House of Commons
Transport Committee

Sulphur emissions by ships

Sixteenth Report of Session 2010–12

Volume I: Report, together with formal minutes, oral and written evidence

Additional written evidence is contained in Volume II, available on the Committee website at www.parliament.uk/transcom

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The Transport Committee

The Transport Committee is appointed by the House of Commons to examine the expenditure, administration, and policy of the Department for Transport and its Associate Public Bodies.

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The Reports of the Committee, the formal minutes relating to that report, oral evidence taken and some or all written evidence are available in a printed volume. Additional written evidence may be published on the internet only.

Committee staff

The current staff of the Committee are Mark Egan (Clerk), Jessica Montgomery (Second Clerk), David Davies (Committee Specialist), Tony Catinella (Senior Committee Assistant), Edward Faulkner (Committee Assistant), Stewart McIlvenna (Committee Support Assistant), Steve Wright (Scrutiny Unit) and Hannah Pearce (Media Officer).

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Summary

Sulphur dioxide is a major cause of air pollution and causes significant health problems. EU sulphur emissions are decreasing, but emissions from shipping are increasing and shipping is expected to be the main source of EU sulphur emissions by 2020. Maritime sulphur emissions are regulated by an international convention—MARPOL Annex VI. A revised Annex VI, incorporating tighter limits on sulphur emissions, was agreed in 2008. The European Commission has now brought forward proposals to incorporate the revisions into EU law, which would be directly applicable to the UK. These proposals were the subject of our inquiry.

The benefits of the revised Annex VI and the Commission’s draft directive outweigh the costs, but while the benefits are shared widely across society the costs fall directly on ship operators. We recommend that the Government should establish how the Commission will monitor the impact of its draft directive on maritime sulphur emissions on the shipping industry, mitigating the risk of any modal shift from shipping to roads.

Many of the concerns of the shipping operators—about the availability of low-sulphur fuel, the maturity of pollution abatement technology and the timetable for implementation—stem from the requirements of the revised Annex VI, which was agreed in 2008 and which we, and the Government, support. We recommend that the Government work with industry to identify available abatement technologies and to identify and help overcome barriers to the development of this equipment.

The current Commission proposal includes a number of extra provisions—for example on the sulphur content of fuel used by passenger ships—which are not well justified. There are also numerous ambiguities which remain to be clarified. We do not think that the Commission should impose additional burdens on industry at this time.

The Minister told us that the Government would resist additional requirements being placed on the shipping industry, over and above Annex VI, and was not willing to negotiate on this issue. However, the draft directive is subject to the qualified majority voting procedure which means that the UK has no power of veto. Forging alliances with other member states to negotiate a satisfactory compromise is therefore essential. We recommend that the Government focuses on removing the tighter emissions limits on passenger ships outside specified Emissions Control Areas and on ensuring that the directive replicates Annex VI safeguards regarding the non-availability of low-sulphur fuel, and that it keeps us informed of progress during negotiations.
Introduction

1. Sulphur dioxide emissions are falling across Europe, but emissions from shipping continue to rise. The shipping industry is therefore being targeted with tighter limits, both internationally and by the European Commission (the Commission). These limits will have significant cost implications for ship operators.

2. We launched our inquiry in September 2011 and sought written evidence on:

- the impact on shipping of more stringent limits on sulphur content in fuel, due to revisions to Annex VI of the International Maritime Organisation’s Marine Pollution Convention (hereafter referred to as Annex VI);
- possible implications for other sectors, such as road haulage;
- steps which the UK Government could take to assist the maritime sector meet its obligations under Annex VI; and
- the Commission’s proposals to implement the revisions to Annex VI, and the UK Government’s stance on those proposals.

We held two oral evidence sessions and received twenty-two written submissions; we thank all those who contributed to our inquiry.

The impacts of sulphur pollution

3. Sulphur dioxide is a major cause of air pollution, causing damage to human health and to the wider environment. It is an acidic gas formed by the oxidation of sulphur impurities in fuels during the combustion process, and is released in the exhaust fumes of ships, causing chest pains and breathing difficulties, particularly for those with asthma.\(^1\) It also reacts in the atmosphere to form secondary Particulate Matter (PM), which is known to cause respiratory and cardiovascular illness, cancer and premature death. In December 2010 the Committee on the Medical Effects of Air Pollutants (COMEAP), the Government’s advisory body, published a report on the mortality effects of long-term exposure to particulate air pollution in the UK.\(^2\) It concluded that it was reasonable to state that PM contributed to the early deaths of up to 200,000 people in 2008 in the UK, by an average of two years each.

4. The financial implications of these adverse health effects are significant, and are the key driver for tighter emission regulations. The Department for Environment, Food and Rural Affairs (Defra) estimated that, in 2005, the health impact of PM cost the UK between £8.5 billion and £20.2 billion.\(^3\)

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1 95% of sulphur emissions is Sulphur Dioxide (SO\(_2\)); the remaining 5% is Sulphur Trioxide (SO\(_3\)).
5. The UK is also currently facing action by the Commission for repeated breaches of the EU Ambient Air Quality Directive relating to PM levels in London.\textsuperscript{4} The Department for Transport (DfT) provided the Mayor of London with £5 million in April 2011 to allow Transport for London to take action to meet those PM targets.\textsuperscript{5} Failure to do so risks the Government facing legal action in the European Court of Justice with potentially significant financial penalties, widely reported at £300 million.\textsuperscript{6}

6. Sulphur emissions are also a leading cause of acid rain, resulting in the loss of biodiversity, forest degradation, lower agricultural productivity and damage to the built environment. Impacts can occur close to the source, for example around ports, but also over much longer distances. It is estimated that 70\% of sulphur emissions from ships have an impact on land, and, because of the distances that emissions can travel, the problem can only be effectively tackled through international action.

**The role of shipping in sulphur pollution**

7. The overall level of sulphur dioxide emissions has been falling in the EU in recent years, and it is expected to fall by some 68\% between 2000 and 2020.\textsuperscript{7} This is largely due to the shift away from burning coal in power stations and industrial plants, the implementation of the Large Combustion Plant Directive,\textsuperscript{8} and reductions in the sulphur content of diesel and petrol for motor vehicles. Emissions from shipping have been rising in absolute terms and as a percentage of all sulphur emissions. The Commission’s 2005 thematic strategy on air pollution calculated that sulphur emissions from shipping would rise by 45\% between 2000 and 2020, by which time they would exceed emissions from all land-based sources combined.\textsuperscript{9}

\textsuperscript{4} Directive 2008/50/EC on ambient air quality and cleaner air for Europe.


\textsuperscript{6} For example, “UK receives final warning over air pollution”, 3 June 2010, www.bbc.co.uk/news.


\textsuperscript{8} Directive 2001/80/EC set new emissions standards for the largest oil and coal fired power stations.

Figure 1: EU sulphur dioxide emissions by source

2 Regulations to limit emissions from ships

The legislative framework

8. Limits on sulphur emissions from shipping are set on a global basis by the International Maritime Organisation (IMO), the United Nations agency responsible for the safety and security of shipping and the prevention of marine pollution by ships. The International Convention for the Prevention of Pollution from Ships (MARPOL) was adopted by the IMO in 1973, and is the main international convention covering the prevention of pollution of the marine environment by ships. In 1997, following lengthy negotiations, the IMO adopted Annex VI (Prevention of Air Pollution from Ships) to the MARPOL Convention, establishing limits on emissions of sulphur oxides, nitrous oxides and particulate matter, as well as enabling the creation of Sulphur Emission Control Areas (SECAs), in which even tighter limits would apply.

9. The Annex VI standards entered into force in May 2005. A global cap of 4.5% was established on the sulphur content of fuel, with a 1.5% limit in SECAs. These standards were incorporated into EU law by Directive 1999/32/EC as amended by Directive 2005/33/EC. The Directive also set two additional sulphur emission limits in the EU: 1.5% for passenger vessels operating regular services from 2006, and 0.1% for ships at berth from 2010.

10. Following a proposal by the member states bordering the North Sea and the Baltic Sea, two SECAs were established by the IMO; the Baltic SECA took effect in May 2006, while the North Sea SECA (including the full length of the English Channel) came into force from November 2007. These areas were designated as SECAs because of their particular sensitivity to acidification caused by sulphur emissions. The UK Government was one of the key supporters of the establishment of the North Sea SECA.
11. Many states, including the United Kingdom, felt that the sulphur limits set by Annex VI were too generous, and argued for them to be reduced. In October 2008 the IMO agreed a revised Annex VI, in which the global sulphur content of fuel would be reduced to 0.5% by 2020, and emissions capped at 0.1% in Emission Control Areas (ECAs) by 2015, to be met either through 0.1% sulphur content fuel, or through the use of abatement technology.

**The European Commission’s proposal**

12. On 15 July 2011 the Commission proposed a revision of Directive 1999/32/EC to bring the revised Annex VI into EU law, but with a number of significant differences from the IMO agreement. Significantly, it will tighten the emissions requirements for passenger ships operating within the EU but outside ECAs, reducing it from an equivalent sulphur content of 1.5% to 0.1% by 2020. In line with the IMO definition, the proposal defines passenger ships as any vessel carrying 12 or more people other than crew members.

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10 Ev 35, paras 4-5.

11 The revisions extended the scope of the SECA concept to also cover emissions of nitrous oxides, and therefore renamed as either SOx ECAs or NOx ECAs. The North Sea and Baltic Sea are SOx ECAs only. The North American ECA will take effect in August 2012 and will limit SOx, NOx and PM emissions.
The EU’s proposal differs from Annex VI in a number of other ways, including:

- the EU proposal does not include the provision made in Annex VI Regulation 18 that gives states discretion where a ship has not met the emissions standards because of the non-availability of suitable fuel;
- a complete ban on the use of fuel above 3.5% sulphur content, rather than a limit on the actual emissions level (which could be managed through the use of abatement technology);
- giving the EU the power to specify the frequency and method of fuel sampling; and
- requiring additional testing of abatement systems on top of those already required to meet IMO standards.

### The legislative process

The draft Directive was proposed, as most EU legislation is, by the European Commission. To come into force it must be agreed by both the Council of the European Union and the European Parliament.

The European Parliament’s Environment Committee is considering the proposal, and is taking account of amendments suggested by the European Parliament’s Transport Committee. On 16 February 2012 the Environment Committee voted in favour of tightening the Commission’s proposal even further, introducing a 0.5% sulphur limit in all EU waters by 2015. Under the Committee’s amendments the limit would fall to 0.1% in 2020, thereby effectively extending ECA regulations across the EU. First reading of the draft Directive in plenary is expected in May.

The Council is considering the proposal at official level through its Working Party on the Environment. This met four times during 2011 and has yet to reach agreement. The Government will seek to influence the proposal through this Working Party before the meeting of EU Environment Ministers on 11 June 2012, at which Council agreement on the Directive is expected.
The Danish Presidency of the Council of the European Union has indicated that it will treat this proposal as a priority and will seek to get a mandate to negotiate a first reading agreement with the European Parliament. A first reading effectively concludes the legislative procedure. If agreement cannot be reached the draft Directive will continue to be considered by the European Parliament.

The benefits and costs of the proposals

14. In July 2011, the Commission published an impact assessment to accompany its proposal to revise Directive 1999/32/EC. This document assesses whether, and how, the IMO’s revised Annex VI should be incorporated into EU law, and considers a number of policy options, which include doing nothing and repealing the Directive.

15. The benefits of the proposal are calculated by assessing the resulting health impacts, predominantly lower mortality rates (people living longer) but also lower morbidity rates (people enjoying better health). These factors are assigned monetary values and applied to the modelled reductions in emissions. Environmental benefits, such as those arising from reductions in the damage caused to ecosystems and to buildings from acid rain, are not monetised; the benefits of the regulations are therefore understated to an unknown extent. The costs associated with the tighter sulphur limits are dominated by the higher fuel costs faced by ship operators switching to low sulphur Marine Gas Oil (MGO), although these can be reduced with the use of abatement technology which would allow operators to continue to use cheaper Heavy Fuel Oil (HFO) which has a higher sulphur content.

16. The impact assessment considers three ways of meeting the regulations; the use of low-sulphur fuel, abatement technology, and a mixture of the two methods. The Commission has calculated that the health benefits in the EU will range from €15 to €34 billion per year in 2020, with costs of between €2.6 and €11 billion.12 Defra, using a different methodology for deriving a monetary figure for the health benefits, has estimated that it will produce annual benefits to the UK of approximately £1.1 billion from 2020.13

17. The Commission’s impact assessment states that the annual cost of its specific proposal to introduce tighter limits on passenger ships would be just over €300 million. The Commission told us that the costs and benefits would be roughly equal if low-sulphur fuel was used, but if, as the Commission expects, abatement technology will be used instead, the costs will fall by half.14

18. We accept that the benefits of the revised Annex VI significantly exceed the costs of compliance. It is clear that, while the benefits are shared widely among the general population, the costs will fall directly on ship operators. However, the health benefits that will be gained from the Commission’s additional proposal on passenger ships will only exceed the costs if abatement technology is used, and, as we discuss in part three, it is not yet clear whether this technology will be available in the near future.

13 Ev 37 para 13.
14 Q86.
3 The response of the UK shipping industry

Cost implications

19. Shipping operators have expressed concerns over the cost implications of the tighter regulations due to come into force, both arising from the Annex VI revision and the Commission’s proposal. Lars Olsson, representing Maritime UK, told us that switching to fuel with a sulphur content of 0.1% in ECAs from 2015 would increase fuel costs by up to 87%, and that “the industry is not prepared to do this from 2015”.15 The Commission’s own impact assessment estimates the increase to be up to 65%.16

20. Low-sulphur fuel is significantly more expensive because moving from 1% to 0.1% sulphur content involves a step-change in the refining process. Most shipping outside ECAs currently uses residual Heavy Fuel Oil (HFO), an unrefined and relatively cheap product. The Commission told us that the price of HFO is currently less than raw oil, and that HFO will soon disappear from the market as refineries shift to more profitable production of distillate Marine Gas Oil (MGO) with 0.1% sulphur content.17

21. Maritime UK told us that “we cannot absorb this additional cost and we have to offset it by adding it to transport prices, for both passenger and freight”.18 Operators have raised a number of concerns about the consequences of such price increases to UK shipping, including:

- passenger and freight traffic transferring from shipping to roads (known as modal shift) increasing congestion and pollution, particularly on roads in the south east leading to and from the Channel Tunnel and the shortest sea routes to continental Europe, such as Dover–Calais;19

- shipping operators reducing their services in the North Sea ECA, and transferring routes away from ports on the north and east coasts of the UK towards those on the west coast;20 and

- transfer of cruise activity away from the North Sea and Baltic ECAs, towards the Mediterranean, with fewer cruise ships calling at UK ports.21

All these changes would affect the level and distribution of economic activity and jobs in the UK. The National Union of Rail, Maritime and Transport Workers told us of “thousands of seafarers’ jobs being at risk” in the ferry industry, with many more jobs affected in related businesses and the wider economy, particularly around ports.22 P&O

15 Q46.
17 Q116.
18 Q2.
19 Ev w7-8.
20 Ev 22 para 2.
21 Ev 22 para 3 and Ev w29 para 6.
22 Q56.
Ferries argued that ports at Rosyth, Newcastle, Teesport, Hull and Harwich would be particularly badly affected due to their geographic location and the services that operate out of them.  

22. Brittany Ferries told us that switching to 0.1% sulphur fuel in 2015 would increase its annual fuel costs from £65 million to £104 million. P&O Ferries stated that its fuel costs would rise by £60 million:

This will change routes which today are marginal, to be heavily loss making routes. This is completely unsustainable, with job losses inevitable.

These increases are clearly significant, and will have a knock-on effect for consumers, most directly in the form of higher fares for passengers, and also feeding through increased freight costs into higher prices for imported goods. Brittany Ferries told us that:

To absorb additional costs of this magnitude passenger fares and freight rates would have to increase by 20% which will inevitably result in a fall in business...

This will result, at the very least, in a reduction in frequency of services and the closure of routes and, at the worst, a cessation of business.

23. It should be borne in mind that the road haulage industry has also seen its fuel costs increase significantly in recent years, and that, while diesel is heavily taxed, shipping fuels are not. Furthermore, sulphur emissions from road transport have already been tackled through EU regulations, notably through the shift to low sulphur diesel which has a maximum 0.001% sulphur content. The HFO used on board ships has approximately 2,600 times the sulphur content of fuel now used by lorries. Shipping operators have been at a competitive advantage to the road haulage industry in recent years in this regard, and these new regulations will still only go some way to redressing that balance.

24. The Commission has accepted that the proposed regulations will affect EU ship operators, who will face higher costs and greater competition from road and rail. It does not expect traffic to shift from shipping to the roads to any significant extent, based on the studies it has either commissioned or reviewed. It has noted, however, that “given the large range in predictions, there is a clear level of uncertainty to what might happen and the European Commission will therefore be keeping a close eye on the consequences and look for solutions in case of disproportional impacts.” The DfT has also noted that, while it is aware of the operators’ concerns about modal shift, it is not aware of any evidence suggesting it will affect the UK. Indeed, in 2009 the Maritime and Coastguard Agency commissioned a study to investigate the economic impact of the revised Annex VI, and

23 Ev w21 para 3.
24 Ev w14.
25 Ev w22 para 8.
26 Ev w14.
28 European Commission, Impact Assessment SEC (2011) 918, p74. The weighted average sulphur content of HFO tested by the IMO in 2009 was 2.6%.
found no such link. We recommend that the Government establishes how the Commission will be monitoring the impact of its proposed revised Directive on maritime sulphur emissions on the shipping industry and asks what the Commission will do to mitigate the risk of modal shift from sea to road occurring as a result.

**Means of compliance**

25. Operators also have practical concerns about the two main routes for achieving compliance against the stricter 0.1% sulphur limit in ECAs from 2015, namely through using low-sulphur (MGO) fuel or by using abatement technology to reduce emissions from HFO below an equivalent 0.1% level.

26. Operators do not believe that MGO will be available in sufficient quantities, either by 2015 to meet the needs of shipping in ECAs, or to meet the global 0.5% limit by 2020. The Government, however, agrees with the Commission that supplies will be available by 2015. The IMO will conduct a fuel availability study in 2018, and may defer the global 0.5% limit by five years to 2025.

27. The DfT and the Commission believe that abatement technology is now ready and available. The Commission has calculated that using this equipment, rather than low-sulphur fuel, will reduce compliance costs for ship operators by half. The Commission also argues that the regulations present an opportunity to modernise and renew the EU fleet. The Exhaust Gas Cleaning Systems Association (EGCSA) told us that the shipping industry has failed to react to the new emissions regulations, and that its members had so far installed abatement technology on only eight ships. We have received contradictory evidence from the operators, who will have to make significant capital investment to install this equipment, and who will bear the risk of non-compliance if it fails to perform effectively. Maritime UK told us that the technology is four to five years away from being ready for use. It also argued that many ships cannot be fitted with the equipment, and referred to a report produced by the trade association Interferry which found that 60% of the 108 vessels studied could not be fitted with abatement equipment because of issues such as space and stability.

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31 Ev 37 para 17.
32 Q38.
33 Q138.
34 Q138 and Q90.
35 Q 86.
36 Q103.
37 Ev 49. The eight members of the EGCSA represent 95% of the emissions abatement technology industry.
38 Q30.
Abatement technology

In theory, sulphur emissions can be virtually eliminated from the exhaust fumes of ships burning HFO using abatement technology. This technology is not new, and similar methods have been used for decades in power stations and industrial plants on land. Hot exhaust gases are passed through an alkaline wash (usually seawater) which reacts with and neutralises the acidic sulphur in a process known as “scrubbing”. This wash also captures most of the particulate matter present, which is filtered into a sludge tank for onshore disposal before the clean water is released into the sea.

The European Cruise Council told us that it would cost $13–$20 million to fit this equipment to a cruise ship, plus annual running costs of $150,000 to $900,000.\(^{40}\)

28. **We are not in a position to judge the maturity of abatement technology, but we note the comments of the Commission and others that similar concerns about availability were expressed before the introduction of emissions regulations on cars, and that suitable technology was developed to meet those requirements, and at substantially lower cost than originally predicted.\(^{41}\) The trend towards tighter emissions regulations has been obvious since at least the 1990s when the original Annex VI was being drawn up, and it is our view that operators could have been more proactive in driving this technology forward.\(^{42}\) Maritime UK told us that research and development “can only be achieved by getting the equipment fitted in ships in sufficient numbers”; we agree wholeheartedly and urge operators to take action now.\(^{43}\) In addition we recommend that the Government work with industry to identify available abatement technologies and to identify and help overcome barriers to the development of this equipment.

Variations between the Commission’s proposal and Annex VI

29. Operators have also raised concerns about those aspects of the Commission’s proposal that deviate from Annex VI, notably regarding how to manage shortages of compliant fuel, and the 0.1% limit on passenger ships outside ECAs. Carnival, the international cruise company, has commented that:

> The Commission’s proposals significantly weaken this package by an unhappy mixture of ‘gold plating’ and non-inclusion of important protections to shipowners to the extent that the proposed European regulations are significantly more onerous and costly.\(^{44}\)

30. Regulation 18 of Annex VI provides safeguards to any ship failing to meet the emissions limits because of the non-availability of compliant fuel, where the operator can demonstrate it had made its best efforts to secure appropriate fuel. This provision has been omitted from the Commission’s proposal, which leaves open the possibility of ship

\(^{40}\) Q21.

\(^{41}\) Q80 and Q93.

\(^{42}\) Q67.

\(^{43}\) Ev23 para 8.

\(^{44}\) Ev w30 para 9.
operators being penalised (either through fines or forced suspension of activity) in the event of a short-term interruption of compliant fuel outside their control. It would be highly undesirable, and economically damaging, for operators to suspend services in such circumstances, and it seems unhelpful for the Commission to have removed a sensible provision contained in Annex VI, particularly in light of the concerns over fuel availability in the near future.

31. Concerns over the 0.1% limit on passenger ships outside ECAs from 2020 are more complex. The Commission argues that passenger ships need tighter emissions limits because they typically operate close to shore where the health effects of emissions are most damaging, and that this view is supported by their cost benefit analysis. The Commission also argues that once the ECA limit of 0.1% comes into force from 2015, refineries will switch production towards low-sulphur fuel, making it difficult for operators to source 1.5% fuel. By bringing the limit for passenger ships into line with those for ECAs, operators will be assured that compliant fuel will be available. Furthermore, the move from the 1.5% to the 0.1% limit for passenger ships will come into force from 2020, at the same time as the global limit for all ships outside ECAs falls to 0.5%; the Commission told us that the price differential between 0.5% and 0.1% fuel will be 5% at most.

32. The concerns of shipping operators over the availability of fuel, the maturity of abatement technology and the timetable for implementation stem from the core requirements of Annex VI, rather than the variations proposed by the Commission. Tighter emissions limits have been under discussion for many years, during which time shipping has enjoyed favourable treatment when compared with the emissions limits and fuel costs faced by the road haulage industry.

33. However, we acknowledge that these regulations will impose significant costs on operators, and we therefore agree that the Commission should impose no additional burdens on operators at this time over and above the requirements of Annex VI. The Government should build on its own 2009 impact assessment for the revised Annex VI to evaluate the additional implications on jobs and the wider economy arising from the Commission’s proposal.

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45 Q86.
46 Q109.
The Department’s position

34. The proposal to amend Directive 1999/32/EC was published by the Commission on 15 July 2011 and is currently being discussed by Member States. The Government has not yet reached a formal position on the proposal, but wrote to the Commission in September 2011 to reiterate its strong support for the revised Annex VI and to welcome the Commission’s aim of bringing EU sulphur limits in line with those agreed at the IMO.

35. We endorse the Government’s support for the more stringent regulation of sulphur emissions contained within the revised Annex VI. This agreement was the result of lengthy and complex negotiations, in which the UK played a leading role, and has been accepted internationally. The Annex VI provisions will markedly reduce sulphur emissions from ships, and consequently improve air quality in the UK and beyond, delivering significant health and environmental benefits.

36. In its letter to the Commission the DfT described the IMO agreement as “a global compromise solution as a result of many hours of difficult negotiations”, and one that “we would be most reluctant to unpick”. It expressed its concern about those parts of the proposal that differ from Annex VI, specifically that:

- the proposal does not replicate the provision relating to non-availability of fuel which is contained in Annex VI, and that it would be unreasonable to suspend shipping activities should compliant fuel not be available for any reason;
- it does not explicitly state that the effective date for the 0.5% fuel standard (due from 2020) will match the date agreed by the IMO upon completion of its fuel availability review in 2018;
- the UK is “not convinced” of the need for the 0.1% sulphur limit on passenger ships operating on regular services to or from EU ports outside ECAs, and that further evidence is needed;
- the proposal contains unnecessary provisions concerning the frequency, methodology and definitions for fuel sampling, adding to the regulatory burden for the shipping industry and the Maritime and Coastguard Agency; and
- additional trials of abatement technology would be required, which would be unnecessary for systems already approved by the IMO.

37. The Minister expressed these concerns more forcefully when he told us that “we are telling the Commission in the strongest possible terms that enough is enough”. He stated that the Government would resist any part of the Commission’s proposal that goes beyond the requirements of the revised Annex VI. He also told us that he was simply “not willing to negotiate” with the Commission on its proposals, and that “we have absolutely no

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48 Ev 40.
49 Q128.
intention as a member of the European Union of going any further than the existing IMO commitment.\textsuperscript{50}

38. Refusing to negotiate, however, is not a practical way of delivering the Government’s objectives of aligning the Commission’s proposal with Annex VI. The Government will need the support of other member states if it is to succeed, but while the Minister told us that states around the Baltic and in Scandinavia had expressed concerns about the Commission’s proposal, he also admitted that he did not know which states might support the UK in attempting to block it.\textsuperscript{51} The Government must negotiate with the Commission if it wants to align its proposal more closely with Annex VI. Furthermore, to have any chance of success the Government will need to forge alliances with other member states. Refusing to negotiate, as the Minister suggested, is not a credible strategy for securing changes to the Commission’s proposal.

39. Clearly, the most contentious aspects of the proposal are the lack of provisions for non-availability of compliant fuel and the 0.1% limit on passenger ships outside ECAs. We agree with the Government that the Commission’s proposal should replicate the requirements of Annex VI. It is unnecessary and unacceptable for the Commission’s proposal to vary from Annex VI, which is a package of measures that was the product of arduous negotiation. We recommend that the Government focus its efforts on adding a provision to the revised Directive regarding the non-availability of fuel and on resisting the 0.1% limit on passenger ships outside ECAs.

40. A number of witnesses from the shipping industry have told us that they are currently reluctant to invest in abatement technology because the Commission’s proposal lacks clarity in certain areas. Some witnesses have mentioned techniques such as emissions averaging, whereby an operator would be able to meet the objectives of the regulations by averaging emissions from the various engines on board a single ship, or even across its fleet as a whole.\textsuperscript{52} Others have asked the Commission to explain what is meant by “passenger ships on regular service”, as these will be subject to tighter emissions limits even when operating outside ECAs.\textsuperscript{53} In light of the costs involved, and concerns among operators about abatement technology, it is imperative that the Commission provides clear guidance to all stakeholders on the requirements of the proposal and how they can be met. The Government must push the Commission to clarify aspects where its proposal is not clear, such as the definition of passenger ships on regular service and the use of techniques such as emissions averaging.

41. The Commission has agreed that, under certain circumstances, Member States can provide state aid to the shipping industry to help meet the additional costs of compliance. Maritime UK, Stena Line Ltd and P&O Ferries Holdings Ltd, for example, have argued that the Government should fund, or provide operators with incentives to invest in, research and development into abatement technology.\textsuperscript{54} The Minister, however, categorically ruled

\textsuperscript{50} Q156 and Q154.
\textsuperscript{51} Q156.
\textsuperscript{52} Ev 29.
\textsuperscript{53} Ev 24 para 13.
\textsuperscript{54} Ev 28,9 and 16.
out the possibility that the Government would offer such assistance to the UK shipping industry. We agree that, despite the significant costs that these tighter emissions limits will undoubtedly impose on shipping operators, it would not be appropriate for the Government to provide them with financial support, particularly in the current economic climate. It is the responsibility of shipping operators to ensure that their activities comply with relevant environmental legislation, and they are liable for the costs of doing so.

55 Q140.
5 Conclusion

42. Sulphur emissions are harmful to our health and to the wider environment, and need to be reduced. It is right that the shipping industry is being required to reduce its emissions in the way that other industries and transport sectors have already done. Current forecasts indicate that shipping in the EU will produce more emissions than all land-based sources by 2020. Tighter emissions limits will provide an important incentive to improve.

43. In order to be effective, emissions regulations must be agreed and applied internationally. We fully support the Government’s commitment to the revised Annex VI regulations which were agreed on a global basis at the International Maritime Organisation in 2008. It is clear that these will impose significant costs on shipping operators in terms of higher fuel costs, but in our view the regulations are necessary and proportionate to the problem.

44. The Commission is currently bringing Annex VI into EU law by revising existing Directive 1999/32/EC. Unfortunately, in doing so the Commission has also proposed a number of variations from Annex VI, in what appears to be a classic case of “gold-plating”. The Government should resist the imposition of any additional regulations proposed by the Commission which fall outside Annex VI. In particular, we recommend that the Government focus on removing the tighter emissions limits on passenger ships outside ECAs and on ensuring that the Directive replicates the safeguards regarding the non-availability of suitable fuel included in Annex VI. In addition, we recommend that the Government keep us informed of developments during negotiations on the draft Directive.
Conclusions and recommendations

Regulations to limit emissions from ships

1. We accept that the benefits of the revised Annex VI significantly exceed the costs of compliance. It is clear that, while the benefits are shared widely among the general population, the costs will fall directly on ship operators. However, the health benefits that will be gained from the Commission’s additional proposal on passenger ships will only exceed the costs if abatement technology is used, and, as we discuss in part three, it is not yet clear whether this technology will be available in the near future. (Paragraph 18)

The response of the UK shipping industry

2. We recommend that the Government establishes how the Commission will be monitoring the impact of its proposed revised Directive on maritime sulphur emissions on the shipping industry and asks what the Commission will do to mitigate the risk of modal shift from sea to road occurring as a result. (Paragraph 24)

3. We are not in a position to judge the maturity of abatement technology, but we note the comments of the Commission and others that similar concerns about availability were expressed before the introduction of emissions regulations on cars, and that suitable technology was developed to meet those requirements, and at substantially lower cost than originally predicted. The trend towards tighter emissions regulations has been obvious since at least the 1990s when the original Annex VI was being drawn up, and it is our view that operators could have been more proactive in driving this technology forward. Maritime UK told us that research and development “can only be achieved by getting the equipment fitted in ships in sufficient numbers”; we agree wholeheartedly and urge operators to take action now. In addition we recommend that the Government work with industry to identify available abatement technologies and to identify and help overcome barriers to the development of this equipment. (Paragraph 28)

4. The concerns of shipping operators over the availability of fuel, the maturity of abatement technology and the timetable for implementation stem from the core requirements of Annex VI, rather than the variations proposed by the Commission. Tighter emissions limits have been under discussion for many years, during which time shipping has enjoyed favourable treatment when compared with the emissions limits and fuel costs faced by the road haulage industry. (Paragraph 32)

5. However, we acknowledge that these regulations will impose significant costs on operators, and we therefore agree that the Commission should impose no additional burdens on operators at this time over and above the requirements of Annex VI. The Government should build on its own 2009 impact assessment for the revised Annex VI to evaluate the additional implications on jobs and the wider economy arising from the Commission’s proposal. (Paragraph 33)
The Department's position

6. We endorse the Government's support for the more stringent regulation of sulphur emissions contained within the revised Annex VI. This agreement was the result of lengthy and complex negotiations, in which the UK played a leading role, and has been accepted internationally. The Annex VI provisions will markedly reduce sulphur emissions from ships, and consequently improve air quality in the UK and beyond, delivering significant health and environmental benefits. (Paragraph 35)

7. The Government must negotiate with the Commission if it wants to align its proposal more closely with Annex VI. Furthermore, to have any chance of success the Government will need to forge alliances with other member states. Refusing to negotiate, as the Minister suggested, is not a credible strategy for securing changes to the Commission’s proposal. (Paragraph 38)

8. We agree with the Government that the Commission’s proposal should replicate the requirements of Annex VI. It is unnecessary and unacceptable for the Commission’s proposal to vary from Annex VI, which is a package of measures that was the product of arduous negotiation. We recommend that the Government focus its efforts on adding a provision to the revised Directive regarding the non-availability of fuel and on resisting the 0.1% limit on passenger ships outside ECAs. (Paragraph 39)

9. The Government must push the Commission to clarify aspects where its proposal is not clear, such as the definition of passenger ships on regular service and the use of techniques such as emissions averaging. (Paragraph 40)

10. We agree that, despite the significant costs that these tighter emissions limits will undoubtedly impose on shipping operators, it would not be appropriate for the Government to provide them with financial support, particularly in the current economic climate. It is the responsibility of shipping operators to ensure that their activities comply with relevant environmental legislation, and they are liable for the costs of doing so. (Paragraph 41)

Conclusion

11. The Government should resist the imposition of any additional regulations proposed by the Commission which fall outside Annex VI. In particular, we recommend that the Government focus on removing the tighter emissions limits on passenger ships outside ECAs and on ensuring that the Directive replicates the safeguards regarding the non-availability of suitable fuel included in Annex VI. In addition, we recommend that the Government keep us informed of developments during negotiations on the draft Directive (Paragraph 44)
Formal Minutes

Tuesday 28 February 2012

Members present:

Mrs Louise Ellman, in the Chair
Jim Dobbin
Mr Tom Harris
Mr John Leech
Paul Maynard
Iain Stewart
Graham Stringer
Julian Sturdy

Draft Report (Sulphur emissions by ships), proposed by the Chair, brought up and read.

Ordered, That the draft Report be read a second time, paragraph by paragraph.

Paragraphs 1 to 44 read and agreed to.

Text boxes agreed to.

Summary agreed to.

Resolved, That the Report be the Sixteenth Report of the Committee to the House.

Ordered, That the Chair make the Report to the House.

Ordered, That embargoed copies of the Report be made available, in accordance with the provisions of Standing Order No. 134.

Written evidence was ordered to be reported to the House for placing in the Library and Parliamentary Archives.

[Adjourned till Tuesday 6 March at 10.00 am]
Witnesses

Tuesday 25 October 2011

Lars Olsson, Vice Chairman and John Garner, Maritime UK, Robert Ashdown, ECC Director, Environment, Technical and Operations, European Cruise Council, and David Elson, Technical Director, British Marine Federation

Ev 1

Christer Ågren, Director, Air Pollution & Climate Secretariat, Simon Birkett, Director, Clean Air in London, Steve Todd, National Secretary, RMT, and Donald Gregory, Director, EGCSA

Ev 8

Christian Wimmer, policy officer in the Industrial Emissions, Air Quality and Noise Unit, European Commission

Ev 12

Tuesday 1 November 2011

Mike Penning MP, Parliamentary Under-Secretary of State, and Godfrey Souter, Shipping Policy Division, Department for Transport

Ev 17

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Additional material from the British Marine Federation
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Oral evidence

Taken before the Transport Committee
on Tuesday 25 October 2011

Members present:
Mrs Louise Ellman (Chair)
Steve Baker
Julie Hilling
Kwasi Kwarteng
Mr John Leech
Paul Maynard
Iain Stewart
Graham Stringer
Julian Sturdy

Examination of Witnesses


Q1 Chair: Good morning, gentlemen, and welcome to the Transport Select Committee. Could you please identify yourselves with your name and organisation? This is to help us with our records.

John Garner: John Garner, Maritime UK.
Lars Olsson: Lars Olsson, Maritime UK.
David Elson: David Elson from the British Marine Federation.

Q2 Chair: Thank you. Could you tell us, to start with, what your main concerns are about the proposals to reduce sulphur emissions from ships?

Lars Olsson: The main concern is about cost. Switching from the fuel that we are using now to 0.1% sulphur fuel by 2015 will add costs of up to 87% to what we are operating today. We have studies showing that it may add up to £3.6 billion to the annual cost of shipping around the UK. The problem we have as an industry is that we cannot absorb this additional cost and we have to offset it by adding it to transport prices, for both passengers and freight. This, we believe, will lead to modal shift. It will affect our businesses in a radical way and it may lead to route closures and loss of jobs, investment and so forth. So there will be a big change in the industry.

Q3 Chair: Thank you. Could you tell us, to start with, what your main concerns are about the proposals to reduce sulphur emissions from ships?

Robert Ashdown: Just briefly, Madam Chairman. I would add that the lack of regulatory certainty is a big factor with these regulations. We are by no means sure that there will be supplies of compliant fuel post-2020 and perhaps post-2015. The regulatory certainty which accompanies some of the alternative compliance mechanisms is also less firm than we would like. Both these factors are causing, as John said, a good deal of uncertainty within the industry.

David Elson: Madam Chairman, the industry I represent is somewhat different. I represent the recreational superyachts and small commercial marine industry. The overwhelming majority of the vessels built by our members are small, less than 24 metres. They are currently operating on relatively low sulphur fuel, so the direct impact of regulation 14 will be less felt by our members. But regulation 13, concerning the marked reduction in nitrogen oxide emissions, does cause our members great concern due to the size of this equipment, which will not fit in the vessels we are currently producing. The vessels have very low operating hours, so we consider this disproportionately burdensome. There is currently no unified definition of recreational purposes, which is an exemption within MARPOL, Annex VI, and that varies throughout the world.

Q4 Chair: You referred to loss of investment as well as cost. Could any other members of the panel perhaps tell us a little more about the cost issue? Is there also an issue about loss of business?

John Garner: From an investment perspective, at the moment the industry is almost in a little bit of a hiatus as to the future and, therefore, companies are loth to invest in new ships and new routes. Certainly, on the ro-ro passenger side, there are very few new buildings at the moment. People need some certainty with regard to future regulations, whether it is with regard to innovation, technology or the technologies that can assist, such as LNG in the future or seawater scrubbers.

Q5 Chair: Some of your vehicles already operate on low sulphur fuel.

David Elson: They do. They predominantly have high speed diesel engines, so they operate on lower sulphur fuels compared to the commercial shipping industry.

Q6 Chair: Can you explain the difference between the MARPOL Annex VI regulations and the EU’s proposals in terms of their impact on you?

John Garner: MARPOL Annex VI are international regulations applied to all ships in all parts of the world. They are global regulations and, as such, MARPOL Annex VI was a package of regulations. Within that, there was the ability to create ECAs, or SECA, as they were first called—Sulphur Emission Control Areas. The first ECA or SECA was created in the Baltic and the second one in the North sea. Within that area there are controls for sulphur emissions that
all ships must meet. In other seas around the world, the global limit is 4.5% at the moment, whereas within these SECA's it is 1.0%.

The EU directive is seeking in broad terms to align itself with MARPOL Annex VI but actually goes above and beyond the requirements from it. In that way there is some gold-plating, as we would see it. In these waters, other than the SECA's, there is a proposal to align the directive with the 0.1% requirement within the SECA's, yet no environmental study has been done which calls for such low levels.

That could bring a distortion of competition between cargo vessels and passenger vessels, because in the non-SECA waters cargo vessels of fewer than 12 passengers do not need to comply, whereas passenger ships to and from EU ports have to comply with 1.5%.

There would be a distortion of the balance between cargo, freight carriers and passenger ships. We feel that the freight hauliers will put their cargo on the cargo ships and that will bring a bigger cost burden and perhaps the closure of passenger ferry services in places such as the Irish sea and the Mediterranean, where there are currently no ECAs.

Q7 Mr Leech: You mentioned two areas—the Baltic and the North sea. What impact has the reduction in sulphur emissions allowed in those two seas on shipping in those two seas?

John Garner: To date, there has been a reduction such as a rationalisation of some services on middle distance routes—for example, in the North sea, which is in those areas. To date the premium, taken with all the iterative changes, is about $50 per tonne of fuel. I think that is the premium today from before the ECAs were in place.

Q8 Mr Leech: But in terms of what impact that has had on shipping and the number of shipping movements in those two waters, what actual impact has it had on the day-to-day operations, the number of jobs in those areas or movements to avoid using those particular waters?

John Garner: Certainly, in the North sea we have reduced our capacity by a quarter—25%. We took off freight ships and have rationalised services. That has meant there has been less call for port services to the ports which we call in on in the North sea, Teesport being one of those ports. Therefore there was less of a requirement for us to have stevedores servicing our ships. There has been an impact in ports such as Teesport in the North sea area.

Q9 Mr Leech: How does cargo get to those places instead? What is the alternative route for people to get things from A to B?

John Garner: There are other potential routes such as a short sea service or, potentially, we see shippers using the west coast of the UK to bring cargo in and take it across the M62 corridor.

Q10 Mr Leech: On one slightly unrelated question, what proportion of shipping throughout the world comes through the area that would be impacted by the EU directive?

John Garner: I honestly do not know the answer to that question, but I could check and write to you.

Q11 Mr Leech: But would I be right in thinking that quite a significant chunk of shipping goes through the EU area?

John Garner: Yes, there is a significant amount of shipping.

Q12 Mr Leech: Is there a possibility that, if the EU directive goes ahead, the rest of the world may just follow the EU’s lead?

John Garner: I think that would be very unlikely because the rest of the world is regulated by MARPOL Annex VI and there have not been the moves to create new ECAs in other places such as the Mediterranean. Recently, there was one created on the US coast—US and Canada—and there is talk of others, perhaps in Japan, but to date they have not been brought into place.

Q13 Chair: Does anybody else want to add to these points?

Robert Ashdown: There is just one point. You asked about the difference between the EU regulations and the international regulations. One significant point is that the international regulations were recognised to be extremely challenging for all the stakeholders, whether that be the refining industry, the shipping industry or, indeed, the port infrastructure industry. This package of measures was very much that—a package.

One significant omission from the European directive is a derogation for ship owners in the event that supplies of compliant fuel are not available. What that essentially means is that, if a ship goes to port and, despite its best efforts, cannot buy compliant fuel, then that ship may proceed without having to delay the voyage unduly or deviate from course. That derogation is missing from the European proposals and we think that is a significant omission which we would like to see remedied.

Q14 Chair: Would you say that it is fair to say generally that the MARPOL Annex VI regulations have been accepted, even if reluctantly? Have they been accepted as a way forward and the problem is with the Commission’s proposals?

Lars Olsson: Yes, in general they have been accepted. However, there is an omission here in the way that it was decided. There is a big difference between deep sea/long sea shipping and short sea shipping and cruise. I think that was missed in all this. Long sea/ deep sea shipping will spend a very short time of its journey within the SECA's and it is easy to offset that small additional cost. It is more of a technical problem to be able to carry two types of fuel, which will be overcome. For short sea shipping such as ferries and cruises that are within the ECAs, it is much more difficult because we spend all our operation time within the SECA’s and we will take the full brunt of this cost increase. The idiosyncrasies of short sea shipping have not been recognised fully when the decision was made.
Q15 Chair: Mr Elson, do you have the same view?

David Elson: Specifically on that directive, yes. Within the recreational craft industry we are governed by a different European directive, the Recreational Craft Directive, which has exhaust emissions contained within it, including those for charter vessels. Currently, the UK position is that they will impose the MARPOL emission requirements on to charter vessels, despite there being the Recreational Craft Directive in place.

Q16 Paul Maynard: Would you or Maritime UK, in particular, be willing to comment on the example in Sweden where they have improved compliance by charging differential dues between those ships operating on low sulphur fuel and those operating on the higher fuel. Do you think that that would be a longer period? Do you feel that that has been a positive idea that Sweden has introduced that we could perhaps learn from here?

John Garner: Measures such as that are positive because they give opportunities to comply with regulations through a number of means, but the sorts of things that we used in the early days were a number of tools within the toolbox which would allow people to gain compliance. To assist with that, abatement technology, as such one example, was brought within the regulations. But the example that you use is also another example of how it can help people to comply in the longer term and perhaps get over some short-term challenges.

Q17 Paul Maynard: I am no expert on this issue, perhaps unsurprisingly since it is rather complicated, but clearly one of the key aspects is the use of abatement technology, also known as scrubbing. If I could ask Mr Garner with his P&O hat on, there was some very interesting evidence in what you have submitted about your experience with trying to fit scrubbers on to your ships over a period of 10 years. Could you possibly summarise for the Committee what lessons you have drawn from your attempts to fit scrubbers?

John Garner: Yes. From my P&O Ferries background, we fitted seawater scrubbers to a cross channel passenger ferry, Pride of Kent, in 2003. That was because the ship was undergoing a major conversion and we fitted individual scrubbers to four main engines and four generators, so it was a full ship set. Unfortunately, with early technology, there are always challenges that are difficult to overcome and we had difficulties in overcoming technical problems with that system. The main engines’ scrubbers never proved to be efficient and we gained about a 55% scrubbing efficiency on the generators. That was our early 2003–2004 experience.

We moved on and fitted a different seawater scrubber to a generator in 2005. We have had better success with that in that we have gained 90% efficiency of scrubbing, but, unfortunately, we have not had continuous operation because it was mainly a test bed platform. We have not had reliability, we have had lots of crew intervention because of technical problems and we have not yet gained compliance. Today, I cannot use that instead of compliant fuels. Those are some of the difficulties that we have experienced in that, as an alternative, we support the principles and we have been very much actively engaged, but we have not, unfortunately, been able to bring it to closure where it has full approvals for use instead of the compliant fuel.

Q18 Paul Maynard: Would you say that the looming deadline you have to adhere to is not driving the technological advances that would allow this technology to be applied more widely?

John Garner: I do not think the deadline is particularly driving the advances because this technology has been around for 30 years in land-based industries. The issue is putting it on to a marine platform and then dealing with the different waste streams such as the emissions to air, any emissions to the sea and any sludge that is collected. For instance, they do not want emissions into the Baltic or certain ports such as Gothenburg and, therefore, they have developed freshwater scrubbers. Again, that is a new technology. The challenge for that industry is being ready in sufficient time and the technology meeting the compliance requirements. We think it has a lot of opportunity but it is not there yet, in our experience.

Q19 Paul Maynard: Finally, the Exhaust Gas Sealing Systems Association that we are about to meet claim they have yet to have any interaction with Maritime UK over the issue of scrubbers. Do you agree with that? Have you had any contact?

John Garner: I have had lots of contact with the gentleman who will give evidence today because he was part of a company called BP Krystallon, who helped us install the second scrubber on board our ship. Maritime UK is a broader context of maritime interests of which the Chamber of Shipping is one and the Passenger Shipping Association is another. I think there has been contact, certainly with the members of those associations.

Q20 Chair: But why has progress on abatement technology like scrubbers been so slow? Is it because you have not been forced to do things so you have just not bothered about it?

John Garner: On our behalf, we had sufficient interest in 2003 to install a full machinery plant with seawater scrubbers. Yes, it was pioneering and we could have expected some challenges, but we also expected to be successful and to have support from the companies who were assisting us to implement it. Unfortunately, what is needed is a big research and development department that will need knowledge about materials, fatigue and things like that. It would also be helpful if the Maritime and Coastguard Agency and the Department for Transport had an interest in such technology because it is one of the tools in the toolbox that the UK Government have agreed to within regulations. Yet we have not had interaction with the Maritime and Coastguard Agency, who do have a research and development team.

Q21 Mr Leech: On that particular answer you have just given, do you think that the industry would be more inclined to invest in R and D if the shipping
industry appeared to be more enthusiastic about finding a technological solution with the scrubbers? John Garner: Various manufacturers with different types of scrubbers are offering solutions to the industry. The industry is not yet convinced because they have not seen success stories. It needs people working together in partnership, ship owners providing marine platforms and manufacturers providing scrubbers, to demonstrate together that these appliances will work effectively.

Robert Ashdown: I would just add a couple of points to that. As John says, present experience of existing scrubbers has led to some doubts about their reliability and their ability to perform within a compliance regime. This is where you solely rely on the scrubber to meet your environmental objectives and do not carry the supplies of compliant fuel instead. But, also, we spoke earlier about regulatory certainty and, of course, in handling the waste discharges from these scrubber technologies, it is very important, especially in the cruise industry where we may visit 27 or 30 different ports in a season, to know that we can use that scrubber in every port that the ship visits and elsewhere. Of course, may have to deviate for bad weather or medical emergencies and so on.

Without that absolute regulatory certainty that that scrubber can be used in every port in the area in which the ship is operating, it becomes a much more difficult investment decision to make. These are big decisions. To retrofit or to fit a cruise ship with a scrubber costs between $13 million and $20 million per ship and then that has running costs of some $150,000 to $900,000. These are big investment decisions and we really need the regulatory certainty if companies are to make those with confidence.

Q22 Chair: But you know that there are changes coming, whichever change it is. Do you not think it is the responsibility of the industry to do this development itself?

Robert Ashdown: There are two parts to that question. First, it is up to the regulators to make the regulation sufficiently robust so that we know the framework within which to make those decisions. But then, of course, we are dependent upon the manufacturers to supply these pieces of equipment. We should not be overoptimistic as to their level of development. These are essentially prototype technologies. There are very few of them operating in the world, very few operating on main engines and even fewer operating as part of a compliance regime. The level of experience is low and, of course, these have high capital costs. To try and take that business model to a bank or a lender and say, “We want you to lend for a product which is unproven and which may or may not work,” poses significant difficulties for companies.

Q23 Mr Leech: Mr Ashdown, there has been a big expansion of the cruise industry in recent years and there have been a lot of new ships being built. Have you any idea how many new ships have been built in the past decade?

Robert Ashdown: It varies from ship to ship. An increasing number of new ships are being built with, certainly, scrubbers or the footprint for scrubbers to be fitted at a later date. But, of course, depending on whether or not you wish to make that capital investment. For instance, if you plan to operate that ship predominantly outside ECA areas, then you may choose not to fit the scrubber at the new build stage.

Q24 Mr Leech: But the technology is there, a lot of new ships are being built that could have been built with that technology, and you are saying that a number of them—I do not know what proportion—have not either had them fitted or even been put in a position where they could be fitted very easily. Do you think that the industry would have taken that view had there been a more robust intention of introducing legislation to reduce sulphur emissions?

Robert Ashdown: The technology is not there. I do not think anybody who fits a scrubber will have absolute confidence that that scrubber will work in a compliance regime. That is what you need because, if you cannot guarantee the scrubber will work in a compliance regime, you have to have all the additional back-up plans, such as additional piping and tankage, to cope when the scrubber is not in operation. I do not think the technology is there yet. We are working hard. A number of our members are actively trialling scrubbers as we speak and we would like it to be there, but at the moment it is just not a certain enough technology to make it a cast-iron or easy decision for cruise companies to make when building the ships.

Q25 Mr Leech: How many years do you think the technology is away from being certain?

Robert Ashdown: Not too many. This is crystal ball stuff really, but we would have thought perhaps in 2017–2018 we may see a greater market penetration of scrubbers. But that in itself poses some problems because to make a scrubber commercially effective you need to be able to scrub down from a higher sulphur fuel. The danger is that, certainly within the Baltic sea in 2015, if the market penetration of scrubbers remains very low, then the ships will be using distillate fuels to remain in compliance. If all the ships are using distillate fuels, that means the bunker supply industry may no longer supply residual fuel oils into the Baltic sea area. So, when the scrubbers do come on stream in, say, 2017–2018, there will not be the higher sulphur residual fuel to purchase the scrub down from, which is the rationale for the business case.

Q26 Mr Leech: In terms of the cruise industry, if the EU directive goes ahead and we have a different regime in Europe from the rest of the world, what impact would this have on the industry in terms of the number of cruise ships that will be sailing around the Mediterranean and the Baltic in the future?

Robert Ashdown: That is a complicated question because the European directive is in the process of being reviewed and we are not quite sure how the revised directive is going to fall out. But at the moment the sulphur limit and the timelines between the international and the European regulation are the same. We have the same 1% at the moment, 0.1% in 2015 and 0.5% globally in 2020; so those elements
The first point to make is that, in the cruise sector, we do not see any commercial or competitive advantages from scrubbing technology. The cruise sector, quite uniquely almost in the shipping industry, is a business to consumer industry. We sell our fares directly to the consumers. It is incumbent upon the Committee to comply with the new proposed regulations. Am I correct in that?

Q28 Julian Sturdy: Just want to follow on from Mr Leech’s questions, if I can. Other industry sectors such as power stations and road transport have already been required to invest to make reductions in their sulphur emissions. But I think this is quite important from the evidence that has come out so far. What you are saying, in effect, that will lead to a transfer of jobs from the Mediterranean countries to the North sea countries. The Baltic and the Mediterranean states have never applied to the IMO for it to be designated as such an area. The starting point, if you like, is that it is incumbent upon the surrounding littoral states to apply to the IMO for an ECA to be imposed in their waters. The Baltic and the North sea countries have done that, but the Mediterranean countries have not.

Q29 Julian Sturdy: If I can follow on from that then, to me, this is the crunch point. Without restrictions imposed, do you believe there will be an advance in technology because, in a way, technology in other areas has been advanced because you have had to advance it if you want to stay commercial? Is it coming down the line or is it there? Will it happen without these restrictions?

John Garner: It is certainly coming and we see different types of scrubbers brought to the market now. There are freshwater and saltwater scrubbers. There are scrubbers that use granulates. There are now new products coming to market that certainly were not there in 2003, so there is an effort being made from the manufacturers. They are also being made lighter and out of different materials now; there is certainly an effort there. We need to see that installed on board the ships and operating efficiently and reliably. Unfortunately, we have not had that yet.

Q30 Julian Sturdy: I know this question has been asked before but I do not think we have had a satisfactory answer yet. How long do you think that is away? Can you give us any sort of time scales?

John Garner: Research and development will be two to three years. If we were to place an order tomorrow, it would be eight to 10 months. If you add three years and another year, you are really talking about four or five years. That is the general industry feeling.

Julian Sturdy: Does everyone agree with that?

Chair: Does anyone disagree with that? No.

Q31 Graham Stringer: I would also like to follow John’s questioning. Basically, it was asking about the shape of the industry in the future. Is what you are saying that, if there are not changes, there will be a bias towards the Mediterranean and less Baltic cruises because they will be more expensive?

Robert Ashdown: Yes, that is absolutely the case. You will have significant additional fuel costs in the Baltic that will not be there in the Mediterranean. I should just make the point that the cruise sector, quite uniquely almost in the shipping industry, is a business to consumer industry. We sell our fares directly to the passengers; those costs have to be directly incorporated within the ticket price.

Q32 Graham Stringer: I am new to this area. Do you know why the Mediterranean is not an Emission Control Area? It strikes me that it has vulnerable ecosystems.

Robert Ashdown: The short answer is that the Mediterranean states have never applied to the IMO for it to be designated as such an area. The starting point, if you like, is that it is incumbent upon the surrounding littoral states to apply to the IMO for an ECA to be imposed in their waters. The Baltic and the North sea countries have done that, but the Mediterranean countries have not.

Q33 Graham Stringer: Just to paraphrase what you are saying, in effect, that will lead to a transfer of jobs from the Mediterranean area, Germany and the UK, to the Mediterranean, if nothing changes.

Robert Ashdown: Yes; we would expect to see the Mediterranean become significantly more competitive.

Q34 Graham Stringer: What then would you say to the Minister who is talking to the European Commission? What would you ask him to be asking the Commission for and, indeed, when we have the Commission here later, what would you say to the Commission?

Robert Ashdown: The first point to make is that, in the cruise sector, we do not see any commercial or
competitive advantage in reducing everyone to the same lowest common denominator by imposing an Emission Control Area in the Mediterranean. The reasons why we are struggling with the Emission Control Areas are not that we disagree with the policy objective. We understand that the industry needs to move to cleaner fuels and we want to get there. Our real difficulty is that it is happening too fast for the technology to be able to cope. We do not see making the Mediterranean an ECA as a competitive solution to this problem. What I would ask the Minister and the Commission to do is this. I would ask the Commission to align the directive only with the internationally agreed solution and not to gold-plate this in any way. I would ask the Minister to encourage his officials and the Maritime and Coastguard Agency to allow all sectors to explore fully the range of flexibilities in terms of compliance options that the current regulations at the IMO might permit.

Q35 Steve Baker: Mr Ashdown, you mentioned the capital cost and the operating cost of scrubbers. For those of us not familiar with ship operations, could you just put that in the context of the typical capital cost of a ship and its operating costs? For example, for a typical cruise ship, I think you said it would be $25 million for the scrubber. How much would the ship cost, just roughly?

Robert Ashdown: I hesitate to give you precise figures. I work for a trade association and not for a company, but a new cruise ship will cost anything up to $500 million.

Q36 Steve Baker: That means the scrubber is quite a significant part of the capital cost.

Robert Ashdown: Yes; these are significant figures. But perhaps I would defer to the people from the companies who are much more familiar with their operating costs and their capital costs.

Lars Olsson: May I add one observation regarding scrubber technology? First of all, it is not there, as we know. Even if it were there, we believe that it is not going to offset the whole cost. There is still going to be a cost of running scrubbers; so you have the capital cost and the running cost. We have done some surveys in our company Stena Line and we believe that it will only offset about 50% of the additional cost. Scrubbers are not necessarily going to resolve the whole issue for us. Even if scrubbers were available today and they could be fitted or retrofitted on ships, we would not have time to retrofit all ships by 2015. It is as simple as that, really.

Q37 Steve Baker: What I am driving at is that the scrubbers are a very expensive technology both to buy and to run or they are a technology which will not fit in the ships you have. Does that mean that the fundamental problem is that ships have for a very long time used what somebody has called residual fuel oils? I am an aerospace engineer; I have never worked with ship engines. Could you just be clear what these residual oils are? Is it right that they are the very dregs that you get out of the refining process that nothing else can be done with?

John Garner: Marine diesel engines normally burn residual fuel, which is the heavier fuel—what is left from a refining process. As an example, in 2004, it used to be 2.4% on Dover-Calais. Today it is 1.0% with the regulations that have been brought in. That is still a heavy fuel residual oil. The difference is that, when you go to 0.1, you are burning a distillate, a marine gas oil, a refined product, and there is a step change in the pricing of that because of the process through which it is produced. That is my understanding. That is why there is a big step change in the costs between 1% and 0.1%, whereas we have not had that sort of step change coming from 2.4% to 1.0%. It is the difference between residual fuel and distillate fuel.

Q38 Steve Baker: In the introductory remarks when somebody—I think, Mr Olsson, perhaps it was you—said that this would be a transformation of the industry, it sounded to me as if part of the reason for that transformation was that we would more or less rule out the use of an entire class of fuel because of the problems with scrubbers.

John Garner: That is very true. Perhaps just to help with that, there is certainly a concern about availability of fuel in 2020, when the global requirement is to go to 0.5%. But there is also a concern for 2015 because some of the crude oils in the Arabian Gulf—today the permitted level is 4.5%—will need some distillate oil to blend with them to come to 3.5%, which is the new regulation from 2012. Some of the available supply of the 0.1% will be used to bring the heavier oils within compliance for world trade, and we think that will take away volume from the market of 0.1% available for 2015. It is by no means certain that there will be enough fuel of 0.1% available in 2015.

Q39 Chair: You mentioned that one of the things we should ask the Commission is about you having the ability to look at all means to deal with this issue. What would happen if the reduced emissions limits only applied to new vessels? How long would it take them to be compliant?

Lars Olsson: We believe, on the ferries side, that there is a lot of old tonnage still out in the marketplace and we have an estimate of about 10 years to comply in that case to get the old ships replaced by new ships. The existing new ships that are in the market already, and there are quite a few new builds, have a lifespan of about 30 years. But, saying that, with the availability of technology coming on stream in the future, there may be opportunities for retrofitting that type of technology on these existing ships as well.

Q40 Chair: How long would it take to become compliant if the rules were changed and it said only new vessels need to comply?

Lars Olsson: We would estimate that to get all the ships to become compliant we are probably looking at something like 10 to 15 years.

Q41 Chair: Ten years from now.

Lars Olsson: Yes, from the time of the decision. At the moment we are in stalemate because we are...
waiting for potential changes to the regulation or the implementation of 2015. When we are in this limbo situation, it is very difficult to make these big decisions in terms of investments that we are talking about. We are talking about it both in terms of investment in new ships, new tonnage, and also retrofitting potential technology, as well as introducing new routes. Those are big decisions for the companies involved.

Q42 Kwasi Kwarteng: Is it right to say that these restrictions, if you like, have been discussed for many years?
Lars Olsson: The discussion, yes. It has been discussed in the IMO MARPOL Annex VI for a number of years. The big step change came in 2008, where this specific issue regarding low sulphur fuel we are talking about now for 2015 in ECAs came in, and the industry believed that it was not preceded by a proper impact study. The decision to go from 0.5%, which we expected and which we could have lived with, bearing in mind it would not require us to go from one type of fuel to completely another, was changed to become 0.1%, which made this step change from heavy fuel oil to a marine gas oil. That was not preceded by an impact study so we did not know what the impact would be.

Q43 Kwasi Kwarteng: Do you think you were caught unawares by this development?
Lars Olsson: Yes, we were—very much so. We were actually quite shocked by that decision when it came out. As an industry we have not been passive; we have been meeting with every shipping Minister since 2008 on this issue. We have been lobbying heavily and raising the concerns that we raise today.

Q44 Kwasi Kwarteng: You do not think there is any way that you can bear any responsibility for not having been adequately prepared.
Lars Olsson: Not for the 0.1%, no.

Q45 Chair: I would just like to clarify, Mr Olsson, something you said. At the beginning, when I was asking if you were satisfied or accepted MARPOL Annex VI, I got the impression that, yes, you were, and that the problem was with what the Commission would be trying to do, but now you are suggesting that is not the case.
Lars Olsson: MARPOL Annex VI is a wide regulation regarding environmental issues in respect of shipping. In general terms, MARPOL Annex VI is accepted. The specific issue here is the 0.1%. We are accepting that the decision has been made to implement a lower sulphur level fuel in the ECAs. The problem we have is in terms of the timing and the way it has been done. That is really what it comes to.

Q46 Chair: It is the timing you are arguing about.
Lars Olsson: The industry is not prepared to do this from 2015.

Q47 Chair: Other approaches you have suggested in dealing with this are averaging and banking. Are those realistic options?

Robert Ashdown: Yes; thank you for bringing this up. As I mentioned earlier, the international agreement has a greater range of flexibilities within it than perhaps the proposed European directive does, and so, because of the very high costs that we see with the new fuel limits and because of the uncertainties surrounding the alternative technologies, we have had to go away and see if there are any other ways that we can try and meet the environmental objectives of the legislation at a lesser cost.

The United States has an Emission Control Area as well. Because that is a fixed regulatory regime, we know exactly what we are dealing with there. So we have invested in a study to look at sulphur averaging within the United States ECA whereby you effectively weight the sulphur emissions in terms of their harmfulness, their proximity to population centres and their proximity to the shoreline. We have found that, if you take 1 as being compliant, on some of the routes in the US ECA we can get down to an environmental benefit of 0.74, while making significant cost savings as well. We do that by burning much cleaner ultra-low sulphur fuels close to shore in ports, near to population centres, right down to 0.001%, which is effectively the same fuel that you put into cars. Then we burn a slightly higher sulphur content fuel when we are further away from shore. By managing to average that out, we see the environmental benefit and we see cost benefit.

The other added benefit of averaging that we see is that, if you were to average on a per ship basis, you may be able to reduce the capital expenditure of investing in alternative technologies. For instance, on a cruise ship which may have six main engines, if you fit scrubbers to two of those main engines and you can average the emissions across the entire engine bank, then that means you may be able to reach compliance without having to fit scrubbers to each of the engines, were that even possible. We very much see this not as an alternative but as a facilitator for new technologies.

Q48 Paul Maynard: Could I just re-ask another question in the hope of getting a slightly clearer answer? I am intrigued to understand why you feel the state should be funding your research and development work in which you have a commercial interest. Can you explain why you feel it is the state’s role to fund your R and D?
John Garner: From our side, I do not think we have said we expect the state to fund it. What we have said is we would like to work closely with the bodies of the state such as the Maritime and Coastguard Agency, the regulators. We have already invested in this technology. We have invested not only money and equipment but management time over the last eight years. We have applied ourselves to the principles of scrubbers on our own behalf because we are seeking environmental solutions and we are still signed up to that. We would like to work more closely with the regulators, though.

Q49 Paul Maynard: So you would continue funding your own research and development without any Government contribution.
John Garner: We are doing that today and we are still trying to gain compliance for the scrubber on board our ship Pride of Kent.

Chair: Thank you very much, gentlemen.

Examination of Witnesses

Witnesses: Christer Ågren, Director, Air Pollution & Climate Secretariat, Simon Birkett, Director, Clean Air in London, Steve Todd, National Secretary, National Union of Rail, Maritime and Transport Workers (RMT), and Donald Gregory, Director, Exhaust Gas Cleaning Systems Association (EGCSA), gave evidence.

Q50 Chair: Good morning, gentlemen, and welcome to the Transport Select Committee. Could you give us, please, your name and organisations? It is for our records.

Christer Ågren: My name is Christer Ågren, I come from the Swedish Air Pollution and Climate Secretariat.

Simon Birkett: Simon Birkett, founder and Director of Clean Air in London, which includes the cross-party Campaign for Clean Air in London which has been going for about six years.

Steve Todd: Steve Todd, National Secretary of the Rail, Maritime and Transport Union.

Donald Gregory: Donald Gregory, Exhaust Gas Cleaning Systems Association.

Q51 Chair: Could you tell us your view on the European Commission’s proposal to introduce stricter controls on sulphur emissions by ships?

Christer Ågren: We very much welcome the proposal from the Commission. The IMO standards were unanimously taken in 2008 and have to be implemented. Having this proposal from the Commission, what they will do is to ensure, by transposing them into EU law, that it helps harmonise the enforcement throughout the EU. So we are happy about that proposal generally.

Q52 Chair: You support what the Commission are trying to do.

Christer Ågren: Yes. We think it could even be improved in some cases, but we support the proposal as such.

Donald Gregory: The Exhaust Gas Cleaning Systems Association supports in principle what the Commission have done. We are disappointed that the consultation process has not been as good as it could have been, and certainly the representation of the industry in the consultation has been merely an internet questionnaire. We would prefer that the Commission align their proposed directive strictly with the IMO MARPOL. Annex VI requirements because not doing so creates uncertainty, and that uncertainty gives reasons for people not to take action, particularly these large investments that we have heard about earlier.

Q53 Chair: So you are supporting what the Commission are doing.

Donald Gregory: We would like the Commission’s final document to look very much like MARPOL Annex VI. The Commission have developed a document which is a hybrid with some variations in it. For example, MARPOL Annex VI very clearly specifies the requirements to develop, design and approve an exhaust gas cleaning system. The Commission have now decided that they require their own set of rules for approval. This costs more money, creates uncertainty and gives ship owners reasons to be worried about investment in the technology.

Similarly, with respect to the processed water which is discharged overboard in an open loop system, the IMO regulations have specified what the requirements are, and this is as a result of quite some consultation and environmental impact assessment work. The Commission have decided that they want each and every ship to be able to demonstrate that their discharge is not causing an impact to the marine and aquatic environment, which we see as an overburdensome requirement and a duplication of something that has already been done.

Q54 Chair: So you are not entirely with the Commission on this.

Donald Gregory: No.

Q55 Chair: Mr Tod, what is your view?

Steve Todd: While supporting a lot of the principle of what has been said, the big impact of the job aspect to the industry and forcing things through too early would have serious concerns for us. I would actually see it as something of a disadvantage to us if employers and ship owners are going to conform to these regulations sooner rather than later. I think they should be given more time. It would have a serious impact on jobs for us; that is our biggest concern.

Q56 Chair: How many jobs do you think will be affected?

Steve Todd: The ferry industry in the UK is probably the last bastion of employment for UK ratings as such and, if that suffers any more, this will be to us like another Channel tunnel-type thing in doing away with the duty-free issue. We lost a lot of jobs through that. You are talking about thousands of seafarers’ jobs being at risk if companies are forced into having to withdraw vessels because they cannot comply by a certain date. I note that the cruise industry has been given quite some time to comply with these recommendations; I think the ferry industry should be given equal time as well.

Q57 Chair: It is time that you are looking for and it is jobs-related.

Steve Todd: Absolutely, yes. You heard the evidence, if I can, Chair, from one of the former witnesses about what the likes of P&O are doing themselves. They are investing in their own sort of technology and doing
their own research on it, but they certainly need more time and probably some more assistance as well.

Q58 Chair: What kind of assistance?
Steve Todd: They are obviously going to need some financial assistance toward what they are trying to do at the moment, especially with the research part of it, I believe.

Q59 Chair: Mr Birkett, do you have a view? Are you supporting the Commission?
Simon Birkett: Clean Air in London supports the IMO proposals. It also sees, though, an opportunity for the Commission to tidy up some of the parts of those IMO proposals—for example, to address some of the issues raised this morning about fuel availability, enforcement and monitoring and so on. I will be pleased to give some detail on it, but Defra, when they produced their Air Quality Strategy in 2007, produced a very convincing financial case, benefits far outweighing costs for 1%, which would be equivalent to the current SECA standard for the whole world, which would include the west coast and the Mediterranean as well.

Q60 Chair: I want to focus for the moment on the UK and the Commission’s proposals as distinct from the MARPOL Annex VI proposals. You supported the MARPOL Annex VI proposals and you said the Commission were going to tidy them up.
Simon Birkett: There is an opportunity for them to tidy them up.

Q61 Chair: On your current understanding of the Commission’s proposals, do you think the Commission are doing it right?
Simon Birkett: There is an opportunity to tighten the fuel availability.

Q62 Chair: But are they doing it? On your current understanding of what the Commission are doing, do you think the Commission are right or do you feel you do not know enough about the detail?
Simon Birkett: I am not an expert on some of the precise provisions, but, in general, things like the fuel availability and the requirement to have fuel available could be further tightened from what the Commission is suggesting, for example. But what Clean Air in London is suggesting is that around the UK there should be a SECA that includes the west coast of the UK.

Q63 Kwasi Kwarteng: Just talking about your perception of the shipping industry—this is mainly, I think, to the RMT—do you think they deliberately delayed introduction of these measures? Do you think they have been smart in the way that they have responded to them?
Steve Todd: No. I actually don’t because they have not delayed it enough, and that is the problem. A lot of ships are of an old age now and you just cannot change ships overnight. It is too big a task to do.

Q64 Kwasi Kwarteng: You are saying that they should be even slower. They are saying they do not have enough time. You are saying they need more time as well.
Steve Todd: That is the belief I have—that they need more time, yes.

Q65 Kwasi Kwarteng: Does anyone else have a view?
Christer Ågren: I have followed this issue since the 1980s. The ship pollution issue was brought up to the IMO by the Scandinavians in the second half of the 1980s. It took 10 years to get the first air pollution control annex.

Q66 Kwasi Kwarteng: Is this with respect to sulphur emissions, though?
Christer Ågren: Yes, sulphur emissions. Primarily, the total focus was on sulphur. It is only more recently, during the last decade, that it has also been looking more closely into NOx and particles. It took 10 years to get MARPOL Annex VI in place. Basically, the long time was because of resistance from the shipping industry and the oil industry. It took another eight years for this annex to enter into force in 2005. Everybody realised this was not strict enough, so they immediately started renegotiations for revising MARPOL Annex VI and spent another three years.

Q67 Kwasi Kwarteng: So they had ample warning.
Christer Ågren: There were discussions and discussions and discussions for 20 years until you arrived at this solution. Then, after the decision was taken, it was questioned for several years instead of just getting on with it. Industry claims there is uncertainty about the deadline of 2015. Who is causing that uncertainty? It is not the people who work with legislation or environmental protection. It is the industry itself.

Donald Gregory: Coming back to Mr Ågren’s comments, we started talking about this back in the 1980s. In the late 1990s, Shell ran two scrubbing technology experiments. As Mr Garner said, in the early 2000s BP and P&O ran some scrubbing technology work. Since then there has been more work done. There has been a considerable amount of investment gone into environmental impact assessments. Currently, the Exhaust Gas Cleaning Systems Association is doing work on looking at the pH discharge; there are eight systems in operation at sea. Yes, the time issue is a little bit of a red herring in our opinion.

Q68 Chair: Could you tell us what the main benefits of these changes would be? How would this affect health and the environment in the UK?
Simon Birkett: In 2007, in the Air Quality Strategy produced by Defra, they assumed 1% sulphur fuel from 2010 for both new and existing ships. They also assumed that NOx emissions would be reduced by

\(^1\) The Air Quality Strategy for England, Scotland, Wales and Northern Ireland (Cm 7169), DEFRA
30% for new ships from 2010, with a change of one thirtieth of the fleet a year. It would take 30 years to replace the entire fleet. That produced by way of outputs a range of net present value benefits between £245 million and £576 million per annum as a result of making those changes. It was identified as the single biggest item, I suppose, of low hanging fruit. They further estimated that that measure of 1% right around the UK would result in between 576,000 and 1.1 million life years saved, which, roughly speaking, is between 576 and 1,100 attributable deaths a year, if this 1% standard was implemented. In terms of exceedances—the Mayor has highlighted the fact that shipping is one of the sources which play a critical contribution at hotspots—Defra estimated that there would be a 19% reduction in the exceedances in 2010 and a 33% reduction by 2020. This 1% measure was seen as very positive in terms of a net present value, life years saved and in addressing the exceedances—the breaches of air quality laws.

**Q69 Chair:** But are you concerned that there could be more carbon emissions because of the modal shift to road transport and extra energy required to produce low sulphur fuel?

**Simon Birkett:** There is a need to trade off, as you say, Madam Chairman, carbon emissions versus other pollutants, and we see that particularly with something like diesel. But with shipping fuel, as a rule of thumb, we ought to be accepting a 1% disbenefit for carbon emissions for a 10% reduction in harmful emissions, because, if we say that you cannot tackle harmful emissions and have any adverse affect on carbon emissions, it would rule out a lot of very feasible measures.

**Christer Ågren:** Increased carbon emissions have been referred to several times and for several reasons. First, the production of distillate fuel would cause higher energy use and, therefore, carbon dioxide emissions in the refineries. But the EU refineries are covered by the Emissions Trading System so there will be no net increase from European refineries or the European Emissions Trading System as a result. It is all claimed under there.

**Q70 Chair:** How could stricter limits be enforced?

**Donald Gregory:** Of the advantages of using technology to achieve the limits is that requirements under MARPOL Annex VI and the rules are that those emissions have to be constantly monitored, measured and recorded. We have been running some experiments where we transmit that data—the ship’s position, speed and emissions—back to shore. In the future, port state control could have quite an easy time in monitoring emissions where technology is involved. It is much harder to challenge with respect to where fuel is involved. But, with the difference in costs, all parts of the industry would want to see high enforcement being undertaken because of the significant competitive disadvantage. For fuel-based monitoring it is very difficult and it is basically manpower going on board ships taking samples. There is no other way of doing it that I know of.

**Q71 Chair:** Would a good way to approach this be for the tighter limits to be applied to new vessels only? Does anybody think that is a way to deal with it?

**Christer Ågren:** If I could possibly comment on your last question on enforcement as well, that is why the EU directive is important in relation to just having the IMO standards. It is because directive EU legislation can ensure that all member states will do this in an appropriate manner rather than having a system that relies on quite different port state control traditions as might otherwise be the case. So I think that is important. Also, with EU legislation, you have potential EU sanctions systems to put in place, which is not the case if you just leave it to IMO standards. That is what I wanted to comment on.

**Q72 Chair:** Would new limits being enforced on new vessels only be a way of dealing with the problem?

**Donald Gregory:** Certainly, from the Exhaust Gas Cleaning Systems Association, we see the market, from a commercial point of view, as a retrofit market. That is the attractive market. We would argue that not every ship will be able to be fitted with a scrubber because there is not the space on some ships, but the large majority could be fitted with a scrubber. With 85,000 ships around the world—that is a total figure, of course, and not all are affected by requirements for lower emissions—that is a significant amount of market and a significant amount of emissions. The new build market over the coming years is not going to be anywhere near as great as that. The impact will be much greater by capping emissions from existing vessels.

**Q73 Paul Maynard:** Mr Gregory, in your written evidence you stated that at no point had Maritime UK consulted with you. Can you just confirm that that is the case?

**Donald Gregory:** Yes. I know John Garner and I regard him as a friend of mine. We have worked together for a number of years. The first time I heard
of Maritime UK—maybe that is my fault—was when I saw the evidence submitted to this Select Committee. I was not aware that there was this consortium of organisations, but maybe that is my ignorance. I apologise for that.

Q74 Paul Maynard: In that case do you feel that, if there had been greater interaction with Maritime UK, there might have been a more rapid introduction of scrubbers, or have you been liaising with companies directly on technology?
Donald Gregory: There has been a difficulty in getting the message across to senior management in the shipping industry in an effective way that technology is available, cost-effective and reliable. As we and our members in telephone conferences puzzle over it, we are not sure why this is the case, but it is my opinion certainly that some of the senior people who are leaders in the shipping industry are not well informed about what their options are.

Q75 Paul Maynard: Finally, Mr Ågren, what do you think the impact on the Baltic economies will be with the introduction of these tighter restrictions?
Christer Ågren: What do you mean “on the Baltic economies”?

Q76 Paul Maynard: The economies of the countries that are bordering the Baltic.
Christer Ågren: I have not seen any study to that effect, so I cannot really answer that.

Q77 Paul Maynard: Do you have an opinion?
Christer Ågren: I cannot imagine it is a flip flop situation where it will all turn as a result of just one type of standards being produced.

Q78 Chair: It would have no impact on jobs, cruising patterns, modal shift or trade routes?
Christer Ågren: I would not think it would have a significant impact on jobs or modal shift, no. I was part of the expert group that was guiding the Swedish Maritime Administration when they did their impact assessment study. There were severe flaws in that study when they estimated the expected costs of the new legislation, for instance, and I made a special reservation to that study to that effect. These overestimated cost figures are repeatedly referred to by the Scandinavian industry when they talk about what you have referred to as the modal shift threat.

Simon Birkett: Could I just pick up one point on the Chairman’s point about just leaving it to new ships? First of all, Defra’s own estimate was that it would take 30 years for that to go through the system and, if you leave it to that sort of length of time, then it is other sectors that yet again have to carry the burden, because there is a huge public health and legal issue to deal with here. New ships are not the way to deal with this.

Q79 Chair: It will take 30 years.
Simon Birkett: That was Defra’s own estimate—one thirtieth of the fleet a year.

Q80 Kwasi Kwarteng: It seems to me that is quite a confused, fractured picture because you have a regulator saying that these guys had ample warning that they should bring it in; the shipping companies are saying they do not have enough time; and then some of the unions are saying they need even more time to implement this. You have very different perspectives. Going forward, how do you think this is going to be resolved? Clearly you have all got to come together and come up with a solution. What do you think is going to happen?
Simon Birkett: There was some very good work done to inform Defra’s Air Quality Strategy in 2007, which showed that in these sorts of discussions the ex-post costs that industry and others were predicting were less than they were predicting and the benefits tended to be greater than had been assumed before. The ratio for road transport and power generation measures was that those benefits typically exceeded the costs by a factor of 20 to 1 when they looked at it after the event. I think it unlikely that the shipping industry would be completely different from the power generation or road transport industries.

Q81 Kwasi Kwarteng: In answer to my question, are you saying that they are going to see sense and they are going to implement the directives sooner rather than later?
Simon Birkett: Yes. If you look at what happened with the electricity industry in the early 1990s, there were stories about great expense for flue gas desulphurisation and that, I think, probably affected the capital structure of those generating companies, but after the event a very cheap solution was found.

Christer Ågren: The crucial point is to stop questioning the agreement because that brings uncertainty. Start acting instead of questioning all the time. Another thing you could do that probably would help quite a lot is to complement the standards with economic instruments such as emission charges. In Norway they introduced a NOx tax, which led to the formation of a NOx fund where they internalised the cost within the industry.

NOx emissions from shipping is the main sector that is covered by these economic instruments, and then anyone who develops new technology or adopts new technology or makes improvements that result in emission reductions gets immediate economic benefits from their reaction. If you do that, that would reward early starters; it would reward anyone who takes on technology or fuels or whatever that reduces the chicken and egg situation—should we have fuel or should we have technology? Will any of them work? Will we have them in time?
Donald Gregory: I would summarise it as Chris just said. We need to remove uncertainty. We need to ensure enforcement because that is going to be very important. We need to create some incentives because at the moment there is no incentive to do anything today if we can do it on 1 January 2015. Given the economic situation in the shipping industry, we need to help the shipping industry with some sort of private financing schemes for these sorts of investments in
technology. So remove uncertainty, help with finance, ensure enforcement is significant and create some sort of incentive schemes.

*Steve Todd:* I would just echo the last comments you made about giving more assistance, whichever way that might be, financially to aid the shipping industry. But I would be very cautious about being too prescriptive on forcing the shipping industry into a position from which it cannot reverse itself. When you alluded before to new builds and things like that, it would be easier to police and have stricter enforcement on newer builds. Looking at how the industry is evolving, not that many ships have been built over the last few years, but more and more tonnage needs to be replaced now. It will be easier to enforce these on newer builds.

*Q82 Kwasi Kwarteng:* Is your objection to enforcing these restrictions on existing ships primarily because you think it will result in an increase in cost and, therefore, a loss of jobs, or do you think there are more structural reasons why these restrictions cannot be put in place?

*Steve Todd:* It it the first instance that you said: it will be a cost on jobs to us.

*Simon Birkett:* Deadlines are important, and, if I could just talk about the legal hotspot position in London, for dangerous airborne particles there have been standards in place since 1999 to be met by 2005. The Government recently applied for a time extension to 2011. They had not actually consulted on their submission and have had to do so, and their time extension may be in doubt. They were trying to avoid being taken to the European Court of Justice. The Mayor himself had estimated that the fines for not complying with the public health standards at hotspots could cause UK fines of £300 million per year. The Mayor said as recently as December last year that shipping was one of those factors which make a critical contribution at hotspots. It is surprising that he is not championing action on shipping because I think he should be, but that is one of the main reasons why Clean Air in London is here. It is to help address this issue of hotspots. But shipping emissions, because they are so pervasive, affect many people in the population, not just those at hotspots.

*Q83 Chair:* How much difference would the Commission’s proposals make to addressing London’s hotspots?

*Simon Birkett:* With 1%, for example, which would be if we had a SECA around the whole of the UK and we do not have that, the best numbers I have are those Defra numbers from 2007, which is a 19% reduction in exceedances in 2010, which was last year, but a 33% reduction in these legal breaches by 2020.

*Q84 Chair:* Is that coming specifically from the Commission’s proposal?

*Simon Birkett:* It would be less than that because we do not have this SECA around the entire UK.

*Q85 Chair:* How much less? I am just trying to work out what the impact of the Commission’s proposals would be on the problem in London. Do we know?

*Simon Birkett:* We can assume that it is up to 20% last year and up to 33% by 2020. Those are the best caps we have, but we have this statement from the Mayor in his strategy that they make a critical contribution. We have various parameters which do suggest that it is important to go to the 1%—not just on the east coast of the UK, but also more widely.

*Chair:* Thank you very much, gentlemen, for coming.
You do not think, if the EU is leading the way, that that will lead to a similar standard across the rest of the world?

Christian Wimmer: For the same reason as the 2005 revision. These are additional health and environmental safeguard measures that have a net benefit, which are enforceable within the EU and contribute to reducing the negative impact of air pollution on environment and health.

Christian Wimmer: The impact depends on the fuels these ferries are currently using. It has to be kept in mind that heavy fuel oil requires a lot of big engines and support installations, so it is normally used in very big ships. The first step to assess the impact on a certain island community is to verify what fuels are used on the ferries that serve these islands. With regard to the derogation clause, to which article of the 1999 directive are you referring?

Christian Wimmer: They cite paragraph 2 of article 4 of the 1999 directive, which referred to island communities within the EU. Obviously, neither Jersey nor Guernsey is in the EU—lucky them—but do you have any intention of replicating that derogation?

Christian Wimmer: I must admit I am not able to find this now. I will reply to that later.

Paul Maynard: Maybe you will wish to write to us with a slight clarification.

Christian Wimmer: We have a situation where ship operators claim that reliable scrubbers are not available in the market, whereas the suppliers of the abatement technology make the opposite statement, saying, “They are ready—just order them.” Where is the truth? It is the Commission’s view that scrubbers that are ready for purpose to meet the MARPOL standards are available. This technology might still undergo further development and scrubbers in 10 or 20 years might look different from the scrubbers that are on the market now, but the Commission is of the view that these scrubbers are available to meet the MARPOL requirements.

Christian Wimmer: The timetables are not proposed by the EU. They are replicated from what has been agreed at the IMO, where all EU coastal member states supported the timeline and the fuel quality standards decided at the IMO in 2008.

Q92 Mr Leech: The current proposals for the EU go further than the MARPOL proposals, do they not?

Christian Wimmer: That is correct.

Christian Wimmer: If the shipping industry is right and the technology is not quite there, would it be fair to say that the time scale being proposed both for MARPOL and for the EU proposals that go further is unrealistic and too short—if it is right?

Christian Wimmer: The fuel standards can always be met by using compliant fuel. There are no doubts that this fuel will be available. In Europe we have overcapacity for refineries, so there is always an option to achieve compliance by using low sulphur fuel. When it comes to introducing environmental standards, what you observe, for example, for cars is that it was always claimed until the last day before a provision came into force that the technology was not available, and, all of a sudden, overnight, it was available and it was typically, in the case of cars, cheaper than predicted by a factor of 10. The Commission strongly supports staying within the time frame as defined at the IMO, which means introduction of the 0.1% fuel standard as of 2015 and the global 0.5% fuel standard as of 2020, with the revision clause that might postpone this by five years.

Christian Wimmer: If I can just get this clear, you believe that the technology is there, but, if the technology is not ready, you think the shipping industry just needs to go for the more expensive fuel.

Christian Wimmer: Compliance can be met by using the fuel, yes, that is correct, and the equivalent measures that are on offer from the side of the legislator to lower compliance costs.

Christian Wimmer: Do you think that the proposals from the EU, which go further than MARPOL, will lead to the EU leading the way in terms of getting the rest of the world to follow suit in terms of the additional requirements?

Christian Wimmer: These additional requirements are part of EU air quality policy and we do not see a direct impact on other things.

Mr Leech: Do you not think, if the EU is leading the way, that that will lead to a similar standard across the rest of the world?

Q96 Mr Leech: You do not think, if the EU is leading the way, that that will lead to a similar standard across the rest of the world?
**Christian Wimmer**: What we observe is that more and more areas are considering the concept of introducing SECA s along their coastline. This is the general position of the EU. Since shipping has a global dimension, policies and solutions should be developed at a global level. In general, coastal states propose the designation of the sea area as a SECA to the IMO. They assess this following the criteria developed by the IMO; then this becomes part of MARPOL Annex VI and becomes globally binding. We do not see the passenger ship requirements either as a deviation from the IMO process or as a flagship initiative.

**Q97 Chair**: But it is a change from the IMO process. We have been hearing this morning the concerns from the shipping industry about that change or deviation, however you want to express it. But there is no evidence, is there, that, in doing that, that will lead to a global change, which was the point Mr Leech was putting to you?

**Christian Wimmer**: That is correct. We do not expect a global change. We expect designation of additional Emission Control Areas.

**Q98 Kwasi Kwarteng**: I was just wondering what you thought about the comments that the shipping industry made with regard to some of these directives. Do you think the industry is deliberately avoiding bringing in these restrictions?

**Christian Wimmer**: What do you mean “these restrictions”?

**Q99 Kwasi Kwarteng**: Am I right that you are proposing that there should be more restrictive sulphur emissions?

**Christian Wimmer**: Yes, following decisions at the IMO.

**Q100 Kwasi Kwarteng**: Sorry, your rather slow response has made me nervous. Maybe I am saying something wrong. Having established that, do you think that the industry is deliberately avoiding bringing in these restrictions?

**Christian Wimmer**: We are here in a normal debate following the adoption of the provisions at the IMO and the transposition into EU legislation. As you point out, there are some additional provisions. Now that this proposal has entered the legislative process, what we face now is the normal discussion of a democratic society.

**Q101 Kwasi Kwarteng**: Are you happy with the way in which and the speed with which the industry has responded?

**Christian Wimmer**: I am not sure whether categorising “happy” or “unhappy” is—

**Q102 Chair**: Are you satisfied?

**Christian Wimmer**: It is not a surprise.

**Q103 Kwasi Kwarteng**: Can I ask a more general question? I accept that I am asking leading questions, asking whether you are happy or not. Would you like to comment on their reaction to these proposals?

**Christian Wimmer**: I would like to place this legal proposal in a wider perspective. This proposal is driven by two elements. One element is to ensure the delivery of health environmental benefits by reducing the negative impact of air pollution from shipping.

The second element that made us put forward this legislation is to ensure the functioning of the internal market. When you look at such a policy initiative from an EU perspective, we assess the benefits at EU27 level plus candidate countries and concluded that there is a high net benefit of up to a factor of 25. For each euro spent, there are benefits of up to €25 with regard to the SECA provisions. When it comes to the passenger ships, we are talking about costs in the order of magnitude of several hundred million euros. When it comes to the SECA provisions as a whole, we are talking about costs in a low-digit number in the billion range and the benefits in a two-digit number, once again billions of euro per year.

The benefits are for society as a whole, but the burden of costs might rest on a few shoulders. It is obvious that the shipping industry is concerned about the costs, to what extent they can pass them on, how to react, and what the changes are to the market. It is fair to say that the costs in the first step materialise within the shipping sector, but, there again, the picture has to be differentiated a little more because it is also an opportunity to renew—to modernise—the EU shipping fleet. It is an opportunity for innovation, abatement technology and energy efficiency. These facets are reflected by the feedback we get from the shipping industry in the wide sense.

**Q104 Graham Stringer**: Can I take you back to Mr Leech’s question where you said there is clearly a disagreement between the industry, which says the scrubbing technology is not ready, and the Commission and the suppliers who say it is? What efforts have you made to establish the facts? What evidence have you looked at?

**Christian Wimmer**: When the 2005 directive was introduced, it introduced the SECA concept. At that time scrubbers were not available, so the directive was foreseeing trials of scrubbers. It allowed trials. The Commission had to be notified at the beginning of the trials and notified of the results. Such trials have been carried out on several ships, with the result that the conclusions drawn by the operator of the ship were fundamentally different from the conclusions drawn by the supplier who installed the scrubber.

**Q105 Graham Stringer**: We are talking about the same facts but a different interpretation.

**Christian Wimmer**: Yes.

**Q106 Graham Stringer**: What is the Commission’s view?

**Christian Wimmer**: As I pointed out, the Commission is of the view that scrubbers are ready for purpose but most likely they will still undergo further development, just as the cellular phone was very different 20 years ago from what we have now.
Q107 Graham Stringer: Can you explain how your proposals will apply to passenger ships and freight-carrying ships—cargo ships?

Christian Wimmer: As of 2015, cargo ships operating in a SECA have to use 0.1% low sulphur fuel. Until 2020, cargo ships operating outside SECAs can use 3.5% sulphur fuel. Then, depending on the introduction of the 0.5% standard in 2020 or 2025, those cargo ships will have to use fuel with a lower sulphur content, whereas passenger ships on regular service will use in SECAs—the Channel, the North sea, the Baltic—0.1% fuel as of 2015. According to the proposal of the Commission, outside the SECA areas they can use 1.5% fuel until 2020 and then they will go down to 0.1% as of 2020. When it comes to assessing the costs, there is not a big difference between 0.1% and 0.5% fuel once you have to use distillate fuels. Bunker suppliers, who made the necessary calculations, concluded that, once the global 0.5% is introduced, this fuel demand cannot be met by residual fuel oil blends. The same is already true for the SECA areas, where, even if the standard goes from 0.1% to 0.5%, to deviate from the IMO agreement, the cost would be roughly the same because the shift is the switch to distillate fuels, based on the assumption that compliance will be achieved by using the low sulphur fuel.

Q108 Graham Stringer: Into which category do cargo-carrying ships that have passengers on them fall?

Christian Wimmer: A passenger ship is defined in the directive as a ship carrying at least 12 passengers, not counting the captain, the crew and children aged up to one year. Once they offer a service for 12 or more passengers, they qualify as a passenger ship.

Q109 Graham Stringer: Do you think that puts those cargo ships, which might be 80% of their business, at a disadvantage to cargo ships that are not carrying passengers?

Christian Wimmer: If we assume that the 0.5% global standard will be phased in in 2020 and that cargo ships carrying this number of passengers will have to apply the 0.1% as of that date, I do not see a big difference because the price difference for the fuel at 0.1% and at 0.5%, assuming distillates, is in the order of 3%, 4% or 5%.

Q110 Chair: You said that you carried out a cost-benefit analysis of the proposals. What did that show for the unemployment that could be caused in the UK as a result of these changes?

Christian Wimmer: The cost-benefit analysis did not go that far in assessing the impact on the labour market. The cost-benefit concentrated on the costs which are calculated from the predicted increase of the fuel price and the monetised health benefits. Social benefits are discussed in the impact assessment in a qualitative manner. For example, the so-called modal shift, which is the transfer of goods from ships to trucks, is sometimes mentioned as being a negative impact from the sulphur requirements. So how should we calculate the impact on employment because each truck needs a driver?

Q111 Chair: You are saying that in this analysis there was not any assessment of the possible impact on the shipping industry in how it might affect employment in the UK.

Christian Wimmer: There was a qualitative assessment of the social impact. There was no detailed assessment on the number of jobs that might be lost or generated in a particular country like the UK.

Q112 Chair: Where can we see this assessment? Is it published?

Christian Wimmer: On our website.

Q113 Graham Stringer: Just on that point, we have heard from the shipping industry previously that, if your proposals were implemented as you intend them to be, they thought there would be a shift of cruise liners from the Baltic to the Mediterranean. First, do you accept that, and, second, did you look at the job implications of that in northern Europe compared to the Mediterranean?

Chair: Was that considered?

Christian Wimmer: This was not discussed. Chair: This area was not discussed.

Q114 Graham Stringer: It is extraordinary, if you do not mind my saying so, that, if there is going to be, potentially, a large shift, you have done a cost-benefit analysis and there may be jobs lost in the UK, Sweden, Germany and transferred to—I don’t know—Italy, Spain or wherever, yet that is not part of your calculation. I find that surprising.

Christian Wimmer: That was part of the discussions we had with stakeholders. The situation of the cruise industry is fundamentally different in the US compared to Europe. In the US, a slight increase in fuel costs that would result in an increase of the price of a cruise seems to have a major impact on the booking behaviour, whereas, in Europe, at the moment a cruise is considered a once-in-a-life event where the passengers do not care so much whether the price per day will now increase by about €5.

Q115 Chair: Have you done an assessment that led to this conclusion or is this an opinion?

Christian Wimmer: This is an opinion.

Q116 Julian Sturdy: If I can take you back to your warning statements, you mentioned that certain fuels were disappearing from the marketplace. I assume you were talking about the heavy fuels. I was just a bit surprised at that. I do not know whether you could touch on that a little more.

Christian Wimmer: I had the 1.5% SECA fuel in mind. This fuel was, up until recently, applied in all SECAs plus on the passenger ships on regular service outside SECAs. The IMO provisions in SECAs have already changed. The maximum sulphur content is 1.0%. The argument was what we do with these few passenger ships that, all of a sudden, need a fuel where there is not such a big demand any more.

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3 Note from witness: Here is the link to the impact assessment and other documents related to the revision of the sulphur directive: http://ec.europa.eu/environment/air/transport/ ships_proposal.htm
When it comes to heavy fuel oil, a question we hear sometimes is, “What happens to the leftover heavy fuel oils? Will these then be exported to countries with a low environmental standard?” When you look at the development of refinery technology, there is clearly a tendency to improve the refining yield so as to lower the fraction of heavy fuel oil that leaves the refinery. When you look at the price of heavy fuel oil at the moment per kilogram or whatever unit you take, it is cheaper than raw oil is bought. Therefore, refineries have an interest in producing products of high value. Looking at the percentage of residual fuel oil, you will see a clear decrease and recently new cracking technologies have been put on the market. This will continue. The revision of this directive will, at best, accelerate this process. Heavy fuel oil will disappear.

Q117 Julian Sturdy: On that point, though, would you not say, if what you are saying is correct and I do not doubt it at all, that new technology within the refining industry is coming on board to reduce the amount of heavy oil? I accept the point that, if the oil companies are selling it at a lower value than crude oil, then there is a commercial incentive for them to get more out of it and refine it more. Are we not really saying that the market will dictate this anyway?

Christian Wimmer: Yes. At some point there will be competition between the asphalt industry and the ship industry for the remaining heavy fuel oil.

Q118 Julian Sturdy: What I am saying is that the market will dictate a shift away from heavy fuels to lower sulphur fuels because, if the oil companies are going to refine more of it anyway, there is going to be a reduced amount about and the shipping industry will have to change because of the market change within the refining industry. Christian Wimmer: That is a development we are currently observing. Of course, predictions in the future, whether it will go to zero or a certain percentage, cannot be made, but the overall tendency is as I explained.

Q119 Julian Sturdy: There could be an argument to say that what we are doing is just gold-plating regulation potentially on something that the market will end up delivering anyway. Christian Wimmer: It will accelerate that development.

Q120 Chair: How would the stricter limits be enforced?

Christian Wimmer: The legal proposal adopted by the Commission is a directive which needs to be transposed by member states into national legislation, and the enforcement of these provisions will be done by national port state control authorities.

Q121 Chair: What about the enforcement of emissions on vessels just travelling through UK waters? Would that be the responsibility of the Maritime and Coastguard Agency or is that something the UK Government decide?

Christian Wimmer: It is up to the UK Government to decide on the details of enforcement. It is typically done by the port reception inspections. It is up to the member states how to provide the details on the provisions of the enforcement.

Q122 Chair: You said earlier that you were in a process. Could you tell us the timetable that there is now and what the process is from now?

Christian Wimmer: The directive was adopted by the Commission in July and is now in the legislative procedure. There are two extreme scenarios. One would be a First Reading agreement under the Danish presidency. This is a presidency in the first half of next year, which could bring us to an adoption as early as May, June or July. The second would be that it could be a lengthy process. I would like to recall that the 2005 directive was adopted by the Commission in 2002 and it was finally published in 2005. It took three years to finalise the discussions on that directive, so between six months and three years everything is possible.

Q123 Chair: Who will decide what the length of the discussion is?


Q124 Chair: Have you had any indications from the UK Government of what their views are?

Christian Wimmer: At the moment member states are still making up their minds. We do have a preliminary position paper of the UK Government, but not yet a final one.

Q125 Chair: What does the provisional statement say? Could you summarise it?

Christian Wimmer: No. It is a four-page document which I could not summarise in a few seconds, no.

Q126 Chair: What views have come from other member states?

Christian Wimmer: We are still waiting for more input.

Q127 Chair: How many have responded?

Christian Wimmer: The proposal was presented to member states in the working party of the environment meeting in July. We had one meeting in September, where there were largely scrutiny reservations because member states still needed to make up their minds. We hope at the next working party meeting that we will have more information about the official positions of member states.

Chair: Thank you very much for answering our questions.
Tuesday 1 November 2011

Members present:
Mrs Louise Ellman (Chair)
Steve Baker
Jim Dobbin
Julie Hilling
Kwasi Kwarteng
Mr John Leech
Paul Maynard
Iain Stewart
Graham Stringer
Julian Sturdy

Examination of Witnesses

Witness: Mike Penning MP, Under-Secretary of State for Transport, and Godfrey Souter, Shipping Policy Division, Department for Transport, gave evidence.

Q128 Chair: Good morning, Minister, and welcome. As you know, we are considering the European Commission’s proposal to introduce stricter controls on sulphur emissions by ships. Proposals have been agreed internationally but the Commission is pursuing much stricter emissions. Do you have a view on that?

Mike Penning: We are signatories to the MARPOL Convention; the previous Government signed us up to these international obligations. I am where I am on these obligations, but we are very conscious that the Commission has been looking at areas beyond MARPOL. We have no intention as a member state—I have written to the Commission President to tell him that we think that MARPOL goes far enough, particularly the revised Annex VI. We are telling the Commission in the strongest possible terms that enough is enough. We believe that we should not go any further.

Q129 Chair: Were you aware of the Commission’s proposal? Was there any prior discussion?

Mike Penning: It was mooted, but, although you often hear things being mooted, they do not always develop because the Commission has a different system of developing policy. Was I surprised? No, I was not, because there is a tradition of gold braiding and going beyond international obligations. We don’t think that we should do that, and we have said so to the Commission.

Q130 Chair: When you first heard about it—when, as you put it, it was mooted—did the UK make any kind of representations through our representatives at Brussels or here?

Mike Penning: I cannot speak about prior to my becoming a Minister when the coalition was formed, but we certainly wrote to the Commission President to tell him that we think that MARPOL goes far enough, particularly the revised Annex VI. We are telling the Commission in the strongest possible terms that enough is enough. We believe that we should not go any further.

Q131 Chair: When did the Department first become aware that a change was being discussed?

Godfrey Souter: I think that we first heard about it earlier this year. However, we reasonably expected something to be done because the original Sulphur Content of Liquid Fuels Directive of 1999 was amended by the European Union in 2005 to take account of the original MARPOL Annex VI. We necessarily had an expectation that European law would be brought in to revise the 2005 directive in line with the revised Annex VI.

Q132 Chair: Was it not thought that there should be some sort of representation or involvement in the discussions that were taking place once it was realised that something more was being considered?

Godfrey Souter: I am sorry, I did not quite hear. Chair: Was there not a view in the Department that the UK should be involved in putting counter points, perhaps, or in the discussions once it was known that the matter was being raised again?

Godfrey Souter: As I said, the Commission is well aware that the United Kingdom always supports the IMO conventions that it adopts.

Q133 Chair: I know that, but were we active in trying to make our views known once the Department became aware that something was going on?

Godfrey Souter: We did not specifically write or speak to the Commission, telling it that we did not want it to go beyond the MARPOL Convention. No, we did not do that.

Q134 Chair: Why was that?

Godfrey Souter: Because it already knew our position; it already knew that our position was always that we did not want European law to go beyond the IMO conventions.

Q135 Chair: Were no specific steps taken by our representatives here or in Brussels to reinforce those views once the Department became aware that the issue was being raised?

Godfrey Souter: That is correct, but once we saw the proposal and knew the specific points on which the Commission was seeking to go beyond the convention, then, as the Minister said, we did convey our views. We conveyed our views to the Commission once we had specific points to take up with it.
Q136 Chair: When was that?
Godfrey Souter: I think that was in August.
Mike Penning: I can let you have a copy of the letter that we wrote to them.

Q137 Mr Leech: Minister, the big differences with the proposals being put forward by the Commission are in relation to ships at berth and passenger ships. What impact do the Government believe it would have on British shipping if we had to abide by these Commission proposals?

Mike Penning: There are two things. First, if we enter into international obligations as a shipping nation, we believe that we should adhere to them. Going beyond those would put other member states that have signed and agreed to the IMO convention in a difficult position. We believe that it will be detrimental, and I know that you have heard evidence on that from the shipping industry, particularly from the cruise-line industry, that this could well push some ferries out of business. We think that there will be a detrimental effect on the booming cruise-line business.

Secondly, other member states have real concerns, particularly the Baltic states, and Ministers from that part of the world have spoken to me about it; they believe that we will see a reverse, a modal shift, if we push the cost of ferries up; for instance, it would be cheaper to drive down the coast and come through the tunnel than to use existing ferry lines. We think that it is a step too far. We and the previous Administration negotiated hard on the revisions to Annex VI, and we do not think it should go any further for those reasons.

Q138 Mr Leech: The MARPOL proposals go quite some distance, and they are certainly seen as a challenge by the shipping industry. There has been much discussion about whether the technology is available to get sulphur emissions as low as needed or, alternatively, whether low-sulphur fuel would be available. Are you confident that the industry can reach these targets?

Mike Penning: You raise two separate points. The first is on the availability of low-sulphur fuel for the first-stage requirements. Yes, we are confident about that. There may be short-term shortages in certain bunkering situations. That is why we believe that there should be an interpretation of MARPOL that in those circumstances allows fuel to be used that would not normally fit the criteria, because you have to be pragmatic about the availability of fuel for bunkering.

If the fuel is not available, are we going to let the ship sit at anchor or drift? We have to be pragmatic about this. There are areas of MARPOL under discussion, for instance, on averaging the engines in particular ships. If there are four engines in a ship and one does not meet the criteria but the other three do, would the mean be acceptable? Our interpretation of the MARPOL agreement is that it would. I know that some members of the shipping industry feel that they would like to average across their fleets. [Interruption.] I apologise; that is probably the shipping industry phoning to tell me that I am wrong on that, but there we are.

Secondly, I read some of the evidence given to the Committee last week, and there is clearly a difference of opinion between some of the technology companies and the industry. There are ships operating now—you would be amazed if I did not mention this—that use scrubbers. Scrubbing technology is there and it does work, but there is a cost implication; and there is some discussion and disagreement between the technology companies and the shipping industry. One thing that I would say is that we lead the world in R and D on this technology, and it gives us a great opportunity not only to address the emissions issue but for British businesses to get into the market and create jobs.

Q139 Kwasi Kwarteng: What do you think of the accusation that the shipping industry was badly prepared for this change?

Mike Penning: I do not think that it was badly prepared. Like any industry, some parts of it were quite well prepared. There are companies—Godfrey could name them—that are already using the technology, and I have met some, but others out there bury their heads in the sand for a while, thinking that it may never happen. However, we are talking about some long end-dates, especially given when the MARPOL Annex VI revisions took place.

But, at the same time, this is a very difficult industry. The margins out there are very tight indeed, and we have seen many companies contract and reduce the number of ships. However, this is an opportunity, especially as so many of the older ships have been laid up and then gone to scrap. The newer ships coming through will not only meet the criteria but will vastly exceed them. The largest ships in the world, which will come on stream soon under the Maersk Line Fleet, will be 50% cleaner than their predecessors. It is an opportunity, but there will always be accusations that the industry is not ready. It is a big industry, and we have 200 cruise liners operating around the world, and a big British and red ensign fleet.

Q140 Kwasi Kwarteng: As a follow-up, do you see a world in which the Government might give financial assistance to the shipping industry so that it can meet its requirements?

Mike Penning: No.

Q141 Kwasi Kwarteng: You have ruled that out, have you?

Mike Penning: Yes.

Kwasi Kwarteng: Good.

Mike Penning: Where is the Treasury? We have had quite interesting financial schemes with the shipping industry over the years—I know that the Committee has considered them—including schemes to do with tonnage, light dues and so on, but we are not likely to do that at all.

Q142 Chair: What kind of financial assistance did you have in mind?

Mike Penning: The Committee has looked before at light dues, tonnage taxes and things like that. There are lots of schemes out there which are specific to maritime, but I do not have a scheme in mind; and I
Q143 Mr Leech: Is there any evidence to suggest that any other EU states will provide state aid? I know that the Commission has said that, under certain circumstances, state aid will be acceptable in order to deal with the problem. Are any countries planning to do so?

**Mike Penning:** I am not aware of any. However, member states—I have to say this in the politest possible way—tend to interpret Commission maritime law differently from us, including on state aid. We will keep a close eye on what other member states are doing and ensure that it fits within MARPOL. If a member state wanted to go further than MARPOL individually, that would be entirely their right, but the Commission should not be looking to do so.

Q144 Paul Maynard: We had evidence from the Governments of Guernsey and Jersey regarding their concerns over the possible implications of these amendments to accessing the islands. What contact have you had with Guernsey and Jersey in the Department over this, and will you be seeking a derogation if these proposals go ahead?

**Mike Penning:** I have not had any formal discussions with Guernsey or Jersey; I was in Jersey last year and met my opposite number there, but he did not raise the matter with me. I am more than happy, of course, to meet them at any time to discuss their worries. I understand their concerns, particularly on short-haul ferry operations, but we have no plans for a derogation because we have no intention of implementing the Commission’s proposals any further than revised Annex VI.

**Godfrey Souter:** That is right, but may I point out that the whole question of islands that are remote but within the EU is not relevant to Guernsey and Jersey? The additional provision that the Commission has come up with to treat passenger vessels outside ECAs as if they were inside ECAs does not apply to Guernsey and Jersey. The fact of the matter is that those islands are solidly inside the ECA. For the purposes of the IMO’s MARPOL Convention, the North sea extends down to the western end of the English channel. Consequently, Guernsey and Jersey are inside the ECA for the purposes of MARPOL. Short of going back and renegotiating MARPOL, which the UK Government do not intend to do, they will have to comply.

Q145 Julian Sturdy: Minister, last week we heard from the European Commission policy officer, Christian Wimmer. He admitted that certain fuels were starting to disappear from the market; he was referring to the heavy fuels. I believe that heavy fuels are being sold at the moment for less than the price of crude oil. Refineries are selling those fuels at a loss; they are a by-product of the refining process. Mr Wimmer admitted that new technology allows refineries to refine more of the heavy fuels into higher grade and low-sulphur fuels. As a result, there is less heavy fuel available, and as new technology moves on the refineries are refining more; it is obviously in their economic interests to do so. Is it not the case that the market will drive the move to lower-sulphur fuels, and are we not moving away from heavy fuel oils through pure economics?

**Mike Penning:** I think that there is a case for saying that. Over the last 10 to 15 years, the oil industry has changed the way in which it refines—not only through changes in technology but changes to where it refines in particular. Many of the refineries that I knew when I was a refinery fireman simply do not exist any more in the UK, and Shell Haven on the Thames is probably the classic example. The industry wants to refine in ever larger high-tech refineries and move the refined product around the world as a cash commodity. However, there are still many “old-fashioned” refineries around the world where heavy oil products will continue to be produced until they are phased out. Building new refineries is hugely expensive, but the oil industry sees that it can earn more from a better refined low-sulphur product than it does from the traditional product. Frankly, it sees where the industry is going and where the IMO has given a lead-up time. The IMO’s targets are realistic. They certainly are not silly in that you are not going to wake up one morning and find that this is the problem. You are right to say that the market will be driven by the availability of bunkering facilities. However, as I said a moment ago, I stress that we have to be realistic. For instance, there will be times, especially in the early years, when for one reason or another low-sulphur fuel may not be available for bunkering. Should we then ban the industry from using heavy oil at all? If we did, the ships would have to be laid up at anchor or drift, and that would be impractical and silly. On the other hand, the industry has to realise that we are serious in pushing this forward, not only as a nation but as an international organisation.

Q146 Chair: Can the Government do anything to assist with the availability of compliant fuel?

**Mike Penning:** Not really. It is a supply and demand situation, just as it is for us in the UK with other fuels. This is completely off my brief, but one reason why diesel is so expensive in the UK is that we have a shortage, which drives up the market. The UK simply does not refine enough products.

Q147 Chair: Have the Government considered funding research into abatement technology in alternative fuels? Have there been any discussions of that nature?

**Godfrey Souter:** We are not funding research into alternative hydrocarbon fuels, but the Department has on the stocks a small study into the possible use of liquefied natural gas and what steps might need to be taken to put in place the necessary infrastructure for the bunkering of liquefied natural gas. So we are looking there.

**Mike Penning:** It is a really difficult issue around the world. Bunkering is a strange piece of terminology,
but basically it means a source of supply rather like a petrol station. If you go to Gibraltar, you will see many ships moored there, and most of them are there for bunkering or they are impounded. They take on supplies and fuel. For many years, LPG, which has been spoken of as a possible fuel, is not readily available for bunkering, which makes things difficult. That is the reason for the drive to obtain low-sulphur fuels.

Q148 Kwasi Kwarteng: What consultations have you had with other Departments, particularly Defra, about these changes?

Godfrey Souter: Officials have worked closely with Defra. The evidence that the Department submitted to the Committee was written in part by Defra officials; about three paragraphs on air quality aspects were written by Defra. That Department is solidly in favour of the application of the revised MARPOL Annex VI.

Q149 Kwasi Kwarteng: Who is guiding this? Are you taking guidance from them? How does it work?

Godfrey Souter: We are in the lead, but Defra is of the same mind. Essentially, we are both very much aware of the importance of protecting the environment and public health. We have exactly the same agenda on this.

Mike Penning: The one area in which I am particularly interested is that we should not talk only about sulphur because there are other particulates that come out from heavy oil which are particularly dangerous. Some of the technologies and scrubbers remove most of the other nasties, but not all of the technology does that. I am quite keen to see that, where ships are using heavy oil but using technology to clean it up, wherever possible, it takes out other nasties—for want of a better technical term—as well as the sulphur, as those other things are not particularly nice.

Q150 Mr Leech: Back in April 2011, the Department gave £5 million to the Mayor to deal with air quality in terms of particulate matter. Is the Department confident that the MARPOL proposals will help us reach our air quality targets, particularly in London?

Mike Penning: It will help, but there are obviously other emissions. As you know, the Department has been pushing for alternative fuel and technologies, particularly for motoring. Only the other day, I saw a hybrid 28-tonne HGV, one of the first to be used by the Stobart Group. Renault is bringing out a 28-tonne plus hybrid, and I recently opened the first of the new plug-in points at service stations for all electric cars. It has to be part of a package, but maritime emissions are serious because 95% or 96% of all products that come into the UK come in by sea. As an island nation, we are vulnerable to emissions from ships. Parts of the shipping lanes are very close to our coast, particularly in the English channel, and we get those emissions if the wind is in the wrong direction.

Q151 Mr Leech: Is the Department doing any work to see what impact the emissions from ships are having on London, and whether they are responsible, at least in part, for us failing to meet our air quality targets? Although £5 million has already been given to the Mayor of London, you said that it is not the Department's intention to provide money to the industry to deal with the problem. However, we face up to £300 million of fines if we do not reach these air quality targets.

Mike Penning: I may be wrong, but I believe that the £5 million was not specific to maritime emissions. It was also money to help with the London emissions. It was across the sector. I am not aware of us doing any research, as it would probably cost more than the £5 million that we have given him. However, we will work with the Mayor and whatever studies are being done there, and see whether we can continue to help.

Q152 Chair: What do these proposals mean for the work of the Maritime and Coastguard Agency? Will it be able to enforce new regulations on ships that are just passing through UK waters?

Mike Penning: If we wished, we could send out an inspections team in our territorial waters, but the cost implications of doing so would be astronomical so we intend to do it within the ports. That is interesting because people’s concept of ports is that they are often small, but Scapa Flow is a port and a huge piece of water. It is exactly the same with the Forth; it is a port but not a tiny one. We do not intend to stop ships in our territorial waters, but we reserve the right to do so should we wish.

Q153 Chair: Would it be practicable for the MCA to enforce the new regulations if this went ahead?

Mike Penning: It would not be practicable to have an ongoing scheme for boarding ships. The cost implications would be astronomical.

Q154 Chair: When discussions take place about the Commission’s proposals, what will your three key messages be? What will you be saying?

Mike Penning: The three key messages are these. First, it will of course have an impact on the maritime industry. Secondly, the IMO negotiations on revising Annex VI took a long time; as an international community we are at one on that, and we should not break up that unity simply because the Commission wants to go further. Thirdly, we have absolutely no intention as a member of the European Union of going any further than the existing IMO commitment.

Q155 Chair: Is that no intention, even if the Commission approve this proposal?

Mike Penning: We will do everything that we can in order not to go any further.

Q156 Chair: Who is likely to support you in that position? It is qualified majority voting.

Mike Penning: This is a chicken-and-egg situation. We do not know. All that I can say is that I have had conversations with other member states—I have already alluded to those that I have had with some from the Baltic area and Scandinavia—who are very concerned about the IMO proposals, let alone the increased proposals from the Commission. My officials indicate that they are very concerned. The
Commission is not going to get an easy ride on this, but we will make our case. However, instead of going into the situation being willing to negotiate with the Commission, we are not willing to do this.

Q157 Graham Stringer: Minister, you said that you read the transcript of our previous meeting. Were you as surprised as I was to find that the Commission has not done an impact analysis on the potential transfer of jobs in cruising to the Mediterranean?

Mike Penning: To be honest, yes, I was. Indeed, I was quite concerned about much of the evidence, particularly that which was given in answer to the questions you put, Mr Stringer. For instance, the Commission seemed not to be aware of the UK’s position, even though we had written to it formally. It was not a secret. We were not hiding it under a bushel. Unlike certain kinds of shipping—for instance, the boxes coming up from the South China sea and that part of the world, or the ferries—the cruise industry can go where it wishes. That is the nature of it. Of course, as a customer you might say, “I want to be in the Baltic”, or, “I want to be in this part of the world.” There tends to be a small minority of people who just love cruising; it is a hugely growing industry. The predictions for 2015 are that 2 million Brits will be cruising.

The cruising industry has been very robust through the difficult financial times that we have had, and numbers are still increasing, but people are not spending quite as much money on their ships and so their margins are tighter. Like anyone in business, if your margins are tight and you have an option, you might take it and cruise elsewhere. The Commission needs to address that point. All the evidence seems to show that the cruise industry may use this as a parameter for where it cruises.

Q158 Graham Stringer: In your negotiations and discussions with the Commission and other member states, will you be asking for an impact assessment to be done?

Mike Penning: Yes; and as well as asking for an impact assessment we shall be asking the simple question, “Why?” Given how much work was done to get MARPOL revised, for the Commission to come in after that and say that it should go further is a bit of a slap in the face for the IMO. The IMO does fantastic work. It is the only UN body in London, and we are very proud of the fact. At the same time, it managed to bring the international community together over a very difficult piece of work. As member states, we set it out, we agreed it and we signed it, like most other European communities, only to be told, “Hold on a second; we think that it should go further.” We were not surprised, but to say the least I am very concerned.

Q159 Kwasi Kwarteng: On the point raised by my colleague about the impact on jobs and wages, you expressed surprise that the Commission had not made an assessment of that. Do you have any thoughts about the possible impact on jobs in the industry?

Mike Penning: We have a view on it now, with MARPOL as it is, and we have done some work on that. We have not done any work on what the Commission proposes because no one envisaged that it would go where it has. I understand that we do not have formal proposals from the Commission.

Godfrey Souter: We have its initial proposal, which is up for discussion in the Council of Ministers and the European Parliament. However, that will of course be modified as the legislative process in Brussels goes on. Where we end up could be quite different from where we are now.

Mike Penning: Then, of course, I am committed as a Minister, should we have to bring something through, to having the impact assessment done again on the new proposals.

Q160 Chair: What is your understanding of the timetable on this? When do you expect negotiations to start?

Mike Penning: The initial proposals will be dealt with at the next Council of Ministers; they then go to the European Parliament, which, like any Parliament, tends to make things go on a bit. Quite rightly, in our submissions, we are not going to budge on this; although I cannot speak for other member states, others are clearly very concerned. Like Godfrey and my officials, I suspect that what the Commission ends up coming out with may be completely different from what our friend from the Commission was saying the other day.

Q161 Chair: Do you want to make a prediction?

Mike Penning: No.

Chair: Thank you very much.
Written evidence from Maritime UK (SES 03)

Maritime UK brings together the shipping, ports and maritime business services sectors in the UK to speak with a single voice on key strategic and practical issues of joint interest. Specifically, we are the Baltic Exchange, British Ports Association, Chamber of Shipping, Federation Council of the Institute of Chartered Shipbrokers, Maritime London, Passenger Shipping Association and UK Major Ports Group.

The UK’s maritime services are a substantial part of the British economy. Together, they contribute a total of £26.5 billion to UK GDP and almost £8 billion in tax revenues. They also support around 531,000 jobs.

In July 2011, Maritime UK submitted a paper to the Transport Select Committee outlining the case for an inquiry into the impacts of the sulphur regulations on UK shipping. That paper forms Annex A of this document and provides the detailed background to this submission.

Maritime UK supports the overall provisions of MARPOL Annex VI aimed at reducing sulphur emissions from shipping for environmental and health reasons. But these are presenting severe short-term challenges for the ferry and cruise sectors. Before addressing the four areas of interest laid out in the Select Committee’s call for evidence, it may be helpful to summarise the main impacts.

The economic impact will be massive—increasing the cost of bunker fuel by, potentially, 87% for ships operating in Emission Control Areas (ECAs). This will mean, from 2015, up to £3.6 billion additional annual cost for shipping within 200 miles of the UK.

This will include reduced shipping activity in ECAs, affecting ports and road infrastructure, and causing job losses. A recent German study concluded that ferries to the Baltic States would lose 40% of their traffic, shifting nearly one million containers and 600,000 trailers each year from sea to land.

The cruise industry will lose tourism and port revenues. The ferry industry will see closure of longer routes and price increases, which will encourage a shift of passengers, who will not want to travel long distance to the shorter ferry crossings, to less environmentally air travel. Both will lose investment and jobs.

There is no certainty that enough fuel will be available to meet the 2015 and 2020 regulatory deadlines.

The impact on shipping of more stringent limits on sulphur content in fuel, due to revisions to Annex VI of the IMO’s Marine Pollution Convention (MARPOL)

1. Maritime UK fully acknowledges the need to reduce emissions of SOX from shipping for environmental and health reasons and supports the provisions of MARPOL Annex VI. Nevertheless, these regulations will create considerable financial, logistical, societal and even environmental impacts that will impose considerable hardship, particularly on smaller companies with limited cash flow, and not only shipping companies. The regulations pertaining to low sulphur fuel in SOX Emission Control Areas (ECAs) which come into force in 2015 in the Channel, Baltic and North Sea will be particularly challenging. The designation of ECAs was supposedly based upon clear scientific evidence, but no study was ever done, either by the IMO or the EU Commission, into the broader consequences of such regulations. Given the considerable financial impact likely to be caused, the lack of a full impact assessment was extremely regrettable.

2. A number of impact assessments have been made by various EU Member States and by the Universities of Antwerp/Louven. These broadly agree that the application of 0.1% low sulphur fuel in 2015 may result in up to a 50% modal shift from sea to land due to the significant increase in fuel price (85% increase based on today’s prices). A recent German study has suggested this modal shift may add over an extra 600,000 trailers each year on German roads alone. Some routes, of course, are less susceptible to modal shift than others, but based on these various studies it would not be unreasonable to expect a significant decline in short sea shipping in Northern and Eastern UK ports as shippers shift to either the shortest possible sea routes or to Western UK ports that lie outside the ECAs. The consequences of such a shift would be far reaching. A major concern is that goods would be shifted from sea transport to the less environmentally effective method of road transport, and in doing so the “net environmental benefit” would be lost, due to the greater concentration of emissions in centres of population of road transport on a like-for-like basis. The Shipping Minister is currently engaged in an initiative to promote growth of short sea shipping in order to take freight off the roads; clearly, that would be seriously undermined as would the steps taken to date to encourage the development of the coastal shipping sector.

3. It is likely that the impact on shipping would not be confined to the short sea sector. Any company able to mitigate the additional costs of these regulations by shifting or altering operations is likely to do so. The UK may therefore, for example, see a significant increase in “fly cruises”, the cruise companies thereby avoiding operating in the ECAs. This could have a profound impact on the traditional cruise ports such as Southampton, Harwich and Dover as companies make greater use of European ports lying outside ECAs such as those in the Mediterranean. Increasingly we see ports like Southampton cater for non-UK nationals joining cruises. A move away would see the significant additional tourism revenues lost.
Possible implications for other sectors, such as road haulage

4. Some of the “unintended consequences” for other sectors are covered in paragraphs 2 and 3 above. Whereas road freight haulage companies might, at first glance, welcome the modal shift from sea to road, they will be less likely to welcome the greater congestion on roads, especially those feeding Western ports or those with the shortest crossings to mainland Europe, and nor will they welcome the likely rise in road diesel prices as shipping starts to compete for this slice of the fuel market. Forecourt price rises are not likely to be popular with domestic drivers either nor with farmers who are already being squeezed by recent increases in fuel prices.

5. Job losses in UK ports and associated infrastructures could be significant, especially in those ports lying within the ECAs as they see trade starting to decline. Clearly, if “fly cruises” become more of a norm (paragraph 3) then the UK ports currently the home of many cruise ships will face considerable job losses, the jobs going to Mediterranean and/or other non-ECA ports. Ferries, of course, don’t have the option of relocating to outside the ECAs and so we may well witness many longer routes being discontinued and/or considerable fare increases to keep the remaining routes viable.

6. The “unintended” impact on the environment could be considerable too. Shipping is by far the most low-carbon means of transport per tonne of freight. CO₂ emitted in grams per tonne-kilometre is approximately 18 for shipping, 50 for heavy trucks with trailers and over 500 for air freight. Any modal shift, therefore, from sea to land will drive up carbon emissions and impact on the UK’s ability to meet its carbon targets, especially as road transport is already within the UK carbon budget whilst shipping is not in the current scope. Additionally, hydro-treating heavy fuel oil to meet the 2015 SECA requirements, could potentially add about 12 million tonnes of carbon emissions within Europe alone.

Steps which the UK Government could take to assist the maritime sector meet its obligations under MARPOL

7. There are a number of ways in which the Government could assist the industry to meet its obligations under MARPOL Annex VI and thereby reduce the impact on the industry and those other sectors similarly affected. Firstly, and this is covered in greater detail under the final area of interest covered by this submission (paragraphs 13 to 17), to robustly push back against the EU Commission’s proposed draft Sulphur Directive, that is currently going through the approvals process. The Directive should be fully aligned with MARPOL Annex VI, instead of which it is “gold plating” the regulations in many areas which will greatly exacerbate the negative impacts as outlined in paragraphs 1 to 6 above.

8. Secondly, in terms of alternative technologies and fuels, in which lie the best hopes for a long term solution for shipping and the environment, there remain considerable challenges with which the UK Government has yet to demonstrate any leadership or willingness to engage. With very few exceptions, shipping companies globally have not invested in abatement technologies (such as scrubbers) as there is no commercial or financial advantage in doing so until the regulations come into force by which stage it may be too late, because while scrubbers have been demonstrated to work well in shore installations such as power stations, manufacturers have yet to be able to “marinise” their equipments sufficiently to produce a scrubber that is reliable enough for companies to meet the stringent sulphur limits. Scrubber technology is considered by the industry to be a useful option, but much more time is needed to make it functional, reliable and able to meet the compliance requirements of 0.1% Sulphur emissions, especially on multi-engine installations such as those on board passenger ferries. More research and development is required and this can only be achieved by getting the equipment fitted in ships in sufficient numbers. The Government should be helping this to happen, especially as it is understood that funds are available for such projects but have not been released for this important work.

9. The cost of purchasing and fitting a scrubber to a vessel is considerable and indeed, for smaller ships may simply not be an option because of lack of space. Normally, for amendments to IMO conventions, “grandfathering” arrangements are put in place such that they only apply to new build. This has not been the case for MARPOL Annex VI so there are vessels for which there is no option outside buying the very expensive low sulphur fuels. Government assistance is urgently needed to reduce the costs of compliance. This needs to be done soon so that manufacturers can keep pace with demand rather than all the orders coming in during the last few months of 2014. There is also concern over “regulatory certainty”—ie, if a company were to invest then it needs certainty that the UK and other countries will enforce the IMO regulations as they stand and not “gold plate” them. This is a particular problem with “wash water” regulations and is certainly dissuading some companies from investing in these technologies. There is also a danger that if owners do not invest in scrubbers in sufficient numbers by 2015 and accept paying the premium for low sulphur fuel, then at a later stage when scrubbers become viable there will not be sufficient heavy fuel oil (HFO) available if the refiners have made the switch to low sulphur fuel. Clearly, such an outcome would undermine the most promising means of mitigation for shipping.

10. Alternative fuel is another promising means of mitigating the cost of the sulphur regulations. LNG is the most obvious contender and the one with probably the best environmental profile, for SOₓ, NOₓ, carbon and particulate matter. But, again, there are a number of issues associated with LNG that are hindering a wider take-up. Whilst not an exhaustive list, these include lack of LNG bunkering facilities in the UK, lack of port LNG infrastructure, serious regulatory issues associated with re-fuelling passenger ships, methane slippage, loss of freight stowage areas on board due to size of LNG tanks and, possibly the greatest hurdle, converting a ship to LNG is complex and very expensive so that, at present, it is only suitable for new build vessels and
not a viable option for existing vessels. To date there has been little evidence of UK Government involvement in supporting the growth of LNG as a fuel for UK shipping and yet this is arguably the most promising long term prospect environmentally. The UK Government should be more supportive and, indeed, play a leading role internationally in the regulatory debate and also encourage development of a robust LNG infrastructure within the UK as well as supporting research and development to maximise the number of vessels capable of using LNG, including converting existing vessels.

11. There are also ways of mitigating the costs to shipping that are entirely regulatory by nature and so present no cost to Government. These include what are known as “averaging” and “banking”. “Averaging” is a mechanism whereby a ship owner can spread the regulatory requirements across his fleet or even within a single ship such that overall the global or ECA limits are met. This can be refined further to take into account the geographical position of the vessel(s) such that close to land ECA standards are met in full whilst further out to sea higher sulphur fuel can be used, but that at the end of a voyage the overall regulatory requirement has been met. “Banking” is a scheme whereby if a company meets the regulations earlier than it needs to, then they can, in effect, offset this after the regulations come into force. This could be an attractive way of encouraging early investment in scrubbers without Government aid. Maritime UK believes that both averaging and banking meet the provisions of MARPOL. Annex VI and that therefore the Government should give them both early and full consideration. This would also encourage and accelerate the take up of new abatement technologies.

12. Finally, the UK Government, judging by past record, is highly unlikely to give State Aid to shipping companies to help reduce the cost of compliance and yet, many other Member States will do so, thus putting UK shipping at a competitive disadvantage. The cost of compliance to industry must therefore be ameliorated if any means that this competitive disadvantage is to be avoided.

European commission proposals to implement the revisions to MARPOL, and the UK Government’s stance on these proposals

13. In the EU, Directive 1999/32/EC established the maxima for sulphur content in marine fuels. The Directive served as the EU legal instrument for incorporating international sulphur provisions into the EU regional legislation. Once MARPOL Annex VI came into force, the Directive was amended by Directive 2005/33/EC. The EU law, however, went beyond the international instrument and imposed additional requirements. In particular, it introduced:

- 0.1% maximum sulphur requirement for fuels used by ships at berth in all EU ports from 1 January 2010; and
- 1.5% maximum sulphur content for fuels used by all passenger ships in EU waters from 11 August 2006 (in addition to the international requirement of 1.5% maximum in ECAs prior to 2015).

In 2011 the Directive has once again been amended and, if accepted, will require that all passenger ships, operating in EU waters will be required to operate as if in ECAs, that is, being limited to 0.1% sulphur. However, to try to ameliorate fuel availability issues this regulation will be delayed by five years and thus come into force in 2020. There are a number of other areas where the Directive goes well beyond the scope of MARPOL Annex VI. These include setting mandatory sulphur limits for bunker suppliers (not required if scrubbers are used), no protections for ship operators in the event of non-availability of compliant fuel oil, extensive use of delegated acts within the Directive and uncertainty over their definition of passenger ships. This draft Directive is currently going through the approvals process. Maritime UK believes that the Directive should fully align itself with MARPOL Annex VI and not “gold plate” these internationally agreed regulations.

14. The regulations pertaining to passenger ships is effectively generating new ECAs by stealth—ie without going through proper scrutiny and being based on clear, unequivocal scientific data as required by the IMO. Furthermore, using the IMO definition of passenger ships which allows no more than 12 passengers, this would include driver-accompanied vessels that carry both freight and passengers (for example a vessel carrying predominately trucks together with between 50–100 drivers). This would place those mainly freight carrying vessels at a significant disadvantage and would once again encourage a modal shift from sea to land. These ships will be subject to the IMO global limit of 0.5% in 2020 or 2025, which will deliver a major emissions reduction. Furthermore, since passenger ships represent only about 10% of fuel consumption in EU shipping, the use of 0.1% fuel would achieve an overall EU reduction of 86%, instead of 85% without this additional requirement. This limited gain does not justify the additional costs entailed nor the potential modal back shift.

15. The European Commission’s proposal to amend the Sulphur Directive includes extensive use of “delegated acts”. These powers have their origin in the Lisbon treaty and experience of them is relatively limited. The scope of the delegated acts is, however, in some cases, considerable. For example, under proposed article 4a, paragraph 1a, these acts allow the Commission to decide non-ECAs sulphur limits from 2020 based upon the IMO’s assessment rather than its actual decision. Maritime UK therefore asks the Select Committee to satisfy itself that the Government has fully considered the potential implications of these delegated acts and is content that their use will not change substantively the policy objective to align the European Directive with the revised Annex VI of MARPOL.

16. Maritime UK is concerned that in some areas the Commission’s proposal goes beyond its legal competence and imposes obligations on Member States to enforce that process. In the articles related to the
“maximum sulphur content in marine fuel” we note that it is proposed “Member States shall take all necessary measures to ensure that [non-compliant] marine fuels are not used in the areas of their territorial seas, exclusive economic zones and pollution control zones”. This phraseology would appear to indicate that this imposes a duty on Member States to go beyond their traditional means of enforcement as port and flag states and to inspect ships transiting any of their waters as described above. Should such an approach be adopted, this could be construed as an infringement of the freedom of navigation as enshrined under UNCLOS. It also remains unclear by what authority the Member States are to prevent passenger ships from using a particular type of fuel simply by virtue of the fact that they have come from, or are going to, another EU Member State especially if that voyage transits international waters. Under law, intra-EU voyages remain international voyages. It is also questionable whether “emission abatement methods for use by ships flying the flag of Member States” should be approved by the Commission rather than by the flag state itself (proposed article 4d). Apart from questions of sovereignty, such a move could inhibit the competitiveness of all European flags including that of the UK. Clarity is also needed on whether the Commission’s remit would be restricted to an EU flagged ship operating within Europe or whether an abatement method acceptable to other flag, port and coastal states on a ship operating in, say, North America, would be unavailable to ships flying European flags.

17. Regulation 4 of MARPOL Annex VI covering equivalence, includes non-technical or operational procedures by which compliance methods used as an alternative can be adopted. This is to encourage invention and investment particularly when considering the use of abatement technology and raises the question of whether an average of sulphur emissions will be permitted within a single ship or within a fleet of ships. If the Directive is to mirror MARPOL Annex VI then it would be helpful if Regulation 4 as written there was included in the Directive.

**Government Policy**

In the light of the above reasoning, Maritime UK suggests that the Government should take the line that:

- the EU Sulphur Directive exactly mirror MARPOL Annex VI;
- resources should be urgently allocated to fund research and development in abatement technology;
- the cost of compliance to industry be minimised and placing UK shipping at a competitive disadvantage be avoided at all costs;
- “averaging” and “banking” should be allowed in the implementation of any Sulphur standards at an early stage, to encourage take up of abatement technologies;
- the IMO study on fuel ability should be brought forward as soon as practical from its current timing of 2018, so as to inform the issues which will arise from implementation of the IMO limits for both the 2015 and 2020 regulatory deadlines;
- developing a UK LNG marine infrastructure should be supported and that associated technological and regulatory issues be addressed; and
- the IMO should always carry out full impact assessments before binding decisions are taken that have significant economic implications.

**Annex A**

**FIRST SUBMISSION MADE BY MARITIME UK (JULY 2011), REQUESTING INQUIRY INTO SULPHUR SULPHUR REGULATIONS**

**ISSUE**

The shipping industry is facing severe challenges stemming from the imminent implementation of IMO and EU regulations on Sulphur emissions. These arise from a combination of factors including the physical availability internationally of the grades of fuel the regulations depend on, the substantial costs that will fall on those sectors most likely to be affected in the early years (mainly passenger and short-sea shipping), and the unavailability of adequate technological solutions at present.

Maritime UK would suggest that this would be a good issue for investigation by the Transport Committee and would be very willing to help prepare for such an inquiry, if that were considered useful.

**BACKGROUND**

In 2015 the North Sea, Baltic and Channel will become a Sulphur Emissions Control Area (SECA) in which all shipping will be constrained to using fuel with 0.1% or less sulphur content. In 2020 the global sulphur limit will be reduced from 3.5% to 0.5%.

These low sulphur fuels cannot be produced by blending alone, and so the 360 million tons of heavy fuel oil that ships burn annually throughout the world will have to be hydro-treated to achieve the required low sulphur content. It is considered that there may be just enough low sulphur fuel to meet the SECA requirements in 2015 but that there certainly will not be enough in 2020 to meet the global requirement. It is also doubtful
that ship borne abatement technologies (scrubbers for example) will be available in sufficient volume and with the required reliability to meet the new legislation.

Low sulphur fuels currently cost about 85% more than heavy fuel oil. Many shippers will find the resultant huge rise in shipping rates to be unaffordable and therefore, where possible, shift freight from sea to road. A recent German study has suggested this modal shift may add an extra one million lorries each year on German roads alone. Additionally, hydro-treating heavy fuel oil to meet the 2015 SECA requirements, will add about 12 million tons of carbon emissions within Europe alone.

HOW SULPHUR CONTENT IN MARINE FUELS IS REGULATED

(i) The level of sulphur emissions from ships operating internationally is governed by Annex VI to the IMO’s Marine Pollution (“Marpol”) Convention.

(ii) Marpol Annex VI came into force in May 2005. It set a 4.5% global cap on sulphur emissions by all ships. It also made provisions for specially designated Sulphur Control Areas (ECAs) where the sulphur content in fuel oil must not exceed 1.5%. The Baltic and the North Sea (incorporating the full length of the English Channel) became ECAs as from May 2005 and November 2007 respectively.

(iii) In the EU, it was the Directive 1999/32/EC that established the maxima for sulphur content in marine fuels. The Directive served as the EU legal instrument for incorporating international sulphur provisions into the EU regional legislation.

(iv) Once the Marpol Annex VI came into force, the above Directive was amended accordingly by a Directive 2005/33/EC. The EU law, however, went beyond the international instrument and imposed additional requirements. In particular, it introduced:

- 0.1% maximum sulphur requirement for fuels used by ships at berth in all EU ports from 1 January 2010.
- 1.5% maximum sulphur content for fuels used by all passenger ships in EU waters from 11 August 2006 (in addition to the international requirement of 1.5% maximum in ECAs only).

(v) In April 2008 the Marpol Annex VI was amended. The revised Marpol Annex VI set out more stringent limits on sulphur content in fuel:

- reduction in the global cap to 3.5% from 1 January 2012 followed by a further reduction to 0.5% from 1 January 2020 subject to a feasibility study.
- reduction in ECAs to 1% from 1 July 2010 and then a further reduction to 0, 1% from 1 January 2015

(vi) In order to align international legislation with the EU regional legislation, on 29 October 2010, the European Commission has launched a public consultation for a revision of Directive 1999/32 on sulphur content in marine fuels, with a view of putting forward a legislative proposal during 2011.

RECOMMENDATION

It is recommended therefore that an inquiry look into the following specific issues surrounding the sulphur legislation:

1. The impact that these regulations will have on British shipping and the potential for a significant modal shift from sea to road.
2. The impact that these regulations will have on carbon targets.
3. The availability in the UK of sufficient low sulphur fuel to meet both the 2015 SECA and 2020 global regulations.

October 2011

Supplementary evidence from John Garner, Maritime UK (SES 03a)

Mr Leech asked me the following question, “What proportion of shipping throughout the world comes through the area that would be impacted by the EU directive?” My response to him was as follows “I honestly do not know the answer to that question, but I could check and write to you”.

I asked the Chamber of Shipping whether the information was available and if so to make it available to me. The Secretariat of the Chamber have now spoken to a number of people on this including Lloyds Intelligence.

It appears that although the information is available it is held by a number of highly disparate sources and it would be necessary to engage a consultant to research and collate the information which could take several months.
Regretfully I have to advise you that the information is not available to me and I hope the committee will accept this explanation from me.

November 2011

Supplementary evidence from Maritime UK (SES 03b)

Maritime UK is grateful for the opportunity to comment on the supplementary evidence presented by the Department of Transport (SES 11a) and on the letter by the Department sent to the Presidency on 8 September 2011.

COMMENTS ON SUPPLEMENTARY EVIDENCE FROM THE DEPARTMENT OF TRANSPORT

The supplementary evidence from the Department deals exclusively with the status of abatement technologies (scrubbers). These technologies represent one of only three ways in which shipping can meet the sulphur regulations, the other two being either to pay the additional 80%+ for distillate fuels or to use alternate fuels (LNG being the front runner). However, as already explained in our main submission, LNG is not yet a feasible option for existing vessels and even for new build there remain significant regulatory and supply challenges. Thus, abatement technologies are the only alternative to paying an additional 80%+ for fuel and we strongly maintain that, whilst we believe the technology will eventually be available to provide certainty of compliance for this option, we are still a long way from that point. The majority of vessels will therefore be forced to pay the huge increase in price for distillates post 2015 and the spectre of severe modal shift, route closures and major associated societal impacts may well become reality.

The Minister states that “elements of the shipping industry are sceptical about the cost and maturity of these technologies.” We are certainly sceptical about the maturity of these technologies but the costs are absolute. One of our members is about to invest in three or four units in one vessel, at a cost of about 3 million Euros per unit and this would not cover all the vessel’s engines and generators (ie it is a partial fit for trial purposes). Another member, P&O Ferries, states that the cost of fitting scrubbers to just one multi-engined ferry will be in the order of millions of euros and about 150,000 euros per annum running costs. This does not include an expected loss of 1.5% in fuel efficiency. The capital outlay is therefore considerable and though pay back “should” be achieved in a few years, until there is certainty that the scrubbers will be technically reliable, capable of continuous operation and meet compliance levels to provide regulatory certainty, it remains a high risk gamble.

There are also considerations of substantial “hidden costs” in the time lost to a company whilst a vessel is taken out of operations for retro-fitting scrubbers. For example, the normal 14 day refit/dry-dock period of a Ro-Ro passenger ship on a biennial basis is totally insufficient time in which to retro fit a full outfit of sea water scrubbers. We believe such a fit will take four to six weeks to achieve leading to a substantial loss of operational time for that vessel. To attempt to fit scrubbers to all vessels operating in ECAs (were that even possible) prior to 2015, fitting in with a vessel’s biennial docking, would present a wholly unrealistic challenge. It is therefore likely that such work would have to be undertaken outside normal docking periods, reducing even further a vessel’s operational availability. That, of course, assumes that sufficient dry dock facilities will be available, which is also unlikely.

Turning to the specific examples given in the Minister’s supplementary evidence. P&O Ferries fitted scrubbers (BP Marine & Marine Exhaust Solutions of Canada) in June 2003 to all four main engines and four auxiliary engines on Pride of Kent. The main engine scrubbers were unable to provide the required scrubbing efficiency, and were de-commissioned. After persevering for almost two years the four auxiliary engines achieved less than 55% scrubbing efficiency vs the 95% performance standards criteria set so were de-commissioned in August 2005. BP Marine together with Krystallon then fitted a prototype unit on one auxiliary engine on Pride of Kent between 17–20 December 2005. This has undergone extensive modifications during the intervening years to improve operating efficiency. Although this unit has now more than 30,000 operating hours there have been long periods of non-availability, unreliability, and considerable crew intervention when it was operating.

The scrubber fitted to the Holland America cruise ship Zaandam has not managed to operate continuously under any form of compliance regime. It is a prototype and each time it has run it has demonstrated the need to make further modifications and improvements. The DFDS Ro-Ro vessel Tor Ficaria has only ever been operated in pilot mode and barely achieved 3,800 hours in 13 months (ie less than 30%) and in the view of the owners is still not mature for maritime use. There also remain legal issues to be resolved with respect to discharge of resultant residue waste.

We also take issue with the final point in the supplementary evidence alluding to the prospect of a “one size fits all” configuration. This is a totally unrealistic aspiration and takes little or no account of the huge differences between vessel types, size and design. A very recent study conducted by Interferry that assessed 108 Ro-Ro vessels and ferries (operated by Brittany Ferries, DFDS Seaways, Grimaldi Group, P&O Ferries, Stena Line...
and TT Line) concluded that 60% were unsuitable to have scrubbers fitted, for reasons of adequate space, stability, deadweight or age. Typically, the cut off point for age was 20 years though some older vessels were not disqualified as the operator considered them still suitable for new investment.

We need the technology to be ready in all respects now if shipping is to have any hope of meeting the 2015 deadline without having to pay for the higher priced distillates, a step that many companies may well not be able to endure for long, if at all. Manufacturing and fitting the equipment for the European fleets will be a lengthy process and time is fast running out. It is essential that the UK Government urgently provides incentives for R&D fits, to iron out the remaining problems and thereby encourage uptake of reliable equipments that are able to meet the taut 2015 ECA standards with certainty. Either that or push for a delay in bringing in these regulations thereby allowing technology to catch up with regulatory intent, as was done with the Ballast Water Convention.

**COMMENTS ON DfT LETTER TO PRESIDENCY**

Maritime UK welcomes the broad thrust of the DfT letter to the Presidency, pushing back against “gold plating” of the internationally agreed MARPOL Annex VI and seeking to re-instate some elements that the Commission had omitted. The following specific comments are made:

**General Position**—Fully agree—with the exception of the paragraph on the “maturity” of abatement technologies, which we have covered in the first part of these supplementary comments. We would only add that, whilst we share the view that the “Commission’s offer of financial assistance through grants and state aid is a step in the right direction”, it is somewhat disingenuous of the Department to make this point in the knowledge that the UK Government will not pass on these financial incentives, a point the Minister clearly made in his oral evidence.

**IMO review of fuel availability**—The phrasing used leaves this section open to misinterpretation. The Department appears to be saying that if an EU study proved there were no problems with fuel availability in 2020, then it would be prepared to accept that, even if the IMO decided the date should be postponed to 2025. The UK policy should be to support the decision taken at the IMO irrespective of regional variations.

**Fuel availability in the EU**—This paragraph as a whole demonstrates a weak UK position, in effect derogating leadership to the Commission. The UK should press for a preferred outcome and for that to be reflected in the Directive. Furthermore, the acknowledgement that there may be availability problems for certain types of fuel reinforces our view in our main submission that the IMO fuel availability study should be brought forward substantially from 2018, preferably to 2013. If an earlier study demonstrates that there is no problem with availability then nothing will have been lost but greater certainty will have been achieved. If the study demonstrates a problem then we need to know that sooner rather than later so that something can be done to ensure sufficient supplies are in place in time. The present “ostrich-like” approach in the IMO (lest the 2015 ECA limits be shown to be unachievable and therefore have to be reviewed) helps no one.

**Passenger ships operating outside the two ECAs**—We welcome the Department’s intent but feel they should be more robust, clearly laying out which vessels should or should not be included rather than seeking clarity from the Commission. We remain very concerned that the new requirement for passenger ships goes far beyond the internationally agreed sulphur limits and is, in effect, creating a European wide ECA for passenger ships. This both focuses on a single sector and “gold-plates” unilaterally. The introduction of any new ECA should go through the IMO process, with a properly worked out case supported by scientific data on an environmental and economic basis. Additionally, the distinction between passenger ships (greater than 12 passengers) and pure freight vessels undermines the mixed multi-purpose model used by most ferry operators. This will have grave consequences for that sector and will make many routes unviable for freight as well as passengers.

**Sampling and monitoring of fuel**—We share the Department’s view on this important issue but go further and believe that the word “continuously” be removed from “shall continuously achieve reductions” (Article 1.7) as experience has shown that when a ship’s engine is put under sudden, heavy load the scrubbers may temporarily fail to meet the emission reductions required. The use of “continuously” would also restrict the range of alternate abatement methods available to ship-owners to achieve compliance, such as averaging. Additionally, we believe the Government’s submission should push back against the limitations on fuels being imposed post 2020. Article 4b 3 states that “Member States shall ensure that marine gas oils are not placed on the market in their territory if the sulphur content of those marine gas oils exceeds 0.1% by mass”. Post 2020 however, it is likely that a gas oil of 0.2-0.5% will be used to comply with the global sulphur limit (0.5%) but those fuels will be prohibited from sale in the EU. This is another attempt to create an ECA by a back door route and should be fought.

*December 2011*
Written evidence from the European Cruise Council (SES 04)

1. The European Cruise Council represents 30 of the leading cruise ship operators in Europe and has 32 associate members. Last year the European cruise industry contributed over €35 billion to the economies of Europe, employing more than 300,000 people and embarked 5.2 million passengers on their cruise from a European port. Our objective is to promote the interests of cruise ship operators within Europe, working closely with the EU Institutions on policy related to transport, environment, health, consumer affairs, tax and tourism. The European Cruise Council (ECC) and its members stand for quality shipping, upholding high environmental and safety standards for the benefit of our passengers, coastal areas, the sea and society at large.

2. The ECC notes that the Transport Committee has invited written evidence on the implementation of IMO and EU regulations on sulphur emissions by ships and is particularly interested in steps which the UK Government could take to assist the maritime sector meet its obligations under Marpol.

3. The ECC is strongly supportive of the submission made to the Committee by Maritime UK and, in particular, its recognition that there are "ways of mitigating the costs to shipping that are entirely regulatory by nature and so present no cost to Government". While the Maritime UK submission briefly mentions the concept of “sulphur averaging” (see their para 11) it does not go into detail and purpose of this submission is to provide more background on this concept in case the Committee wish to pursue this line of enquiry.

**Use of Averaging as an Equivalent Method**

4. Annex VI includes provisions for equivalencies if they are “at least as effective” as use of fuel complying with ECA standards. We believe that environmental protection consistent with the goals of the ECA can be achieved via a more flexible regulatory approach that allows for the averaging of fuel sulphur “credits”. For example:

(a) **Single Vessel Averaging:** Cruise ships typically have multiple diesel electric engines which can be used in any combination to satisfy required propulsion and auxiliary loads and different engines can be run on different fuels with sulphur contents less than (for example, via use of gas turbine engines) or greater than the ECA requirement. Some engines such as gas turbines are inherently cleaner; some others may be fitted with aftertreatment devices (eg exhaust gas cleaning systems or “scrubbers”); while others may not depending on space and scrubber capacity constraints. Benefits of zero emissions when using shore power at berth can also be folded into the averaging calculation. Vessel operations can thus be configured to achieve average emissions equivalent to the use of ECA compliant fuel in all engines.

(b) **Multiple Vessel Averaging:** The concept of single vessel averaging can be extended to averaging over multiple vessels operating on similar itineraries, thereby further increasing the range of available options for achieving compliance.

(c) **Distance-Weighted Averaging:** Replacement of higher sulphur residual fuel oil with the distillate fuel needed to meet ECA limits will reduce population exposures to particulate matter from ships operating near shore. Substitution of residual fuel oil with distillate fuel when operating further out but still within the ECA zone will result in limited additional public health protection. A more flexible approach to compliance allows weighted averaging of fuel sulphur content, with the weighting factors based on distance of the ship from the greatest potential for public health exposure impacts.

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DEMONSTRATING EQUIVALENCE

5. Equivalence with the ECA requirements can be demonstrated by tracking fuel consumption rates and other operating parameters and calculating resulting emissions for a particular itinerary. Equivalence is demonstrated when weighted average emissions for vessels operating on a given set of itineraries are less than or equal to what they would have been had the vessels simply used ECA compliant fuel. Emissions weighting factors can be assigned to different segments of the itinerary when calculating averages to account for the degree of potential public health exposure from emissions occurring along those segments. For example, in the above figure, emissions occurring within Segment A would have a high weighting factor as compared to those occurring in Segment B. Dispersion modeling, based on existing government methodology, is used to assign appropriate weighting factors to each segment of the voyage. Voyage data and weighting factors are input into an emissions calculator which computes weighted average emissions for comparison to emissions produced by simply using ECA compliant fuel.

Figure 2

SUMMARY

6. The UK Government was strongly supportive of including language that allowed for equivalent compliance options during the negotiation of the revised MARPOL Annex VI and this manifested itself in Regulation 4 of that Annex. While the European Commission’s proposed amendments to the Sulphur Directive largely incorporate the text of Regulation 4 there are other are a number of other articles throughout the proposal whose current wording might seriously impede the development and use of such alternative compliance options.

7. It should be recognised that alternative compliance options may not only prove a means of compliance in themselves but will encourage and hasten the development of alternative technologies (by reducing the necessary capital expenditure) and reduce demand for supplies of distillate fuel.

8. The ECC therefore asks the Transport Select Committee to ensure the Government is satisfied that the full range of compliance options envisaged under the revised MARPOL Annex VI are permitted under the proposed amendments to the EU’s Sulphur Directive.

October 2011
Written evidence from RMT (SES 06)

The National Union of Rail, Maritime and Transport Workers (RMT) welcome the opportunity to briefly contribute to the Transport Committee’s inquiry into sulphur emissions from ships. RMT organises around 80,000 members across the transport industry. We are also the specialist union for seafaring ratings and represent the majority of UK seafaring ratings currently in employment. Ratings comprise at least half of seafaring personnel employed on a ship.

RMT has a long standing commitment in support of creating an environmentally sustainable transport sector and welcomed the statutory targets set out in the Climate Change Act 2008 to reduce emissions by 80% by 2050, compared to their 1990 levels.

In 2009, transport, excluding international aviation and shipping, accounted for 22% of all UK greenhouse gas emissions.\(^2\)

In terms of the maritime sector, which remains for the movement of freight more environmentally friendly than road freight and aviation, the Department for Energy and Climate Change reported this year: “In 2009, emissions from UK international shipping bunkers were estimated to be 10.6 million tonnes carbon dioxide equivalent. This was 7.1% lower than the 2008 figure of 11.4 million tonnes. Between 1990 and 1998 emissions from UK shipping bunkers increased by around 18%. Emissions have subsequently decreased by around 2% from the 1998 level. However, UK operators purchase most of their fuel outside the UK.”\(^2\)

Self-evidently it will be necessary for the transport industry to take determined steps to improve energy efficiency and reduce emissions whilst at the same time ensuring that jobs, skills and terms and conditions of employment are protected as climate change reduction measures are implemented. It is therefore essential that discussion, consultation and negotiation with trades unions are embedded in industry climate change strategies.

In relation to sulphur emissions, the International Transport Workers Federation, to which RMT is affiliated, at their 2010 Climate Change Conference in Mexico explained “Although shipping is a very efficient form of transportation, the bunker fuels used in ship motors are highly polluting. In order for shipping to significantly reduce its greenhouse gas equivalent emissions (bunker fuels emit high levels of sulphur), low-sulphur fuels need to replace bunker fuels or expensive abatement systems need to be installed”.\(^3\)

Earlier this year the European Commission proposed that by 1 January 2015 sulphur dioxide and fine particle emissions from shipping fuels should be reduced by 90% and 80% respectively. This would mean that the maximum level of sulphur allowed on vessels operating in the North Sea, Baltic Sea and Channel will be reduced by 1.5% to 0.1%.

RMT supports measures to reduce sulphur levels from shipping fuel and recognises that the European Commission proposals are in part motivated by frustration at the slow pace with which the International Maritime Organisation, the European Shippers’ Council and the Chamber of Shipping have sought to address climate change reduction measures.

Indeed, the European Shippers’ Council responded to the proposed new limits by arguing that the changes should be delayed until 2020 due to the increased cost of fuel and raising fears that there would be a modal shift away from the maritime sector in the movement of freight.

Within the framework of supporting reductions in sulphur and other greenhouse gas emissions we are concerned that in response to increased fuel bills the shipping employers will attempt to offset costs by driving down wages, weakening terms and conditions and delaying or not implementing plans to increase training opportunities for ratings.

We will therefore be seeking meetings with the Chamber of Shipping to discuss how the Commission’s proposals impact on the concerns we have raised in our brief contribution to your inquiry.

October 2011

Written evidence from the British Marine Federation (SES 08)

The British Marine Federation (BMF) welcomes the opportunity to submit evidence to the inquiry of the House of Commons Transport Select Committee into the implementation of IMO and EU regulations on sulphur emissions by ships. These responses broadly reflect the on-going view of the BMF and its members.

SECTION 1—INTRODUCTION

Introduction

1.1 The BMF is the Trade Association for the UK recreational, superyacht and small commercial marine industry, representing approximately 1,500 member companies. Our industry is comprised of small and medium enterprises, with over 98% of our companies employing less than 50 people.

\(^2\) Department of Energy and Climate Change; UK Climate Change Sustainable Development Indicators Greenhouse Gas Emissions Final Figures

\(^3\) Discussion Document. Transport Workers and Climate Change: Towards, Sustainable, Low-Carbon Mobility
1.2 The overwhelming majority of the vessels built by our members are relatively small, with a length of less than 24m, but there are also a limited number of UK yards successfully building superyachts with a length greater than 24m.

1.3 Notably, the UK holds a world leading position in powerboat design and build with companies such as Sunseeker, Princess, Fairline and Sealine providing globally recognised and respected products.

1.4 In total, the UK leisure marine sector directly employs over 32,500 employees and generates revenue of almost £3 billion, with 39% of this being exported.\(^4\)

1.5 The purpose of this document is to highlight the concerns that the members of the BMF have with the forthcoming MARPOL Annex VI requirements which will significantly reduce Nitrogen Oxides ($\text{NO}_x$) emission requirements in 2016 under Regulation 13 and Sulphur Oxides ($\text{SO}_x$) under Regulation 14.

**SECTION 2—INTERNATIONAL CONVENTION FOR THE PREVENTION OF POLLUTION FROM SHIPS (MARPOL) ANNEX VI**

**Introduction**

2.1 The BMF has been investigating the issues surrounding MARPOL Annex VI compliance, both $\text{NO}_x$ and $\text{SO}_x$, through an international working group comprising boatbuilders, engine manufacturers, catalyst manufacturers, Flag Administration and Classification Societies.

2.2 The expert guidance we have received indicates that the Annex VI requirements will not be achievable using engine technology alone so will require exhaust after-treatment with the most likely solution being Selective Catalytic Reduction (SCR).

**Annex VI Requirements**

2.3 The size of the required catalyst within the SCR system is dependent on the sulphur content of the fuel. Highway applications can adopt relatively small volume catalysts because fuel with a maximum content of 10ppm (0.001%) is required by regulation. The sulphur content of fuel in marine applications is higher hence requiring larger units and, for certain applications, soot blowers to prevent catalyst performance deterioration.

2.4 Exhaust temperature is also a critical design parameter and, since these vessels operate at low engine loads for the majority of the time, exhaust pre-heaters may also be required.

2.5 The catalytic reaction requires injection of a urea solution into the exhaust gas at a consumption rate of circa 5–7% of fuel consumption.

2.6 The vessels that our members produce currently operate using fuel with a sulphur content varying from 10 to 5000ppm (0.001% to 0.5%) depending on location. The limits on sulphur content within Annex VI Regulation 14 would not therefore cause a direct supply impact. However, these vessels are operated throughout the world and the global supply of fuel shows wide variations in quality.

2.7 In certain countries the best fuel available may contain up to 0.5% sulphur, however, when entering an Emission Control Area it will not be permissible to burn this higher sulphur fuel. The vessels may therefore require dedicated fuel tanks to hold 0.1% sulphur fuel for use in this eventuality. If further research shows that this is required then a significant cost and space impact will be experienced.

**SECTION 3—EXEMPTIONS WITHIN ANNEX VI**

**Introduction**

3.1 An important aspect of the Annex VI requirements is within Regulation 13.5.2 which provides an exemption for:

3.11 "a marine diesel engine installed on a ship with a length (L) [...] less than 24 metres when it has been specifically designed, and is used solely, for recreational purposes."

**The Importance of Definitions**

3.2 This exemption is welcomed by our members, however, it does call into focus the precise definition of "recreational". In the UK the Merchant Shipping Act includes a definition of Pleasure Vessel and the Maritime & Coastguard Agency consider any vessel that does not fall within this definition to be commercial, thus no longer recreational.

3.3 This approach means that the vessels manufactured by our members that are used for charter would need to meet the Annex VI requirements and, in theory, vessels that are destined to be Pleasure Vessels when delivered would need to meet the emission requirements while on builder’s trials.

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3.4 This position is further complicated by the fact that the Recreational Craft Directive which is the European Directive defining safety standards for recreational craft contains the following definition under Article 1.3:

3.41 “recreational craft”: any boat of any type intended for sports and leisure purposes of hull length from 2.5 m to 24 m, measured according to the harmonised standard, regardless of the means of propulsion; the fact that the same boat could be used for charter or for recreational boating training shall not prevent it being covered by this Directive when it is placed on the Community market for recreational purposes”.

3.5 In addition, the United States Coastguard have another definition, namely:

3.51 “Recreational vessel means a vessel that is intended by the vessel manufacturer to be operated primarily for pleasure or leased, rented or chartered to another for the latter’s pleasure”.

3.6 These two definitions indicate that vessels that are chartered remain recreational and would hence fall within the Annex VI exemption which is in conflict with the UK position.

SECTION 4—CONCLUSIONS

4.1 The BMF broadly supports the goal of a reduction in exhaust emissions from shipping, however, this must be achieved with an impact that is manageable by industry.

4.2 Investigations are ongoing, but the impact with respect to space, weight, cost and back pressure on these relatively small vessels with very low operating hours seems disproportionate. This may threaten the economic viability of certain models due to the reduction in interior accommodation volume associated with the increased machinery space volume required to install after-treatment and dedicated tanks.

4.3 It is acknowledged that after-treatment technology will significantly develop in the coming years; however, many yachts are semi-custom built whereby each model requires a large investment in standardisation of design, systems and tooling. In order to amortise this initial investment the models will frequently remain in production for a number of years so yacht builders are planning today for designs that will still be in production in 2016 and beyond.

4.4 Technologies that will come into application on a yacht will have to be derived from one of the established applications such as heavy duty vehicles or larger vessel technology. Yacht engine installations will need to be “integrated systems”, ie a production built engine/after-treatment unit certified as one system by the engine manufacturer. This outcome can only be achieved as a result of engine manufacturer research or of a partnership with after-treatment equipment suppliers.

4.5 Today it is still under economic consideration whether manufacturers of marine engines and emissions reductions technologies will invest sufficiently in research and development in order to provide Tier III compliance to this niche market which will not impose an undue impact on the UK industry.

October 2011

Supplementary evidence from the British Marine Federation (SES 08a)

As set out in the BMF’s previous written evidence submission, and during the oral evidence session on 25 October 2011, the UK recreational, superyacht and small commercial marine industry is immensely concerned about the forthcoming exhaust emission requirements contained within MARPOL Annex VI. The overwhelming majority of the vessels within this sector are relatively small, with a length of less than 24 metres, but there are also a number of UK yards successfully building yachts with a length greater than 24m, so-called superyachts. The vessels in this sector operate using marine gas oil with a comparatively low sulphur content, ranging from 0.001% to 0.5%, so the global cap on sulphur content of fuel contained within MARPOL Annex VI Regulation 14 will not directly impact on the sector, however other requirements within the Annex and certain interpretations have the potential to significantly affect UK manufacturers.

The Regulations

Regulation 14 Sulphur oxides (SO₂) and particulate matter will require that ships operating within an emission control area are to use fuel oil with a sulphur content not exceeding 0.10% m/m on and after 1 January 2015. The vessels in this sector are frequently for global operation and the availability of 0.1% sulphur throughout the world is uncertain. Scrubbing technology is impractical and costly for vessels of this size so compliance may require the fitting of dedicated tanks to hold the 0.1% sulphur fuel with the associated design, cost and space impacts this entails. The BMF believes that an approach to averaging the energy used on board to meet this Regulation would be welcome, in order to limit the potential implications.

Regulation 13 Nitrogen oxides (NOₓ) will require marine diesel engines of 130kW or more installed on a ship constructed on or after 1 January 2016 to have emissions below 2.0 g/kWh compared to the current level of 7.7 g/kWh. The guidance we have received from engine manufacturers indicates that these requirements will not be achievable using engine technology alone so will require exhaust after-treatment with the most
likely solution being Selective Catalytic Reduction. Catalyst manufacturers have provided indicative figures for the volume, mass and cost of the catalyst reactor. The vessels within this sector are for luxury or workboat purposes and space is fundamental for their economic viability. The engine rooms on the majority of current vessels do not have sufficient space to accommodate the additional equipment, so accommodation or working space will be impacted. The initial cost of the additional equipment has been estimated by a catalyst manufacturer to be between £25 and £45 per kW of engine power which approximates to between 1.5% and 8.5% of overall vessel price. As an example an 18.3m motoryacht produced by a UK manufacturer currently selling for circa £1,290,000 would require additional catalyst equipment at an estimated cost of between £45,000 and £80,000. These cost impacts do not include any design consequences to provide the required space or the additional tankage required. The catalytic reaction also requires injection of a urea solution into the exhaust gas at a consumption rate of circa 5–7% of fuel consumption which will need a tank and supply system and therefore add additional impractical costs.

The Importance of Exemptions and Definitions

Within the Regulations, certain exemptions are provided for. Regulation 13.5.2 provides the following exemption which is critical to a proportion of the sector, which excepts: “a marine diesel engine installed on a ship with a length (L) [...] less than 24 metres when it has been specifically designed, and is used solely, for recreational purposes.” The term recreational purposes is, however, not defined within MARPOL and there is no unified global definition. Conflicting definitions are adopted by different countries which could lead to a disadvantageous position for UK manufacturers. Recreational craft used for charter in the UK are considered commercial so will be required to fit the exhaust after-treatment equipment.

The Recreational Craft Directive (Directive 94/25/EC as amended by 2003/44/EC) definition of recreational craft includes charter vessels and also states that Member States shall not impose requirements that require modification to craft conforming to this Directive. In a recent note to members of the Expert Group on Recreational Craft, the European Commission reinforced this position stating “...it can be deducted that Member States cannot set rules imposing the MARPOL Convention NOx emission limits as long as such limits dictate the technical modification of those recreational crafts whose NOx emissions comply with the emission limits set in the Directive”. The UK interpretation of the definition of recreational craft conflicts with the Recreational Craft Directive in requiring constructional changes to vessels within the scope of the Directive and we believe this approach to be in breach of European law. Importantly, the Recreational Craft Directive contains exhaust emission requirements which have been developed specifically for this sector and supported by a full impact assessment.

Conclusions and Requirements

In total, this UK marine sector directly employs over 32,500 employees and generates revenue of almost £3 billion per year, with 39% of this being exported. The industry is comprised of small and medium enterprises, with over 98% of our companies employing less than 50 people. The vessels have very low engine operating hours when compared to commercial shipping. The annual hours for recreational craft are estimated to be 50 hours according to the ICOMIA (International Council of Marine Industry Associations) Marine Engine Committee.

The emissions to air from recreational craft are minor when compared to other sources of air pollution in Europe. According to a study produced by The European Confederation of Nautical Industries in June 2009, the contribution of NOx emissions from this sector is 0.17% of that attributed to road transport.

The sector broadly supports the goal of a reduction in exhaust emissions from shipping, however, this must be achieved with:

— an impact that is manageable by industry; and
— proportional to the emission contribution.

The impact with respect to space, weight, cost and back pressure on these relatively small vessels with very low operating hours is disproportionate. This may threaten the economic viability of certain models due to the reduction in interior accommodation volume or working area associated with the increased machinery space volume required to install after-treatment equipment and dedicated tanks.

Today it is still under economic consideration by manufacturers of exhaust after-treatment technologies whether to invest sufficiently in research and development in order to provide Tier III compliance to this niche market which will not impose an undue impact on the UK industry.

The BMF therefore urges the UK government to:

— Support research and development in after-treatment technology to limit the impact on this sector.
— Confirm that the UK will adhere to the requirements of the Recreational Craft Directive and not apply the MARPOL emission requirements to charter vessels under 24m.
— Support the concept of averaging to meet the requirements of Regulation 14.

November 2011
REFERENCES

1 Enclosure: EC Note to Members of the Expert Group on Recreational Craft (Available in the Parliamentary Archives)

Written evidence from the Department for Transport (SES 11)

Summary

— The Government recognises the risk to the environment and to human health posed by SO\textsubscript{x} emissions from ships. Polluting atmospheric emissions from ships are regulated by Annex VI of the International Convention for the Prevention of Pollution from Ships (commonly known as MARPOL), and the UK played a prominent role in negotiating the revised Annex VI.

— The Government’s aim is to implement the revised Annex VI in a way that minimises the economic impact on the industry, whilst delivering the important environmental and health benefits.

— While concern has been expressed, particularly in parts of Scandinavia and around the Baltic, that reverse modal shift (ie from maritime back to land-based transport) might occur, the Government has not yet seen any evidence to suggest that there will be a significant impact, either in terms of excessively high costs or reverse modal shift, on the UK but welcome any evidence that affected parties might wish to provide.

— The European Commission’s proposal for a Directive is welcome insofar as it seeks to align EU law with the revised Annex VI. However, there are concerns about those parts of the proposal which deviate from the international standard.

Sulphur Emissions from Ships

1. Shipping is a significant and growing source of global emissions of atmospheric pollutants impacting on health, ecosystems and climate. Impacts can be local where ships are close to land but pollutants can also travel very long distances and have impacts far from the source. For example, the UK is impacted by Atlantic shipping activities. Studies have estimated that currently around 4–9% of all global anthropogenic SO\textsubscript{2} emissions are attributed to ships, with almost 70% of those emissions impacting on land.\textsuperscript{5} Consequently, emissions from ships can have a major impact on air quality on land.

2. Sulphur oxides (SO\textsubscript{x}) are some of the main pollutants which ships emit. SO\textsubscript{2} is a precursor for particulate matter (PM). Following its release into the atmosphere, SO\textsubscript{2} reacts with other pollutants and forms PM which is referred to as secondary PM. Both short-term and long-term exposure to ambient levels of PM are consistently associated with respiratory and cardiovascular illness and mortality as well as other ill-health effects. PM is carcinogenic and can be a major threat to health. Emissions of particulates are associated with increased risk of heart disease and (if particulates include carcinogens, eg from fuel or from combustion processes) of some cancers.

MARPOL Annex VI

3. Polluting atmospheric emissions from ships are regulated by Annex VI of the International Convention for the Prevention of Pollution from Ships (commonly known as MARPOL), which places limits upon SO\textsubscript{x} emissions.

4. The negotiation of the original Annex VI in the International Maritime Organization (IMO) in the 1990s was challenging. The targets contained within it were the result of political compromise, and consequently were relatively undemanding—especially compared to the limits which applied to road vehicles. In particular, the 4.5% global cap on sulphur content in fuel was perceived as being too lenient. Therefore, no sooner had Annex VI been adopted in 1997 than pressure began to mount for a substantial revision process to bring in tougher targets.

5. Once Annex VI had entered into force in May 2005, the UK and six other European states (Finland, Germany, Italy, the Netherlands, Norway and Sweden) proposed its revision. The IMO set the process in motion.

6. There was considerable division within the IMO over the form that the revision might take. The UK, in common with many other states, favoured a goal-based approach to reducing SO\textsubscript{2} and NO\textsubscript{x} emissions. Our proposal envisaged a gradual reduction in the sulphur limits for marine fuel, but allowed ships to follow the alternative compliance route of continuing to burn higher sulphur fuel while using emissions abatement equipment (such as exhaust gas cleaning systems—commonly known as scrubbers) to achieve equivalent

7. However, there was a different proposal from the Association of Independent Tanker Owners (Intertanko), supported by some states, to force all ships to burn marine diesel oil (typically 0.5% sulphur) in the near future, with no allowance for the use of abatement technologies. While this option was superficially attractive in terms of air quality improvements, it would bring a large increase in CO$_2$ emissions (modelling from the Netherlands indicated something in the region of 90 million tonnes of CO$_2$). For this reason, the UK did not support this option.

8. The decisive phase of the revision of Annex VI took place at the IMO’s Marine Environment Protection Committee (MEPC) when it met on 31 March-4 April 2008. SO$_x$ emissions was the most hotly debated subject, centring on:

- a Norway/Germany/Finland proposal, (supported by Intertanko) with co-ordinated EU support, that was intended to lead the way towards a low sulphur distillate fuel regime as soon as possible; and
- the UK’s more measured solution (with varying degrees of support from Denmark, Malta, Netherlands, Spain and a number of non-EU states), for a more goal based standard, permitting alternative technologies and recognising the costs, uncertain scientific basis and uncertain practicability of the Norway/Germany/Finland proposal. This approach attracted support from the International Chamber of Shipping and other shipping representatives.

9. The final compromise on the revised Annex VI included a staged introduction of stricter sulphur limits in fuel, a review of the availability before the introduction of the most stringent limit (that would be equivalent to distillate fuel) and acceptance of approved alternative technology:

(i) global sulphur cap:
- 4.5% prior to 1 January 2012.
- 3.5% from 1 January 2012.
- 0.5% from 1 January 2020, subject to a review by 2018.

(ii) sulphur limit in Emission Control Areas (ECAs):
- 1.5% sulphur prior to 1 July 2010.
- 1.0% sulphur from 1 July 2010.
- 0.1% from 1 January 2015.

10. The revised Annex VI introduced the concept of geographic areas known as Emission Control Areas (ECAs) for sulphur, or for nitrogen oxides, or for both$^6$. There are currently three such ECAs,$^7$ two of which are in northern Europe. From 1 January 2015, ships travelling through these areas will be required either to use fuel with a sulphur content which does not exceed 0.1% sulphur or to use an alternative compliance method which is at least as effective in terms of emissions reductions.

11. The UK was one of the original proponents of the North Sea SECA which came into force in 2007 (and which is now the North Sea SO$_x$ ECA), because the UK has consistently recognised the risk to the environment and to human health posed by SO$_x$ emissions from ships.

12. The revised Annex VI’s provisions on SO$_x$ also include:

(a) a review of the global availability of 0.5% sulphur fuel, to be completed by 2018. If the outcome of the review were to indicate that inadequate supply of such fuel would render it impossible for ships to comply with the 0.5% requirement in 2020, the revised Annex VI provides for the deferral of the effective date of the requirement to 1 January 2025; and

(b) a provision concerning fuel availability. States which are Parties to Annex VI are required to promote the availability of compliant fuel. Where a ship which was not in compliance with the fuel oil standard can demonstrate that it made its best efforts to obtain compliant fuel oil but (without deviating from its intended voyage or unduly delaying its voyage) no such fuel oil was available for purchase, then a state has discretion to determine the appropriate action, which may include not taking control measures against the ship.

13. The outcome of the revision of Annex VI will significantly reduce emissions of SO$_x$ from ships (as well as nitrogen oxides and PM) and consequently improve UK air quality. With the introduction of the revised Annex VI, UK SO$_x$ emissions from ships are expected to decrease by 84% from 355 kt in 2007 to 57 kt in 2020. Without the revised Annex VI, UK SO$_x$ emissions are predicted to increase by 45% from 355 kt in 2007.

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$^6$ The ECA concept replaced the more limited SOx Emission Control Area (SECA) concept contained in the original Annex VI.

$^7$ The SOx ECA in the Baltic Sea, the SOx ECA in the North Sea (including the English Channel) and the North American ECA (a SOx and NOx ECA which covers most of the seas around the USA and Canada).
to 518 kt in 2020.\(^8\) As a result, between 2012 and 2020 the health benefit to the UK of the revised Annex VI is estimated at around £5 billion. There are also likely to be longer term benefits with the annual benefits after 2020 estimated at around £1.1 billion.\(^9\) All these benefits are driven by chronic exposure to secondary PM, and exclude the range of wider health impacts, improvements in natural ecosystems and protection of the man-made environment.

14. The UK has taken the view that the revised Annex VI represents a global compromise solution as a result of many hours of difficult negotiations, and that there can be no guarantee that unpicking the agreement would be likely to generate a better outcome. Implementing the revised Annex VI will also bring the maritime sector more into line with the other transport modes which have, for several years, been using low sulphur fuels to reduce SOx emissions.

15. IMO’s MEPC formally adopted the revised Annex VI in October 2008, with substantial, broad-based support from the great majority of state, environmental non-governmental organisation and industry representatives.

### IMPACT ON SHIPPING OF MORE STRINGENT LIMITS ON SULPHUR IN FUEL CONTAINED IN THE REVISED MARPOL ANNEX VI

16. There is some concern on the part of the ferry and short-sea shipping elements of the industry at the cost impact of the revised Annex VI’s sulphur limits. In particular, the Government is aware that some studies\(^10\) have indicated that reverse modal shift (ie from maritime back to land-based transport) might occur in parts of Scandinavia and around the Baltic. Nonetheless, the Government has not yet seen any evidence to suggest that this is likely to be the case in the UK.

17. In early 2009, the Department’s Maritime and Coastguard Agency (MCA) commissioned a consultancy exercise to develop a basic economic assessment of the impact of the revised Annex VI. The consultancy report, completed in July 2009,\(^11\) will be used in the impact assessment for the implementation of the revised Annex VI. No firm evidence has yet emerged, either in the consultancy report or elsewhere, to demonstrate that there will actually be a significant impact, either in terms of excessively high costs or reverse modal shift, on the UK. However, the Government would welcome any evidence that affected parties might be able to provide.

18. There may be availability problems for certain types of fuel within the EU. The availability of 1% sulphur fuel, which is now the standard for use inside the ECAs, can only be guaranteed at Rotterdam and Zeebrugge according to some UK shipowners that the Department has spoken to. At other ports, there is a risk that shipowners would be forced to use more expensive distillate fuel in order to comply with the proposed Directive (see paragraph 30 below). We are urging the European Commission to clarify what a ship-owner needs to do, if the only compliant fuel available is 0.1% sulphur fuel instead of 1% sulphur fuel. We are also exploring what the Commission would do to ensure suppliers do not manipulate the market by only supplying more expensive 0.1% sulphur fuel.

19. The shipping industry has suggested that it would be useful for the IMO to carry out a study of the availability of fuel oil meeting the 0.1% standard required in ECAs from 1 January 2015. (As noted in paragraph 12(a) above, the revised Annex VI already contains a commitment to review the availability of fuel oil to meet the 0.5% standard.) In 2010, several international shipping industry bodies proposed an IMO correspondence group to investigate means by which the future supply and demand of low sulphur fuels could be studied. A correspondence group was established, but when it reported to MEPC in July 2011 it recommended that the review of the global sulphur limit for 2020 should occur in 2016, after the ECA limit has been implemented.

### POSSIBLE IMPLICATIONS FOR OTHER SECTORS

20. A reduction in sulphur deposition will result in diffuse benefits to the environment which are likely to reduce the area of land experiencing critical sulphur load exceedances by around 2.4% nationally. As exceedance is associated with impaired freshwater quality and reduced farmland and forestry yield there are likely to be limited economic benefits for these sectors. These benefits have not been monetised due to the very diffuse nature of any benefits and uncertainties in modelling.

21. There is expected to be a diffuse benefit to the wider economy from reductions in sulphur and particulate deposition in the built environment. This is a particular issue for historic buildings which are most vulnerable

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\(^{8}\) Emission predictions for with and without revised MARPOL were calculated using the UK Integrated Assessment Model (UKIAM) http://www.imperial.ac.uk/environmentalpolicy/research/environmentalquality/iau/iam/ukiam.

\(^{9}\) The damage costs were put together by Defra in accordance with the best practice methodologies for valuing changes in air quality: http://archive.defra.gov.uk/environment/quality/airquality/panels/gcb/.

\(^{10}\) Studies by the German shipping and ports industry and by the Finnish and Swedish governments have tended to conclude that freight rates will increase significantly as ships change to cleaner, but more expensive, distillate fuel and that this will also, in some instances, result in cargo shifting from sea to road.

to damage from soiling, corrosion and structural damage. This benefit is estimated at around £6 million/pa across the economy.\textsuperscript{12}

22. Modelling of human health impacts suggests that implementation of the revised Annex VI will result in a significant but diffuse benefit to the UK through the reduction of chronic illnesses (such as bronchitis and asthma) and early deaths associated with air pollution. This will have some impact on health care costs and days lost to ill health across the population.

23. In particular this is expected to reduce hospital admissions for serious cardiovascular and respiratory complaints and to provide a significant reduction in “life-years” lost across the UK due to chronic illness. These benefits have been monetised and are estimated at £300–620 million/pa.\textsuperscript{13}

**Steps which the UK Government could take to assist the maritime sector to meet its obligations under the revised MARPOL Annex VI**

24. The shipping industry, alternative technology developers and the fuel refinery industry would all benefit from being given the confidence that the new limits will come into effect as agreed by the IMO in 2008. Our aim is to implement the new measures in a way that minimises the economic impact on the industry, whilst delivering the important environmental and health benefits.

25. Prior to entering into negotiations on the revised Annex VI at the IMO, the Department consulted the shipping sector within the UK through the relevant UK trade associations. During work to finalise the revisions, the UK delegation worked closely with industry colleagues.

26. The most prominent example of this is the revised Annex VI’s recognition of alternative compliance methods which are at least as effective, in terms of emissions reductions, as sulphur limits in fuel. It was after urging from the UK that the revised Annex VI included emissions standards that allow ships to achieve compliance using technological or fuel-based measures. This allows operators to seek lower cost compliance options rather than mandating a “one size fits all” solution for all sectors of the shipping industry. The consultancy report commissioned by the MCA (see paragraph 17 above) estimated that the annualised cost of compliance for the shipping industry could be significantly reduced by using an abatement technology.\textsuperscript{14} The Commission’s Explanatory Memorandum accompanying its proposal for a Directive states that abatement technology could lower compliance costs by 50% to 88% for ship-owners, and promote innovative industry solutions.

27. Alternative compliance methods continue to be the subject of active discussion, specifically in the context of the Commission’s proposal for an amending Directive to incorporate provisions of the revised Annex VI in EU law. In these discussions, it has become evident that there are some elements of the shipping industry which are sceptical about the cost and maturity of these technologies—apparently more so than their colleagues in the marine equipment manufacturing and shipbuilding industries.

28. This scepticism risks becoming a significant obstacle to early adoption of these technologies. The shipping industry would have to meet the extra cost and risk involved in applying the new technology.

29. To encourage early adoption and compliance, the Commission has proposed increasing the funds under the Trans-European Network (TEN-T) programme to promote shore-side infrastructure. Other financial inducements are available in the Marco Polo work programme and the European Investment Bank. The Commission has also agreed that, under certain conditions, Member States can provide State Aid to compensate the shipping industry for the increased cost of complying with the new requirements.\textsuperscript{15} The Government is considering its position.

**European Commission proposals to implement the revisions to MARPOL Annex VI, and the Government’s stance on those proposals**

30. The Commission has made a proposal for a Directive to amend Directive 1999/32/EC as regards the sulphur content of marine fuels. The Department has presented an Explanatory Memorandum to the Parliamentary Scrutiny Committees, and the UK maintains a Parliamentary scrutiny reservation on the Commission’s proposal as a whole. The Department is in the process of obtaining agreement to a cross-Government negotiating position on the Commission’s proposal. Accordingly, the Government’s formal stance remains to be agreed; however, our interim negotiating position, consistent with that set out in our Explanatory Memorandum, is as follows.

31. We welcome the proposed Directive’s adherence to the revised MARPOL Annex VI’s provisions for a staged introduction of stricter sulphur limits in fuel. The aims of the proposed Directive expressly include the aim of aligning the Directive with IMO rules on fuel standards and the aim of aligning the Directive with the IMO rules on emission abatement methods.

\textsuperscript{12} Entec, 2009.
\textsuperscript{13} Entec, 2009.
\textsuperscript{14} Entec, 2009.
32. Encouragingly, the proposal seeks to address concerns that the new standards might lead to reverse modal shift. The Commission’s intention to monitor the impacts of the shipping sector’s compliance with the new standards is therefore welcome.

33. However, there are a number of areas where the Commission’s proposal deviates from the international regulations. Our main concerns about this proposal are:

— that it does not replicate the provision relating to non-availability of fuel which is contained in the revised MARPOL Annex VI (see paragraph 12(b) above);
— that it does not explicitly align the implementation date for the 0.5% global fuel standard in EU Member States’ waters with the date which IMO will set following its review on fuel availability;
— that it has an additional requirement for passenger vessels which operate on regular services to or from any EU port, outside of an ECA. These vessels are already subject to a 1.5% sulphur limit under the existing Directive. Under the Commission’s proposal, a new limit of 0.1% sulphur would apply from 2020. The Commission considers that this represents an additional health and environmental safeguard for vessels that typically operate near heavily populated coastal areas. We remain to be convinced, and have asked the Commission to provide further evidence that would justify the need for this requirement;
— that it would empower the Commission to specify frequency of sampling, sampling methods and the definition of a sample representative of the fuel examined. There is little evidence of widespread non-compliance with the current regime and we are concerned about the increased burden both on industry and on the MCA as regulator;
— that it includes an unnecessary requirement to undertake trials of abatement systems under the revised directive. In our view, it is not appropriate that a system approved to the IMO standards should be subject to additional EU trials; and
— about the approval of alternative systems which would provide equivalent compliance methods. In the revised Annex VI, the issue of equivalency and the verification of compliance is a matter for the administration of the state Party. Empowering the EU’s Committee on Safe Seas and the Prevention of Pollution from Ships (COSS) to exercise this function would reduce the role of the state and possibly reduce the scope for using equivalent compliance methods.

October 2011

Supplementary evidence from the Department for Transport (SES 11a)

Thank you for your letter of 18 November asking for further information on two issues about sulphur emission by ships, following my appearance before the Transport Committee inquiry on 1 November 2011.

As promised, I enclose a copy of the Government’s note to the Polish Presidency which provides our preliminary views on the Commission’s proposal on sulphur limits in fuel (Annex). The Council Secretariat copied and circulated our note to the other Member States and to the European Commission on 13 September 2011. I confirm that we sent this note to the Presidency on 8 September 2011.

On your second point, I think it is worth stressing that the maturity of abatement technology is, like many new technologies, a continuous and ongoing process. Abatement technology has been used in power stations and refineries to remove sulphur emissions for at least 20 years. The challenge more recently has been to scale down the technology so that smaller scrubbers can be used in the dynamic environment of a ship, and cope with all the normal scenarios that a vessel would encounter.

It is evident that while elements of the shipping industry are sceptical about the cost and maturity of these technologies, the abatement equipment manufacturers and the shipbuilding industry take a much more positive view. Early versions of scrubbers on vessels, such as the one installed on P&O’s Pride of Kent, revealed that although the technology could reduce sulphur to a level that was equivalent to that required in a SOx Emission Control Area, the equipment was not reliable enough. After this experience the shipping industry has, not surprisingly perhaps, been more sceptical.

This is unfortunate, because a relatively small number of early adopters of scrubbing technology have been left to carry the burden of research and development, while the bulk of the industry waits for a commercially available abatement system to be developed.

Nevertheless, it is now our impression (which is shared by the European Commission), that this technology has improved significantly over the last ten years. The Maritime Coastguard Agency has been very active in following the development of this technology over the last few years. The Agency has been involved in developing the type approval requirements for abatement technology at the International Maritime Organization and has also been monitoring new developments with the manufacturers themselves. There are now three major manufacturers that have scrubber systems installed in separate vessels and we understand that these scrubbers
have been found to be effective and reliable. Two successful installations which have been drawn to my attention are the Holland America cruise ship Zaandam and the DFDS roll-on roll-off vessel Tor Ficaria.

We think the challenge now for manufacturers is whether scrubbers can be produced in a generic “one size fits all” configuration, which can be installed into the majority of existing vessels. Solving this problem would significantly reduce the capital cost for shipowners looking to invest in this technology.

Annex

PRELIMINARY UK VIEWS ON COMMISSION’S PROPOSAL ON SULPHUR LIMITS IN FUEL

The UK is grateful for the opportunity to provide initial comments on the Commission’s draft proposal on reducing the amount of sulphur in marine fuels. These are preliminary UK comments and we maintain a general scrutiny reserve on the proposal as a whole, as well as a Parliamentary Scrutiny reserve.

GENERAL POSITION

The UK welcomes the proposed Directive’s adherence to the revised MARPOL Annex VI’s provisions for a staged introduction of stricter sulphur limits in fuel. As we have indicated in the Environment Working Group, the UK strongly supports the outcome of the revision of MARPOL Annex VI because this will significantly reduce emissions of sulphur oxides from ships (as well as nitrogen oxides and particulate matter) and consequently improve air quality. We were also one of the original proponents of the North Sea SOx Emission Control Area (ECA), because we recognise the risk to the environment and to human health which is posed by sulphur emissions from ships.

The UK has also consistently taken the view that the revised MARPOL Annex VI represents a global compromise solution as a result of many hours of difficult negotiations, and that we would be most reluctant to unpick that agreement. The shipping industry, alternative technology developers and the fuel refinery industry should all benefit from being given the confidence that the new limits will come into effect as they were agreed by the IMO back in 2008. Our aim is to implement the new measures in a way that minimises the economic impact on the industry, whilst delivering their important environmental and health benefits.

Moreover, we support the proposal’s recognition of alternative compliance methods which are at least as effective, in terms of emissions reductions, as sulphur limits in fuel. The inclusion of this provision in the revised MARPOL Annex VI was strongly supported by the UK, so the reflection of that provision in the proposal is a welcome development. There was a good discussion about these alternative methods at the Commission’s stakeholder event on 1 June 2011, where it was evident that elements of the shipping industry were more sceptical about the cost and maturity of these technologies than the equipment manufacturers and the shipbuilding industry.

This scepticism has also been very evident in our discussions with UK shipping stakeholders and could become a significant obstacle to early adoption of these technologies. The shipping industry would have to meet the extra cost and risk involved in applying the new technology, so it is important that the Commission sends a clear signal which would encourage the early adoption of this technology before 2015. We note the Commission’s offer of financial assistance through grants and state aid, which is a step in the right direction. But there is more that can be done to relax the requirements for testing these alternatives, which we consider to be unnecessarily prescriptive.

The UK also welcomes the provisions relating to combustion plants and combustion in refineries, noting that it should avoid “double regulation” of such plants.

SPECIFIC PROPOSALS

We would like to reiterate some of the points that the UK made at the last Environment Working Group meeting on 20 July about the provision in MARPOL Annex VI which is the one notable omission from the proposed Directive, and about some provisions which go beyond the requirements of MARPOL Annex VI, most of which would increase the burden on the shipping industry.

OMISSION OF REGULATION 18 OF THE REVISED ANNEX VI

The UK is very concerned that the proposal does not replicate the provision relating to non-availability of fuel which is contained in Regulation 18 of the revised MARPOL Annex VI. This lack of derogation represents the removal of one element of a hard-won compromise package, without which the shipping industry would not have been content with the standards contained in the revised Annex. If ships are liable for non-supply of fuel overseas then we would expect a substantial number of detentions of vessels trading from Asia and Latin America, based on current supply issues. We would also envisage potential problems for the EU short sea sector if local disruption of fuel supply (for example following the labour unrest at a number of EU refineries last year) resulted in a lack of compliant fuel. It would be unreasonable to suspend the operations of this vital sector due to disruptions outside of the ship operator’s control.

We recognise the Commission’s desire to provide legal certainty in order to increase implementation, and appreciate that any suggestions that raised doubts about availability of fuel would be unhelpful. But failing to
reflect the provision in Regulation 18, which provides a safeguard where a ship which was not in compliance with the fuel oil standard can demonstrate that it made its best efforts to obtain compliant fuel oil, seems to us to be a negative and unhelpful approach. In our view, the proposed directive should have an additional provision inserted to reflect that provision in Regulation 18 of the revised MARPOL Annex VI.

IMO REVIEW OF FUEL AVAILABILITY

The UK is concerned that the proposal does not explicitly state that the effective date for the application of the 0.5% fuel standard contained in the Directive will be the same date as that agreed upon by the IMO in the light of its review of fuel availability. We see no merit in having an effective date in the EU which deviates from the internationally agreed date determined in the forum of the IMO. As there are no plans for an EU review of fuel availability, we can see no circumstances where a deviation would be justified.

FUEL AVAILABILITY IN THE EU

There may also be availability problems for certain types of fuel within the EU. The availability of fuel with a 1% sulphur content, which must now be used inside the ECAs, can only be guaranteed at Rotterdam and Zeebrugge according to some UK ship-owners we have spoken to. At other ports, there is a risk that ship-owners would be forced to use expensive distillate fuel in order to comply with the proposed directive. As distillate fuel is more profitable for suppliers, we suspect there is little incentive for them to provide fuel which has a 1% sulphur content. It would be very helpful if the Commission could clarify what a ship-owner needs to do, if the only compliant fuel available is distillate fuel instead of the 1% version. Moreover, it would be useful to know what the Commission would do to ensure suppliers do not manipulate the market by only supplying more expensive 0.1% fuel.

PASSENGER SHIPS OPERATING OUTSIDE THE TWO ECAS

The UK is not convinced that a 0.1% sulphur limit should apply to passenger ships which operate outside SOx ECAs on regular services to or from any EU port. Whilst we recognise this is a development of an existing provision relating to passenger ships which is contained in Article 4a of Directive 1999/32/EC as amended by Article 1(5) of Directive 2005/33/EC, it does go beyond the regulations contained in the revised MARPOL Annex VI.

The UK would find it helpful if the Commission could provide further evidence that would justify the need for additional health and environmental safeguards outside the SOx ECAs. It would also be helpful to clarify which passenger ships would be affected and what is meant by ‘regular services’. We think that this definition is intended to capture ships engaged on short voyages (eg the passenger ferries that operate in coastal areas), rather than long sea cruises, but it is not entirely clear and so we would welcome an explanation from the Commission. In particular, we would like to know whether this is intended to apply to cruise ships and large leisure vessels operating in European ports.

This measure could also distort the market and give rise to an issue of fair competition between passenger ferry ship (RoPax) and freight ferries. Both carry lorries, but only the former would be subject to the new proposals. Ferries on the West Coast of Scotland would be affected by the proposal, which also has implications for the level of State Aid they would receive. Given the sparse population in these islands, it seems unlikely that there would be any significant health benefits in reducing the sulphur content of the fuel used by these ferries. Based on the current fuel consumption and market prices, the Scottish Executive has estimated that a reduction of sulphur to 0.1% by 2015 would increase annual costs to ferry operators by over 5 million Euros.

SAMPLING AND MONITORING FUEL

The UK has serious concerns about the provision which would empower the Commission to specify the frequency of sampling, the sampling methods and the definition of a sample representative of the fuel examined, and adapt the method for determining the sulphur content and the fuel verification procedure. There is little evidence of widespread non-compliance with the current regime and it is therefore of concern that the proposal may result in a significantly increased regulatory burden. It should also be noted that the provision would have significant resource implications for the UK in respect of monitoring and enforcement. We would rather see retention of the current regime with enforcement activity being focused on the Bunker Delivery Note supplemented by sampling when concerns arise as envisaged in Annex VI of MARPOL.

ABATEMENT TECHNOLOGY

The main issue about using abatement technology to remove SOx from ship emissions appears to be the reliability of the equipment and the cost of fitment to vessels with several engines. One concern is what happens if the equipment fails. Under Regulation 4 of MARPOL Annex VI, the requirement is that the equipment should be as effective in terms of emissions reductions as the standards set out for reduced sulphur in fuel. However, Article 1.7 (Article 4c) of the Commission’s proposal appears to go beyond this by stating that “ships using the emission abatement methods ... shall continuously achieve reduction of sulphur dioxide emissions that are at least equivalent”. This would appear to prevent the Member State from allowing a vessel to use
heavy fuel oil if the equipment malfunctions, effectively forcing all vessels to carry a reserve of compliant fuel to allow for this eventuality.

As currently drafted therefore, we think the shipping industry might be discouraged from investing in some forms of abatement technology.

If we have misunderstood the Commission’s proposal in this regard, we would be grateful for clarification.

APPROVAL OF ABATEMENT TECHNOLOGY

The UK has concerns relating to the requirement to undertake trials of abatement systems under the revised directive. This requirement has been carried across from the original 2005 directive but in the intervening period IMO has developed a standard for such systems enabling them to be type approved internationally.

In our view, it is not appropriate that a system approved to the IMO standards should be subject to additional EU trials and such systems should be excluded from these elements of the revised directive. We would, however, suggest holding EU trials for those systems or approaches that are approved under the IMO type approval system.

We also have concerns about the approval of alternative systems. Under Annex VI, the issue of equivalency and the verification of compliance along with the obligation to notify IMO is down to the Administration of the State Party. Using the Committee on Safe Seas and the Prevention of Pollution from Ships (COSS) would reduce the role of the State and possibly reduce the scope to use equivalency and approving alternative systems. This issue is equally relevant for dealing with vessels outside the EU waters, as it is for vessels inside EU waters.

IMPLEMENTATION

The UK considers that a transposition period of only 12 months is unrealistic and recommends a period of at least 18 months.

December 2011

Written evidence from the Air Pollution & Climate Secretariat (SES 12)

SULPHUR EMISSIONS FROM THE MARITIME SECTOR AND THEIR IMPACTS

1. Emissions of sulphur dioxide (SO\textsubscript{2}) cause serious environmental problems such as the acidification of soil and water and damage to biodiversity. Among the countries with the largest exceedances of forest ecosystem critical load for acidification in the year 2000 were the UK, the Netherlands, Germany and Poland.\textsuperscript{16} Moreover, the critical loads for acidification of freshwater ecosystems were exceeded in Sweden, Norway, the UK and Finland.

2. Sulphur dioxide is a powerful respiratory irritant and exposure to SO\textsubscript{2} emissions even as short as 10 minutes may already trigger respiratory and pulmonary illness.\textsuperscript{17} In reaction with other compounds in the atmosphere, SO\textsubscript{2} contributes to the formation of secondary particulate matter (PM) that causes serious health effects.

3. These particles can penetrate into very sensitive parts of the respiratory system and provoke or exacerbate respiratory disease and even death.\textsuperscript{18} In the UK the burden of disease from PM has recently been estimated by the Committee on the Medical Effects of Air Pollutants (COMEAP). A study published on 21 December 2010 by COMEAP found that man-made pollution by fine particles (PM\textsubscript{2.5}) led to a loss of life equivalent to 29,000 premature deaths per year, but the expert group stressed that along with other factors, air pollution was likely to have taken an average of just under two years off the lives of 200,000 people.\textsuperscript{19}

4. Nearly half of Europe’s population is living in areas where EU air quality objectives are still not met, and in 2008, the EU’s air quality standards for PM were exceeded in almost 300 zones in 21 member states (out of some 900 zones in total).\textsuperscript{20}

5. The emissions from ships engaged in international trade in the seas surrounding Europe—the Baltic Sea, the North Sea, the north-eastern part of the Atlantic, the Mediterranean and the Black Sea—were estimated at 2.3 million tonnes of SO\textsubscript{2}, 3.3 million tonnes of nitrogen oxides (NO\textsubscript{x}), and 250,000 tonnes of particulate matter (PM) a year in 2000.

6. Under a business-as-usual scenario, ie if the standards agreed in the revised MARPOL Annex VI in 2008 are not implemented, it is expected that shipping emissions of SO\textsubscript{2} and NO\textsubscript{x} will increase by

\textsuperscript{17} WHO (2005): WHO Air quality guidelines for particulate matter, ozone, nitrogen dioxide and sulfur dioxide.
\textsuperscript{18} WHO (2005a): Particulate matter: how it harms health, Fact sheet EURO/04/05.
\textsuperscript{19} COMEAP (2010): The Mortality Effects of Long-Term Exposure to Particulate Air Pollution in the United Kingdom.
\textsuperscript{20} EC (2011): op cit.
40–50% up to 2020, as compared to 2000. In both cases, by 2020 the emissions from international shipping around Europe are expected to equal or even surpass the total from all land-based sources in the 27 EU member states combined. It should be noted that these figures refer only to ships in international trade. They do not include emissions from shipping in countries’ internal waterways or from ships plying harbours in the same country, which are given in the domestic statistics of each country.

7. A recent study indicates that emissions from international maritime transport in Europe account for approximately 50,000 premature deaths in Europe annually. The study does not attribute a figure for fatalities from SO2 emissions specifically, but the authors consider that the enforcement of stricter sulphur standards in the Baltic Sea and North Sea Sulphur Emission Control Areas (SECAs) will lead to a significant reduction of the health damage caused by international maritime transport. It also concluded that the SECA regulation that limits the sulphur content in ship fuel to a maximum of 0.1% as from 2015, is expected to significantly reduce the external costs, and that “a similar regulation of international ship traffic in the whole world would have a tremendous positive effect on human health.”

8. Currently, the heavy fuel oils (residual fuels) used in international maritime transport contains 2.7% sulphur on average, which is 2,700 times higher than the fuel used in the road sector where strict limits (0.001%) have applied for many years. In practical terms, the introduction of the IMO’s 0.1% SECA-standard and 0.5% global sulphur standards will lead to a shift from residual to distillate fuels in the shipping sector.

9. Emissions of air pollutants from the international maritime sector are regulated by the International Maritime Organisation (IMO) in Annex VI of the convention for the prevention of pollution from ships, the so-called MARPOL Convention. In 2008, the IMO unanimously adopted a revision of MARPOL Annex VI, to introduce new limit values on the maximum permissible sulphur content of marine fuels and strengthen NOx emission standards.

10. The 1997 IMO MARPOL Annex VI standards on the sulphur content of marine fuels entered into force in 2005 and were incorporated into EU law by Directive 1999/32/EC as amended by Directive 2005/33/EC. On 15 July 2011, the European Commission proposed a further revision of this directive in order to take into account the limit values agreed when MARPOL Annex VI was amended in 2008. The Commission proposal also updates additional EU-only standards for ships at berth and for passenger ships operating on a regular service which the EU included given the proximity of emissions to land and hence to people and ecosystems.

11. This revision has already been promised to Member States in a Commission declaration which was adopted at the same time as the adoption of the revised ambient air quality directive. In that context, the Commission noted the importance attributed by the European Parliament and the Member States to Community measures for the abatement of air pollutant emissions at source.

12. According to the 2008 revised MARPOL Annex VI, the sulphur content of all marine fuels will be capped at 0.5% worldwide from 2020 (or possibly 2025, subject to a review in 2018). In a first step, the global cap is lowered to 3.5% as from 2012. The SECAs face stricter limits of 1.0% from July 2011 and 0.1% from January 2015.

The Impacts of Sulphur Regulation on the Shipping Sector

13. The European Maritime Safety Agency (EMSA) has prepared a comprehensive overview of the impacts of the implementation of the revised MARPOL Annex VI standards. The report, published in December 2010, compiles and assesses the results of eight different studies that have been commissioned by EU Member States, trade associations and the European Commission.

14. The different studies clearly show that the fuel price is the most important criteria to assess the impact of the low-sulphur requirements on the industry, as the shift from heavy-fuel oil (HFO) to marine gasoil (MGO) will result in a significant fuel price increase. There is however no consensus on how big the price increase will be. In its impact assessment accompanying the proposal to review the Directive 1999/32/EC, the European Commission refers to an average fuel price increase of 65% between HFO and MGO.

15. Most studies foresee a price that will range from $500 to $900 per ton. The increase in fuel price will not have the same effect on the different market segments of the sector (containers, bulk, tankers, Ro-Ro, etc). Unsurprisingly, high consuming ships are likely to be more affected than others. In addition, the impacts will also depend on the share of fuel costs in the overall transport costs. Nonetheless, the EMSA study indicates that with a price below $900 per ton, short sea shipping will remain competitive towards others modes even if some traffic volumes will be lost. If the price reaches a level around or above $1,800 per ton, the effects will be more acute but many short sea routes will stay competitive. It should be noted that marine fuels are not

taxed whereas for example diesel used by heavy duty vehicles in Europe is taxed on average between €400 and €600 per 1,000 litres.

16. The most important concern that has been raised in relation to the higher cost of using MGO is the risk of so-called modal back shift (from sea to land, and in particular to road). After having reviewed all major studies available, experts from EMSA concluded that the risk of modal shift exists “but only within certain limited routes and under certain (high-end) fuel price scenarios”. Moreover, most affected routes are likely to enter in competition with other shipping options with a shorter sea-leg and a longer road and rail option in between. The implications of the introduction of the low-sulphur standards on other sectors/transport modes are therefore considered to be limited.

17. The option to reduce fuel consumption as a means of offsetting higher fuel costs in the shipping sector has not been sufficiently addressed in the studies on the implementation of the low-sulphur standards. Slow steaming has shown to be a very effective response for shipping lines to the economic crisis, reducing operational costs substantially and in many cases turning operating losses into profits. In practice, if ship operators combine the use of low sulphur fuels with operational measures such as slow steaming, the effect of fuel price increases on operating costs will be considerably reduced.

18. To comply with the sulphur standards, both MARPOL Annex VI and the EU Directive offer compliance alternatives to the use of low sulphur fuels, such as exhaust gas cleaning systems (scrubbers) or the switching to alternative fuels such as liquefied natural gas (LNG). An important advantage of these alternatives is that they represent cheaper options to comply with the standards. The Commission’s impact assessment on the proposal indicates that if scrubbers are assumed to be the preferred compliance strategy of ship owners, costs could be reduced by between 50% and 88% (as compared to switching to MGO). With these options, the risks of modal shift are virtually eliminated.

19. Flue gas cleaning of sulphur (scrubbing) is a technology that has proven to be very effective with industrial plants. Tests on ships have demonstrated at least 90% SO\textsubscript{2} removal efficiency and, in some specific cases, also a significant removal of PM pollution. The use of LNG has the advantage practically eliminating SO\textsubscript{2} emissions as well as also reducing by around 90% emissions of nitrogen oxides (NO\textsubscript{X}) and PM (among which particularly harmful black carbon particulates). Use of LNG also reduces emissions of CO\textsubscript{2} by about 20%. The use of these alternative options will require upfront investments, but EMSA estimates that they have a very short payback time (less than a year for the examples presented in the study).

Benefits and Costs of the Commission’s Proposal

20. The implementation of the revised MARPOL Annex VI provisions will considerably improve the air quality in Europe. Emissions of SO\textsubscript{2} from marine sources will be cut by more than 90% in SECA\textsubscript{s} from 2015 and by more than 75% in the rest of the European sea areas if the global sulphur cap of 0.5% is introduced on schedule in 2020. The switch to cleaner fuels will also lead to considerable reductions of PM emissions.

21. In its communication document accompanying the review of the Directive 1999/32/EC, the European Commission has estimated that the health benefits resulting from the introduction of the low-sulphur standards will range between €15 and €34 billion per annum in 2020. In comparison, the costs of implementing the new limit values range from €2.6 (with alternative emissions abatement measures) to €11 billion (following a fuel-based compliance option). Specifically for the SECA-areas—the Baltic Sea and the North Sea, including the English Channel—the costs were estimated to between €0.6 and €3.7 per annum in 2015, while the health benefits alone were estimated to amount to between €8 and €16 billion.\(^{26}\)

22. Even in the less favourable benefits-cost ratio scenarios, the implementation of the IMO standards will bring considerable benefits to the society. Estimates suggest that the reduced concentrations of PM alone will prevent between up to 26,000 annual premature deaths in 2020. Better air quality will also result in less respiratory and cardiac hospital admissions, amongst other benefits. Unsurprisingly, countries located near the SECA\textsubscript{\(s\)} are expected to benefit more largely from the new requirements. It should be noted that the economic benefits were calculated from the quantified health benefits only—environmental improvements, such as reduced acidification damage to ecosystems and less damage to buildings and materials were not monetised and therefore not included in the benefits assessment.

Cost-effective to Reduce Ship Emissions

23. The costs of typical measures for reducing the emissions of SO\textsubscript{2} from ships range from 0.5 to 4 €/kg and of NO\textsubscript{X} from 0.01 to 0.6 €/kg.\(^{27}\) The measures required to further reduce emissions of the same pollutants from sources on land would generally cost even more, and in some cases much more.

24. By taking action to reduce emissions from international shipping, the EU’s health and environmental objectives could be attained at a considerably reduced cost, as compared to taking additional measures only at land-based sources. Alternatively, significantly improved health and environmental protection could be achieved at the same cost.


What the EU and Member States should do to ensure SO₂ emission reductions from international shipping

25. Transposition of IMO standards into EU law—The MARPOL Annex VI standards that were internationally agreed and unanimously adopted by the IMO in 2008 and entered into force in 2010 have to be implemented by all Parties to the Annex in accordance with the terms of the Convention. The transposition of the standards into EU law provides an efficient enforcement mechanism and offers a clear regulatory framework ensuring the harmonised transposition of the limit values. A prompt adoption of the standards into the EU legislation and a clear commitment concerning the application of the 0.5% global standard in 2020 are now necessary to provide sufficient clarity to the shipping and refinery sector when it comes to future limits and compliance dates.

26. Fuel availability—The question of fuel availability is a crucial aspect to ensure compliance with the IMO standards on sulphur content of fuel, as ships can be exempted from compliance with the limit values where no compliant fuel is available en route. According to regulation 18 of MARPOL Annex VI, “each Party shall take all reasonable steps to promote the availability of fuel oils which comply with this Annex […]”. While the current EU directive sets a system of prohibition for using non-compliant fuels, there is currently no provision to ensure availability and a balanced distribution of compliant fuels. This should be corrected in the upcoming revision of the EU text. Moreover, a precedent exists in EU law for such a fuel availability provision; the Council Directive 88/210/EEC required Member States to take all the necessary measures to ensure sufficient availability of compliant fuel when unleaded petrol was introduced in Europe over 20 years ago.

27. Extension of SECAs in Europe—SECAs are currently limited to the Baltic Sea and the North Sea including the English Channel. More stringent sulphur limits where introduced first for these regions primarily due to the widespread problems of acidification in northern Europe. However, SO₂ emissions contribute also to several other serious health and environmental problems all over Europe. The EU should therefore enlarge the control areas to cover all EU sea areas, or at least to follow the North American example and designate a distance-to-shore SEA along the EU coastline which is not currently covered by the SEA standards (the north-eastern Atlantic, including the Irish Sea, the Mediterranean and the Black Sea). In any case, the work to achieve these extensions should not stand in the way of early agreement on the Directive.

28. Extending and enforcing the EU standards—The 2005 revision of the EU sulphur in fuels Directive 1999/32/EC introduced a number of provisions that go beyond IMO requirements. This includes the more stringent limit value for passenger ships operating anywhere in Europe on regular service which was set at the level of the maximum sulphur limit used in SECAs (ie 1.5% in 2005). As the SEA limit value will be reduced to 0.1% in 2015, the current Commission proposal suggests aligning the passenger ships levels with the 0.1% SEA-standard, but with a five-year delay, ie only by 2020. However, no good reasons were cited for why the passenger ship limit should be delayed by five years, from 2015 to 2020. Because these ships typically navigate near densely populated areas, the passenger ship limit should be fully aligned with the SEA rule in 2015. Moreover, the scope of this rule should be extended to ensure that the passenger ship definition includes all cruise ships whether on a schedule or not, particularly as cruise ships often operate in environmentally sensitive areas.

29. Monitoring and compliance—Marine fuels have been found to contain waste substances such as used waste oils. There are also claims that bunker fuels sometimes contain other dangerous substances. The contamination of bunker fuels is a major safety concern and also another source of air pollution from seagoing ships. Moreover, control of the sulphur content of marine fuels has revealed frequent breaches of the SEA limit value. Effective monitoring and sampling of ship fuels is thus a key factor in the reduction of air pollution. Given the multiple effects and interrelationships between different fuel quality parameters, a fuel quality standard for marine fuel oil should be developed.

Towards full implementation of the MARPOL provisions, and additional measures to reduce air pollution from ships

30. The MARPOL provisions on sulphur are only one part of the equation on air emissions from shipping; there are also provisions in Annex VI on NOₓ emissions from ship engines. Similar to the situation with SO₂, NOₓ emissions from the maritime sector are expected to outweigh the emissions of all EU land-based sources by 2020 if no action is taken. The health and environmental impacts of NOₓ emissions are also considerable, NOₓ being precursor to both PM and tropospheric ozone and also contributing to damage to ecosystems and biodiversity in Europe through eutrophication and acidification.

31. The 2011 revision to the sulphur directive does not include the 2008 MARPOL Annex VI amendments with regard to NOₓ emissions, which introduce the concept of NOₓ Emission Control Areas (NECAs) and impose stricter Tier III limits on NOₓ emission from new ship engines operating in these NECAs. In order to further reduce emissions form the maritime sector, the EU Member States should now aim at fully transposing the MARPOL Annex VI provisions (including the provisions on NOₓ emissions) and should consider the designation of all European sea areas as NOₓ emission control areas (NECAs), where stricter NOₓ standards should apply.
32. Due to the long life of ships (around 25–30 years) the turnover of the fleet is very slow. As the IMO’s NO\textsubscript{x} standards apply only to new ship engines, ship NO\textsubscript{x} emissions will continue to grow for another 15–20 years, unless measures are introduced to cut NO\textsubscript{x} emissions from the existing fleet of ships. Therefore, the Commission should consider regional measures for controlling NO\textsubscript{x} emissions from the existing fleet, eg by establishing mandatory NO\textsubscript{x} emission standards for ships entering EU ports. Moreover, economic instruments could be used to speed up the introduction of less polluting ships. Emission charges, along the lines of the Norwegian NO\textsubscript{x} tax and NO\textsubscript{x} Fund, should be introduced that are differentiated for environmental effect and apply impartially to all vessels.

October 2011

Written evidence from Clean Air in London (CAL) (SES 15)

1. The Transport Committee has invited written evidence on the implementation of the International Maritime Organisation (IMO) and European Union (EU) regulations on sulphur emissions by ships with a view to holding an evidence session in October. Further details can be seen at:


2. Clean Air in London (CAL) is pleased to respond to this call for evidence. CAL is a not for profit organisation with a mission that includes campaigning to achieve urgently and sustainably at least World Health Organisation (WHO) guidelines for air quality throughout London.

3. CAL is independent of any government funding, has cross-party support and many supporters, both individuals in London and organisations. CAL provides a channel for both public concern and expert opinion on air pollution in London. This document provides both general and expert comments in response to the consultation. Further details can be seen at:

http://www.cleanairinlondon.org/

4. EU governments—including the UK Government—called for emission reductions at source when the ambient air quality and cleaner air for Europe directive was adopted. This is actually documented in an Annex to the air quality directive. This can be downloaded from the link below (see second last page). It would be hypocritical of the UK government to say “we cannot do anything locally because it is all background pollution” and at the same time oppose one of the very directives that could help to bring down background pollution. Similarly, it would show the Mayor of London in his “true colours” if he is not making similar protestations to those of CAL given his oft repeated excuse that London’s air pollution problems are caused in significant part by background and/or “transboundary” air pollution.


Mayor of London claims shipping makes a “Critical Contribution” to breaches of air quality laws

5. London has the worst air pollution in the UK and some of the worst in Europe. The Mayor of London stated on page 21 of his Air Quality Strategy dated December 2010:

“Sources such as aviation, rail, shipping and industrial sites do not constitute a significant portion of London-wide emissions to air, but they can make a critical contribution to local air pollution hotspots.”

[CAL emphasis]

6. If the Mayor is correct, this means that shipping in one of four sources of air pollution in London that could be responsible for triggering—where road traffic is already a problem (eg Marylebone Road)—unlimited lump sum and daily fines for breaches of EU air quality laws.

7. CAL considers that the Mayor is likely to be understating rather than overstating the impact on London of harmful emissions from shipping and Thames River-traffic.

8. Harmful emissions from shipping are on the rise—while land-based emissions slowly reduce—even though ship-based mitigation measures are relatively cheap compared to other measures.

9. Please refer to Volumes 1 and 2 of Defra’s Air Quality Strategy published in 2007. The diagram in paragraph 124 on page 43 of Volume 1 identified shipping measures as having huge net present value benefits (with the lower end of the range still significantly positive) compared to any other mitigation measures other than Euro engine emissions standards (which showed negative net present value at the lower end of the range). Further detail is included in Volume 2: page 180 shows annual net present value results of shipping measures through the IMO of £245 million to £576 million and 576,000 to 1,100,000 life years saved (2010–2109); and
page 207 refers to the Air Quality Expert Group’s main recommendations including “Given the significant influence of transport emissions, measures which reduced the use of road vehicles, shipping and aircraft would be highly beneficial”.

Volume 1

Volume 2

HEALTH IMPACTS OF AIR POLLUTION IN LONDON

10. Using the same language used for alcoholism, obesity and smoking, the best estimate is that 4,267 deaths in London in 2008 were attributable to long-term exposure to anthropogenic and non-anthropogenic fine particles (PM2.5) at an average loss of life for these people of 11.5 years.

11. Following the clarifications in COMEAP’s (Committee on the Medical Effects of Air Pollutants) ground breaking and excellent recent (2010) report on how to express the mortality effects of air pollution, CAL proposes new phrasing to improve the communication of public health risks in general and air pollution in particular. In essence, the estimate of 4,267 deaths in London in 2008 attributable to long-term exposure to PM2.5 at an average loss of life of 11.5 years is calculated after eliminating the effect of dozens of other possible risk factors (eg educational status as a surrogate for income and smoking) to produce a pure number assuming air pollution is the sole cause of those deaths.

12. The estimate of 4,267 extra or excess deaths is a good one for comparing the effects of air pollution with the effects of other causes such as alcohol, active or passive smoking, obesity, diet etc which are including air pollution, almost certainly air pollution played some part in shortening the life of a much larger number of individuals in London. It is not possible to estimate that number reliably but given that much of the impact of air pollution on mortality is linked to cardiovascular deaths, it is more reasonable to consider that air pollution may have contributed to all 15,800 deaths due to cardiovascular causes in London [in 2009] (ie one in three of all deaths) at an average additional loss of life for these people of some three years (at typical ages for cardiovascular deaths eg 15% of which are before age 65).

13. Nitrogen dioxide (NO₂) is not just a molecule as the Government would like us to believe. World Health Organisation (WHO) guidelines and UK and European legal standards have always addressed exposures and health effects of individual pollutants or indicators (such as PM₁₀ mass, an indicator of a complex pollution mixture with multiple sources). Achieving guideline concentrations for individual pollutants, such as NO₂, may therefore bring health benefits that exceed those anticipated on the basis of estimates of a single pollutant’s toxicity. London has the highest annual mean concentrations of NO₂ of any capital city in the EU27. NO₂ limit values and deadlines must be complied with in full.

14. Scientific research published since the Environmental Audit Committee’s last inquiry into air quality has shown that those living near roads travelled by 10,000 or more vehicles per day on average could be responsible for some 15–30% of all new cases of asthma in children; and of COPD (chronic obstructive pulmonary disease) and CHD (coronary heart disease) in adults 65 years of age and older. The same study further estimated that, on average for all 10 cities studied, 15–30% of exacerbations of asthma in children, acute worsening of COPD and acute CHD problems are attributable to air pollution. This burden is substantially larger than previous estimates of exacerbations of chronic diseases, since it has been ignored so far that air pollution may cause the underlying disease as well. Related research indicates that associations of asthma with traffic-related pollution from nearby sources at schools were independent of estimated effects of exposures at homes. CAL has found 1,148 schools in London within 150 metres of such roads and a total of 2,270 within 400 metres.

15. Action must be taken urgently to protect those near living or attending school near the busiest roads. The Government must launch within weeks a massive campaign to build public understanding of the dangers of air pollution with advice on how people can protect themselves (ie adaptation) and reduce air pollution for themselves and others (ie mitigation).

16. We need the Government and Mayor Johnson to play their part in tackling an invisible public health crisis with as many early deaths attributable to air pollution in London in 2008 as we thought occurred during the Great Smog in 1952 (ie 4,267 compared to 4,075). This action must ensure full compliance with air quality laws throughout the UK.

LEGAL SITUATION

17. The MARPOL Annex VI standards were internationally agreed and unanimously adopted by the IMO in 2008. By law they have to be implemented by all parties to the Annex in accordance with the terms of the Convention. The transposition of the standards into EU law would provide an efficient enforcement mechanism
and offers a clear regulatory framework ensuring harmonised transposition of the limit values. A prompt adoption of the standards into EU legislation and a clear commitment concerning the application of the 0.5\% global standard in 2020 are now necessary to provide sufficient clarity to the shipping and refinery sector when it comes to future limits and compliance dates.

**Recommendations**

18. Key action to reduce shipping emissions needs to include the UK supporting:

   (i) the IMO’s 2008 adopted revised MARPOL Annex VI ie 0.1\% sulphur in Sulphur Emission Control Areas (SECAs) from 2015; and 0.5\% sulphur globally from 2020;

   (ii) the European Commission’s proposal on the revision of sulphur-in-fuels directive ie same standards as above plus a 0.1\% passenger ship standard from 2020;

   (iii) improvements in the European Commission proposal eg a passenger ship standard to apply from 2015 and be extended to cover also cruise ships and an extension of SECAs to cover all EU sea areas;

   (iv) shore-side electricity (already in several European and American ports eg Port of Gothenburg);

   (v) London ports joining—if they have not already done so—good initiatives, such as the Clean North Sea Shipping (CNSS) project and the Clean Shipping Index (CSI); and

   (vi) the designation of all European sea areas as NOx (ie oxides of nitrogen) emission control areas (NECAs) where stricter NOx emission standards would apply. This should extend to the European Commission considering regional measures for controlling NOx emissions from the existing fleet as it will take 30 years for the MARPOL provisions to take full effect and in the meantime the harmful effects of shipping NOx will continue to grow.

19. In CAL’s view, the first priority should be support for the European Commission’s proposal on the revision of the sulphur-in-fuels directive, in particular the 0.1\% sulphur limit in SECAs as of 2015 and the 0.5\% sulphur limit in 2020.

20. In this regard, CAL urges you to note statements by the Commission in 2008 when the air quality directive was adopted. In essence it said that emission reduction at source is important and that the Commission will adopt a number of laws that should help cities and “non-attainment areas” in meeting the standards.

21. Here are some excerpts from the text of the European Commission’s declaration:

   (i) “The Commission takes note of the text adopted by the Council and the European Parliament for the Directive on ambient air quality and cleaner air for Europe. In particular, the Commission notes the importance attributed by the European Parliament and the Member States in Article 22(4) and recital 16 to Community measures for the abatement of air pollutant emissions at source.”

   (ii) “—in 2008 the Commission foresees new legislative proposals that would:

   —address the sulphur content of fuels including marine fuels.”

   (iii) “—The Commission also continues to push for substantial emissions reductions from ships at the International Maritime Organisation and it is committed to bringing forward proposals for Community measures should the IMO fail to deliver sufficiently ambitious proposals as foreseen in 2008.”

This can all be found in the official journal of the European Union on the last two pages of the original version of the air quality directive, which is behind this link:


**Close**

22. Clean Air in London would welcome the opportunity to give oral evidence to The Transport Committee on the situation in London regarding air pollution at “hotspots” and the health impact of air pollution.

*October 2011*

**Supplementary evidence from Clean Air in London (SES 15a)**

1. In oral evidence to the Transport Committee on 25 October 2011 Clean Air in London highlighted evidence in Defra’s Air Quality Strategy 2007 which predicted a 19\% reduction in urban exceedances in 2010 and a 33\% reduction in 2020 (page 181 in Volume 2) [for dangerous airborne particles (PM10) for the “Shipping measure through IMO”].


2. This is consistent with the actual situation in 2011 ie exceedances. The London Air Quality Network shows that the mean concentration of PM10 over the 12 months to 29 October 2011 (ie a rolling average), as measured by the Marylebone Road monitoring station, was between 38.2 and 39.5 micrograms per cubic metre
An annual mean concentration for PM10 of 31.5 \( \mu g/m^3 \) is considered statistically equivalent to the PM10 daily limit value of 35 exceedances.


3. Defra’s application to the European Commission in May 2010 for a time extension until 2011 to comply with the PM10 daily limit value forecast the maximum measured and modelled PM10 concentration in the Greater London agglomeration zone as an annual mean of 33.4 \( \mu g/m^3 \) for calendar 2011 (page 12). This equated to 43 exceedances.

http://circa.europa.eu/Public/irc/env/ambient/library?l=/application_extensions/uk/official_notifications/re-notification/official_notification/_EN_1.0_&a=d

4. Defra then deducted 2.7 \( \mu g/m^3 \) for sea salt and predicted 32 exceedances and therefore compliance with the PM10 daily limit value in calendar 2011.

5. Clean Air in London highlighted in its original submission the Mayor of London’s reference in his Air Quality Strategy published on 20 December 2010 to shipping being one of four air pollution sources that can make a “critical contribution to local air pollution hotspots” in London. Please note that shipping emissions raise particle concentrations “everywhere” but may leave no “safety margin” at hotspots. Exceedances of the PM10 limit value seem set to continue.

6. In Clean Air in London’s view, therefore the likely impact at London hotspots of the European Commission’s proposals for shipping is between one of four sources together making a “critical contribution” and contributing up to 19% in 2010 and up to 33% in 2020. It may be less than 19% in 2010 as there is no SECA west of the UK and up to 33% in 2020 given the eastern SECA is stronger than assumed by Defra in 2007 (although still no SECA west of the UK).

October 2011

**Written evidence from the Exhaust Gas Cleaning Systems Association (EGCSA) (SES 20)**

The Exhaust Gas Cleaning Systems Association was formed in 2007 to represent the marine exhaust emissions solutions industry, by providing information on technological solutions, marine emissions compliance options and to assist and support the development of rules and standards.

The current director of the EGCSA, Don Gregory, is a former sustainability and fuel technology director at BP. He was involved in setting the BP strategy for addressing emissions to air from the use of marine fuels and has been involved in the first commercial exhaust gas cleaning system installation on a P&O ferry and in the formation of SEAaT (Shipping Emissions and Trading) which has promoted the concept of emissions trading and technology solutions to reducing emissions.

The EGCSA currently represents 95% of the SOx exhaust gas treatment industry with eight members (European and North American companies). EGCSA members currently have exhaust gas cleaning systems installed on eight vessels and have orders for installations on a further 10 vessels.

The technology is mature and effective. The technology is capable of reducing emissions to lower levels than currently regulated or achievable by use of low sulphur diesel fuel.

EGCSA members are ready and capable of delivering the shipping industry demand. However the shipping industry senior leadership has been reluctant to face up to the impending regulations for emission control areas (ECA) due to enter into force on 1 January 2015. The position senior leadership in the Marine industry has taken so far, is to avoid or delay any strategic planning and or attempt to delay entry into force with various claims of modal shift, increased cost of fuel, lack of impact assessment etc. The fact is that the process of advocating the reduction of emissions of SO\(_2\) from shipping began in the early 1990s at IMO. The papers arguing for lower emissions were submitted by Scandinavian countries. Later the EU has adopted a position based upon their thematic programme to reduce emissions and improve air quality. MARPOL Annex VI was approved in 1997 and subsequently ratified and entered into force in 2005. Upon ratification MARPOL Annex VI immediately underwent a review over a period of about three years. The amendments to MARPOL Annex VI were supported by EU countries and the Commission. Ratification of the amendments to MARPOL Annex VI was unanimously accepted by all parties to the MARPOL 73/78 treaty. The time to object to the tacit approval process has now passed and the Amended MARPOL Annex VI has entered into force.

**Maritime UK (MUK)**

At no point has MUK consulted with EGCSA. EGCSA is an organisation that is based in the UK.
EGCSA notes MUK position and has the following comments:

— **New regulations must be sustainable; ie reconcile environmental, social and economic demands.** Data presented by the Commission and by EU nations at IMO and by the USA all claim health costs that far outweigh the financial cost of reducing emissions.

— **New regulations must take their base in science and impact assessments must be made.** EGCSA would not disagree with the principles expounded by MUK. However EGCSA have not seen any impact assessment reports from MUK. A major ferry port (Dover) has benefited from ECA requirements (low sulphur fuel use in port and across the channel) and there is little doubt that further benefits would pertain from reducing emissions (sulphur oxides) further.

— **Shifting freight from sea to road is counter to avowed UK and EU government policy.** There is no evidence that a significant shift in short sea shipping would occur with vessels becoming redundant and laid up as a result of new emissions regulations. Short sea shipping comprises many trades and goods transport, many of which simply would not conveniently shift to land based transport modes.

— **The UK government should conduct a full review and impact assessment of the implications of the IMO decision. The parts of the decision that will lead to unintentional consequences must be reconsidered so that more appropriate solutions can be applied.** EGCSA does not agree that this would be a good use of UK Government resources. We would advocate that the UK Government seeks to support investment by ship-owners in technology to reduce emissions. Any indication of the possibility of the delay to implementation of emissions regulations will provide a further reason for ship-owners to not immediately commence planning for compliance.

— **The UK government should support a bringing forward of the 2018 feasibility study (already mandated within the revised Marpol Annex VI) to 2012–13 and for that study to be expanded to include an assessment of the impacts of the reduction of Sulphur in fuel to 0.1% within ECA's from 2015.** This is a repeat of the previous bullet point and if adopted by UK Government will create uncertainty and an opportunity for ship-owners to avoid planning for compliance.

EGCSA does not dispute the cost of compliance by use of diesel fuel to meet the 0.1% S limit will be high. However it should be noted that Marine fuel prices have risen fivefold from 2000 to present-day, indicating how energy costs have increased due to other factors and have been absorbed into the operating costs currently faced by ship-owners or charterers.

Ship-owners have avoided making strategic plans for compliance. It is EGCSA’s impression that this is due to the belief that the regulations will not be implemented or the result of inadequate information at senior ship-owner management level regarding the implications of new regulations and the options for compliance.

Although EGCSA members have been attempting to introduce their technology on board ship for over three years they have been frustrated by the unwillingness of ship-owners to take up the technology. Comments by MUK such as “unproven”, “suitability for all vessels” and “not expected that a feasible technical solution will be available from 2015” are simply incorrect and misleading. They perpetuate a myth which has no foundation and which provides ship-owners with a reason to not take action in the short period (approximately 38 months) prior to the entry into force of low-sulphur regulations in ECAs.

The UK has a history of using exhaust gas cleaning technology starting with Battersea Power Station on the Thames and more recently with the installation of flue gas desulphurization on the Longannet power station on the Firth of Forth in Scotland.

It should be noted that he technology solution has the ability to provide a cleaner emission than currently regulated. Units have been tested and are capable of removing ultrafine particles that continue to be present on investment in technology being achieved within just a few months of installation and the cumulative benefits of such technology to meet currently regulated emissions requirements whilst also capable of meeting future as yet unregulated emissions requirements such as a limit on ultrafine particles and a significant climate change agent known as black carbon (shipping contributes about 5% of anthropogenic black carbon emissions).

*October 2011*