local authority.

Comparison with Continental Europe

22. As an island nation with a long coastline, the UK makes significant use of coastal shipping between UK ports to satisfy its internal freight transport needs. According to UK Government statistics, this amounted to 58.1 million tonnes lifted and 32.4 billion tonne-km of goods moved in 2006 (source: DfT Transport Statistics Bulletin; Waterborne Freight in the UK, 2006). In terms of goods moved, coastal shipping solely between UK ports performs about 13% of total freight transport undertaken in the UK, compared with 66% by road and 9% by rail. Most heavy industries in the UK are now situated on the coast to facilitate use of coastal and foreign-going shipping.
23. Thus comparisons between waterborne transport operations in the UK and those in more landlocked countries in continental Europe with less access to coastal shipping must be made with care. The UK has coastal shipping access to most major industrial areas and shorter inland waterway distances than most continental European countries.
24. Nevertheless, some useful indications as to the potential role of inland freight waterways in the UK can be drawn from continental experience. Four examples from France demonstrate the possibilities:
- a) Lille is about the same distance by inland waterway from Dunkerque as Leeds is from the Humber ports of Hull and Immingham, with a similar number of locks along the route (7 and 8 respectively). The waterway to Lille was enlarged in the 1960s to accommodate vessels up to a maximum of 3000 tonnes payload. The Port of Lille is now France's third biggest inland port, handling over a million tonnes annually of waterborne freight, including container traffic amounting to 40000 TEU² per year. It is served by a regular container barge service from Dunkerque in 1500 tonne vessels taking 78 containers each. This demonstrates that, given adequate infrastructure, transport of containers by barge can be highly successful over short distances such as would be relevant to the UK waterways;

² TEU – twenty foot equivalent unit

- b) routes between northern France and Belgium have been increased in gauge from Class II waterways (accommodating vessels up to 650 tonne capacity - a similar size to those which can reach Leeds and Rotherham) to Class IV (accommodating 1350 tonne capacity barges) by a programme of gradual removal of bottlenecks while maintaining use of the system, and traffic is growing, including use by container barges. This demonstrates that waterway enlargement can provide a viable and environmentally friendly modern transport mode, provided the resultant waterway is big enough. This is in contrast to the situation with the enlargement of the waterway to Rotherham in the UK in the 1980s, which was too small;
- c) in Paris, the advantages of reducing freight traffic passing through the conurbation have been realised by supplementing the main Port of Paris site at Gennevilliers, downstream of the city, by another major site at Bonneuil sur Marne, upstream of Paris. This has been very successful and is expanding as a multimodal terminal handling containerised and bulk traffics, with expansion of facilities approved this year. Container traffic through the Port of Paris increased by 8% in 2006. A similar approach would be equally relevant in London, with its large capacity waterway the Thames, if a suitable site could be identified in west London and planning objections overcome;
- d) confidence in waterway transport is demonstrated by the recent support given by the French Government to an uprated waterway link between the Seine and the Lille area, which is currently moving through the permitting and public inquiry process.

Barriers to Waterborne Freight

25. Whilst examples of successful freight waterway traffic in the UK and continental Europe demonstrate that inland waterways can provide a viable and economically friendly way to transport freight, there are a number of continuing barriers to waterborne freight.

26. These barriers include:

- a) a lack of knowledge, expertise and confidence by industry, which typically does not think of water as a modern reliable transport mode and so often does not consider it as a viable option;
- b) planning difficulties - freight wharves tend to be seen as uncomfortable neighbours and so establishing new wharves in competition with other more lucrative developments such as housing is often very difficult;
- c) a lack of appropriate development of waterway infrastructure, for example increasing headroom at bridges;
- d) a lack of sufficient promotion of waterway freight by some waterway navigation authorities, because the economic costs to the navigation authorities of increasing freight on the waterways outweigh the additional income gained;

- e) a lack of sufficient promotion of waterway freight by some carriers;
 - f) inadequate dredging of some existing freight waterways, leading to reduced payloads and thus reduced competitiveness of barge traffics;
 - g) craft availability - there is a perception that availability of suitable craft is a constraint, although vessels can be moved easily from other areas, including the continent, and this is often less of a problem in reality than it is perceived to be;
 - h) a lack of trained crew in some areas, due to a lack of training schemes and probable deterrence of new entrants by the outmoded image and practices of some sections of the barge industry;
 - i) a potential conflict of interest between the many waterway users, i.e. between freight operators, recreational boaters, canoeists, anglers and waterside dwellers.
27. Some of these barriers are illustrated by the attempt to transport construction materials to the Olympic site by water. In partnership with others, BW successfully led the process to put together a funding package and obtain the necessary permission to construct water control structures and a new lock in Prescott Channel to ensure that the navigations to the site can take 350-tonne barges. The Olympic Delivery Authority has set itself the target of transporting at least 50% of the material by rail and water. However, contractors who are often unfamiliar with water transport appear to be reluctant to explore the possibilities. As a result there is a real danger that the policy will result in a very small use of water transport, losing the unique opportunity to showcase the advantages of waterborne freight.
28. In terms of the UK and Welsh Assembly Governments, there is a potential barrier caused by policy areas relevant to the inland waterways being split across several departments. The following have an interest in the waterways:
- Defra (in England and Wales) - responsible for the inland waterway network (providing funding to some navigation authorities);
 - DfT (in England) and the Department for the Economy and Transport (in Wales) - responsible for freight movement, including the Waterborne Freight Grant;
 - the Department for Communities and Local Government (in England) and the Department for Environment, Sustainability and Housing (in Wales) - responsible for regeneration and planning;
 - the Department for Culture, Media and Sport (in England) and the Department for Rural Affairs and Heritage (in Wales) - responsible for heritage.
29. This split between many departments adds to a perceived lack of focus and integration regarding freight policy on the inland waterways, acting as a potential impediment to increasing the amount of waterborne freight carried on the network.

IWAC's Policy

30. IWAC supports the increased use of the inland waterways for freight transport, recognising the environmental advantages of transfer of freight from road to water in terms of:

- reduced emissions of carbon dioxide;
- reduction of road congestion and noise nuisance.

31. We consider that there are opportunities for transfer of more freight to the waterways, although significant tonnages can only be accommodated by the larger waterways and transport will normally only be competitive with other modes in vessels of 300 tonnes capacity or more. However, smaller vessels may be viable where other modes experience significant constraints, such as from sites with poor road access.

32. Traffic to and from sea in river-sea ships is likely to remain an important component of UK inland waterway freight.

33. Containerised traffic is continuing to form an increasing part of the transport market. Facilities will need to be developed to accommodate such traffic if the inland waterways are to make a significantly increased contribution to UK freight transport in the future.

34. Small canals and rivers mainly used for recreational boating can contribute in locally important niche markets, particularly where there are few locks, for example:

- integration with local waste and recycling initiatives;
- for domestic fuel distribution;
- for quarried and construction materials where road access is difficult – in general the opportunities lie mainly in transport of:
 - bulk materials (solid and liquid)
 - unitised cargoes (including containerised waste).

Recommendations

35. IWAC believes that realising the full potential of waterways for freight will depend on the extent to which current barriers to doing that can be overcome. This includes:
- a) better promotion of waterborne freight by the water freight industry and navigation authorities, with Sea and Water playing a major role;
 - b) the UK and Welsh Assembly Governments undertaking a comprehensive study of the opportunities for, and barriers to, increasing freight transport by water, aiming to produce recommendations that can be adopted as a useful contribution towards reducing the UK's carbon footprint;
 - c) greater adherence by planning authorities to existing planning policy guidance and statements which promote the use of waterways for freight transport, particularly Planning Policy Guidance 13 on transport (PPG13), coupled with stronger support for waterborne freight in future planning policy statements;
 - d) greater consideration of waterborne freight transport in regional plans such as regional spatial strategies and regional transport strategies – particularly around London;
 - e) greater encouragement of the use of waterways for freight transport in decisions on planning permission, for example through section 106 agreements;
 - f) continuing modernisation of the waterway carrying industry;
 - g) removing bottlenecks on key waterways - for example, increasing headroom on the Aire and Calder Navigation.
36. Other measures which we believe the UK and Welsh Assembly Governments should take are:
- h) better availability of, and publicity for, grant aid for infrastructure and craft – because there is no other mechanism at present to pay for the environmental benefits of waterway transport;
 - i) improving co-operation between all relevant departments to ensure that the UK and Welsh Assembly Governments' policies relevant for the inland waterways are implemented in a co-ordinated way.

37. In conclusion, recognising that waterborne freight could make a useful contribution towards meeting its target of reducing carbon emissions by 60% by 2050, the UK Government should examine the economics of freight transport and make the necessary adjustments to encourage companies to choose the water option. This would involve:
- a) considering a carbon credit scheme to encourage more businesses to move onto the waterways, as suggested by the Environment, Food and Rural Affairs Committee in its July 2007 report on BW;
 - b) considering a nationwide road-pricing scheme, to increase the costs of road freight transport;
 - c) in a broader view, giving further consideration to a carbon tax so that the costs of producing carbon dioxide are fully reflected in freight transportation.

Abbreviations

AIL	Abnormal Indivisible Loads
AINA	Association of Inland Navigation Authorities
BA	Broads Authority
BW	British Waterways
Defra	Department for Environment, Food and Rural Affairs
DfT	Department for Transport
EA	Environment Agency
FSG	Freight Study Group
IWAC	Inland Waterways Advisory Council

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Inland Waterways Advisory Council
City Road Lock
38 Graham Street
London N1 8JX

Tel: 020 7253 1745
Fax: 020 7490 7656
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