Title: The Merchant Shipping (Safety of Navigation) Regulations 2019 (A recast of the Merchant Shipping (Safety of Navigation) Regulations 2002) **IA No:** DfT00350 **Lead department or agency:** Maritime & Coastguard Agency **Other departments or agencies:** Department for Transport	**Impact Assessment (IA)** **Date: 16/7/18** **Stage:** Consultation **Source of intervention:** International **Type of measure:** Secondary legislation **Contact for enquiries:** Matt Giacomini Tel: 020 381 72379 Email: matt.giacomini@mcga.gov.uk

Summary: Intervention and Options

RPC Opinion: RPC Opinion Status

Cost of Preferred (or more likely) Option				
Total Net Present Value	**Business Net Present Value**	**Net cost to business per year** (EANCB on 2014 prices)	**In scope of One-In, Three-Out?**	**Measure qualifies as**
-£6.59m	-£6.59m	£0.75m	No	NA

What is the problem under consideration? Why is government intervention necessary?

UK transposition of the requirements contained in Chapter V of the International Convention for the Safety of Life at Sea (SOLAS) is not up to date. Chapter V covers safety of navigation measures designed to reduce the risk of accidents at sea. Government intervention is required to ensure the UK meets its obligation as signatory to the Convention, provide legal certainty and maintain a level playing field for UK shipowners/operators competing internationally by enabling enforcement for non-compliance of non-UK ships in UK waters. The use of ambulatory referencing to SOLAS Chapter V will enable the UK to consistently achieve the above aims. Particularly as prioritisation for transposition of international measures is subordinate to EU measures with associated infractions.

What are the policy objectives and the intended effects?

The objectives are (i) take into account recent updates to navigational requirements which includes the introduction of carriage requirements for Bridge Navigation Watch Alarm Systems and Electronic Chart Display and Information Systems amongst other measures; and (ii) introduce ambulatory referencing. The intended effects are to reduce the human element issues which may cause accidents; ensure equipment continues to work correctly; and properly safeguard pilots when embarking/disembarking a ship. The ambulatory reference will remove legal uncertainty and red tape for industry by referring them always to the most up to date international legislation.

What policy options have been considered, including any alternatives to regulation? Please justify preferred option (further details in Evidence Base)

Do nothing is the baseline against which Options 1 and 2 are assessed. This is not a realistic option as the UK, as a signatory to SOLAS, has an obligation to implement any changes to SOLAS into UK law.

Option 1: Bring UK law in line with recent updates to international navigational requirements. However, this would fail to recognise industry's concerns raised during the Red Tape Challenge about the delays in transposition of international requirements.

Option 2: Bring UK law in line with recent updates to international navigational requirements and introduce ambulatory referencing to refer UK industry to the most up to date international legislation in this area. This has the support of the UK shipping industry and is therefore **the preferred option**.

Will the policy be reviewed? It will be reviewed. **If applicable, set review date:** 04/2022

Does implementation go beyond minimum EU requirements?			N/A		
Are any of these organisations in scope? If Micros not exempted set out reason in Evidence Base.	**Micro** Yes	**< 20** Yes	**Small** Yes	**Medium** Yes	**Large** Yes
What is the CO_2 equivalent change in greenhouse gas emissions? (Million tonnes CO_2 equivalent)			**Traded:** N/A	**Non-traded:** N/A	

I have read the Impact Assessment and I am satisfied that, given the available evidence, it represents a reasonable view of the likely costs, benefits and impact of the leading options.

Signed by the responsible Minister: ..... Date: .....

Summary: Analysis & Evidence

Policy Option 1

Description: Bring UK law in line with current international requirements

FULL ECONOMIC ASSESSMENT

Price Base Year 2015	PV Base Year 2015	Time Period Years 10	Net Benefit (Present Value (PV)) (£m)		
			Low: -£9.92m	**High:** -£4.21m	**Best Estimate:** -£6.59m

COSTS (£m)	Total Transition (Constant Price)	Years	Average Annual (excl. Transition) (Constant Price)	Total Cost (Present Value)
Low	£1.9m	2	£0.3m	**£4.2m**
High	£2.6m		£0.9m	**£9.9m**
Best Estimate	£2.3m		£0.5m	**£6.6m**

Description and scale of key monetised costs by 'main affected groups'

In order to comply with the latest SOLAS chapter V requirements, UK owners and operators of vessels operating in the UK and internationally must install BNWAS and ECDIS, and annually test their Automatic Identification System. The costs of this have been monetised in this IA and range from £5.4m to £7.4m, which a best total cost estimate of £6.6m.

Other key non-monetised costs by 'main affected groups'

Implementing the SOLAS changes would result in a small equipment change to pilot transfer arrangements for ships built after 1st July 2012. Operators would also be prohibited from using mechanical pilot hoists, but alternative equipment already exists on ships as a result of previous regulations. Required transparent safe manning procedure is already followed by the UK.

BENEFITS (£m)	Total Transition (Constant Price)	Years	Average Annual (excl. Transition) (Constant Price)	Total Benefit (Present Value)
Low	NQ		NQ	**NQ**
High	NQ		NQ	**NQ**
Best Estimate	NQ		NQ	**NQ**

Description and scale of key monetised benefits by 'main affected groups'

Benefits have not been monetised in this IA.

Other key non-monetised benefits by 'main affected groups'

The following benefits have been determined: 1) improvement in safety of the seafaring environment. 2) ECDIS meeting nautical chart and publications carriage requirements. 3) Set standards for maintaining bridge visibility for Ballast water management plans. 4) Removal of gold plating for government owned/operated ships. 5) Maintaining the UK's international position as a leader in the Maritime sector and creating a level playing field for foreign and UK ships. 6) Potential reduction in insurance premiums.

Key assumptions/sensitivities/risks — **Discount rate** 3.5%

The projected costs are calculated on the basis that (i) shipowners will install BNWAS and ECDIS to meet the phase in deadline dates and not highly in advance; and (ii) ships joining and leaving the UK flag will follow the trend of the last 8.5 years. There is a risk that shipowners will install equipment highly in advance of deadlines to benefit from economies of scale of bulk purchase, where they also own ships where the phase-in deadline has passed. Therefore the projected cost for the next 2-3 years could be less.

BUSINESS ASSESSMENT (Option 1)

Direct impact on business (Equivalent Annual) £m:						In scope of OITO?	Measure qualifies as
Costs:	£0.8	**Benefits:**	£0	**Net:**	-£0.8	NO	NA

Summary: Analysis & Evidence

Policy Option 2

Description: Bring UK law in line with current international requirements and introduce ambulatory referencing

FULL ECONOMIC ASSESSMENT

Price Base Year 2015	PV Base Year 2015	Time Period Years 10	Net Benefit (Present Value (PV)) (£m)		
			Low: -£9.92m	**High:** -£4.21m	**Best Estimate:** -£6.59m

COSTS (£m)	Total Transition (Constant Price)	Years	Average Annual (excl. Transition) (Constant Price)	Total Cost (Present Value)
Low	£1.9m	2	£0.3m	**£4.2m**
High	£2.6m		£0.9m	**£9.9m**
Best Estimate	£2.3m		£0.5m	**£6.6m**

Description and scale of key monetised costs by 'main affected groups'

In order to comply with the latest SOLAS chapter V requirements, UK owners and operators of vessels operating in the UK and internationally must install BNWAS and ECDIS, and annually test their Automatic Identification System. The costs of this have been monetised in this IA and range from £5.4m to £7.4m, which a best total cost estimate of £6.6m.

Other key non-monetised costs by 'main affected groups'

Implementing the SOLAS changes would result in a small equipment change to pilot transfer arrangements for ships built after 1st July 2012. Operators would also be prohibited from using mechanical pilot hoists, but alternative equipment already exists on ships as a result of previous regulations. Cost of required transparent safe manning procedure, however this is already followed by the UK. Introducing ambulatory referencing will result in the costs associated with complying with future SOLAS amendments.

BENEFITS (£m)	Total Transition (Constant Price)	Years	Average Annual (excl. Transition) (Constant Price)	Total Benefit (Present Value)
Low	NQ		NQ	**NQ**
High	NQ		NQ	**NQ**
Best Estimate	NQ		NQ	**NQ**

Description and scale of key monetised benefits by 'main affected groups'

Benefits have not been monetised in this IA.

Other key non-monetised benefits by 'main affected groups'

The following benefits have been determined should SOLAS V be implemented: 1) improvement in safety of the seafaring environment. 2) ECDIS meeting nautical chart and publications carriage requirements. 3) Set standards for maintaining bridge visibility for Ballast water management plans. 4) Removal of gold plating for government owned/operated ships. 5) Maintaining the UK's international position as a leader in the Maritime sector and creating a level playing field for foreign and UK ships. 6) Potential reduction in insurance premiums.

The following benefits relate to implantation of ambulatory reference: 7) Simplify regulatory framework industry and regulatory users. 8) Legal clarity for operators. 9) Reduce burden on MCA.

Key assumptions/sensitivities/risks — **Discount rate** 3.5%

The projected costs are calculated on the basis that (i) shipowners will install BNWAS and ECDIS to meet the phase in deadline dates and not highly in advance; and (ii) ships joining and leaving the UK flag will follow the trend of the last 8.5 years. There is a risk that shipowners will install equipment highly in advance of deadlines to benefit from economies of scale of bulk purchase, where they also own ships where the phase-in deadline has passed. Therefore the projected cost for the next 2-3 years could be less.

BUSINESS ASSESSMENT (Option 2)

Direct impact on business (Equivalent Annual) £m:						In scope of OITO?	Measure qualifies as
Costs:	£0.8	**Benefits:**	£0	**Net:**	-£0.8	No	NA

Evidence Base (for summary sheets)

1. Background

Shipping is an international industry and the regulatory framework must reflect this.

The International Maritime Organization[1] (IMO) is the United Nations specialized agency with responsibility for the safety and security of shipping and the prevention of marine pollution by ships. The IMO has 171 Member States, 3 Associate Members and numerous Non-Governmental and Intergovernmental Organizations. Its main role is to create a regulatory framework for the shipping industry that is fair and effective, universally adopted and implemented.

The International Convention for the Safety of Life at Sea (SOLAS) is one in a number of Conventions adopted by the IMO to fulfil its remit. The SOLAS Convention[2] was first adopted in 1914 following the sinking of the Titanic. Its main objective is to specify the minimum standards for the construction, equipment and operation of ships, compatible with their safety. Flag states are responsible for ensuring that ships under their flag comply with its requirements, and certificates are issued as proof of compliance. Their ships are inspected against these requirements in foreign ports.

SOLAS is divided into 14 chapters, each addressing different subjects.

SOLAS amendments are developed by a number of technical sub-committees which report to the IMO's Maritime Safety Committee (MSC), which is responsible for overseeing the developments and ultimately approve and adopt amendments. Entry into force of amendments can range between six months and six years after adoption.

2. Problem under consideration

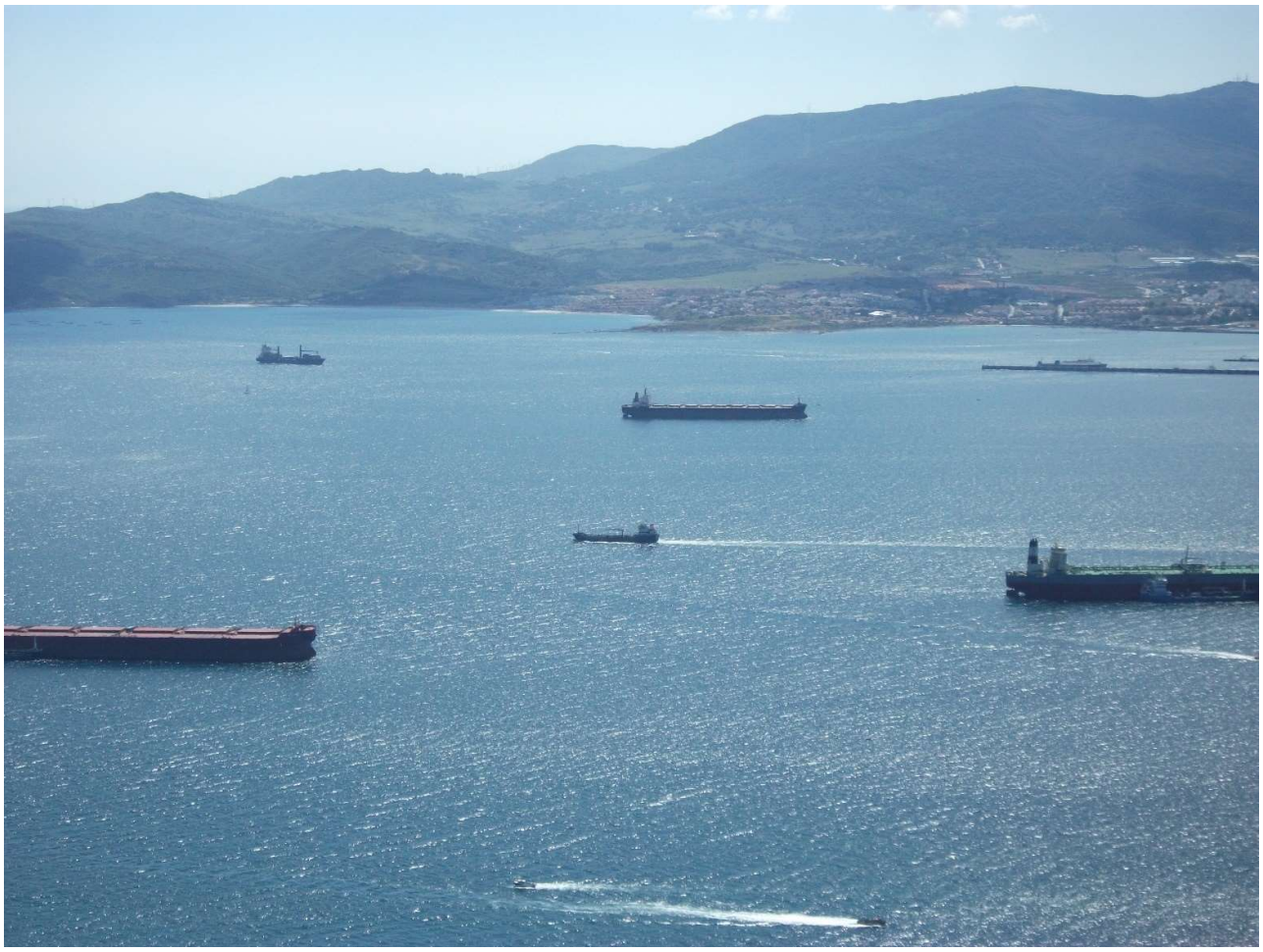
2.1 Safety of navigation

Chapter V of SOLAS focuses on measures that improve safety of navigation to reduce the risk of an accident occurring at sea. Measures include: navigational equipment to be carried on board ships, routeing requirements and appropriate manning of ships; amongst other measures.

The transposing legislation for SOLAS Chapter V is The Merchant Shipping (Safety of Navigation) Regulations 2002, as amended (SI 2002/1473) ('the existing Regulations'). At present SI 2002/1473 does not reflect the latest requirements of SOLAS Chapter V, there are still a number of amendments contained in five IMO MSC resolutions dating back from 2006 yet to be implemented.

[1] Further information on the IMO is available from: http://www.imo.org/en/About/Pages/Default.aspx

[2] Further information on the SOLAS Convention is available from: http://www.imo.org/en/About/Conventions/ListOfConventions/Pages/International-Convention-for-the-Safety-of-Life-at-Sea-(SOLAS),-1974.aspx



2.2 Regulatory approach

Current practice on implementation is to use a mixture of primary and secondary legislation with technical provisions included either in the instrument, relegated to separate government publications, or occasionally incorporated by direct reference to the international text. The choice between these options has been dictated by the available powers or by what seemed most expedient at the time. Consequently there is an absence of any coherent regulatory framework to guide users (such as a framework mirroring the international agreements), and this, combined with a mix of international and domestic obligations in the same instrument results in a position that is confusing to both industry regulators alike.

Using current procedures and practice to implement regular changes to international agreements is time consuming and resource intensive. The UK is currently behind with implementing amendments to international Conventions into domestic law. Without changes to current practice, this backlog is unlikely ever to be eliminated and, indeed, can be expected to grow. There is a pressing need for Government intervention to provide for an alternative, simplified, approach to help speed up implementation and / or reduce the resources required.

Failure to implement UK obligations means that UK authorites can only enforce on non-UK ships visiting UK ports the international Convention standards as they were last transposed in domestic law.

There is a danger that the UK's failure to comply with its obligations will be identified through the mandatory IMO Member State Audit Scheme which entered into force at the start of 2016. Implications of such a finding are explored within section 3.4.

3. Policy objectives

The policy objectives are divided into two distinct areas: transposition of outstanding amendments to SOLAS Chapter V into UK law; and the introduction of ambulatory referencing. The existing Regulations will be recast to cover:

3.1 Transposition of outstanding amendments to SOLAS Chapter V into UK law[3]

The seven amendments to SOLAS Chapter V since 2006 aim to take on board new technological developments, new attitudes and new events in order to reduce the number of accidents and improve safety at sea. Therefore, the policy objectives are:

1. The use of Bridge Navigation Watch Alarm Systems (BNWAS), which have been introduced to help reduce the human elements that may cause accidents. BNWAS is an automatic system which sounds an alarm if the watch officer on the bridge of a ship falls asleep or is absent for too long a time.

   SOLAS Chapter V Regulation 1.4 allows maritime administrations to determine to what extent the BNWAS carriage requirement applies to certain categories of ships. The Maritime and Coastguard Agency (MCA) concluded that it is inappropriate to automatically extend application of BNWAS to small passenger ships on domestic voyages and has decided to automatically exempt all passenger ships under 150 gross tonnes (GT) engaged on any voyage, and all passenger ships of under 500GT not engaged on international voyages, from the requirements of SOLAS Chapter V Regulation 2.2.3. This decision is based on the following:

   - The purpose of BNWAS is to alert the master or another officer, in the case where the single watch-keeper on the bridge of a ship underway is incapacitated, particularly with the ship on autopilot. Therefore, the system is most effective when there is:

     a) An autopilot system used regularly;

     b) A single watch-keeper, especially at night, with a shift pattern likely to lead to severe fatigue;

     c) A crew mess, or masters' cabin, where the alarm can sound; and

     d) A second officer competent to take over the watch from the incapacitated incumbent.

   - On small ships, the skipper may well be the watchkeeper, so they will be able to over-ride the system anyway, making it pointless.

   - On passenger ships being hand-steered by the only officer on board, a complex manoeuvre may require their undivided attention.

   - The current drive to reduce unnecessary costs to industry, in particular small and medium enterprises, which would include many shipping companies.

   - The fact that the driver for BNWAS is accidents to small fishing ships, which are not covered by SOLAS, and to small cargo ships with two watchkeepers on 6-on/6-off watch pattern. No cost-benefit study has been carried out for small passenger ships generally and hence no compelling need demonstrated to IMO.

   - The MCA's Formal Safety Assessment study of domestic passenger ships[4], carried out by Det Norske Veritas (DNV) in the early 2000s, identified that the skipper falling asleep was a hazard, but concluded that the overall risk was within the ALARP (as low as reasonably practicable) region and that additional expenditure in this area was not justified.

2. The use of Electronic Chart Display and Information Systems (ECDIS), which again have been introduced to help reduce the human elements that may cause accidents. ECDIS is a computer-based navigation information system that can be used as an alternative to paper nautical charts, displaying many layers of navigational data.

3. The acceptance of ECDIS as meeting the requirement for the carriage of nautical charts and publications. Nautical charts and publications are used with the objectives of planning and displaying the ship's route for the intended voyage and to plot and monitor positions throughout the voyage. These objectives can also be achieved through ECDIS, so its acceptance as meeting the carriage requirements enables ship operators to undertake paperless navigation.

4. The annual performance testing of Automatic Identification Systems (AIS). AIS has been used by ships for several years but the introduction of mandatory annual testing is designed to ensure that the systems continue to work correctly. Ships carrying AIS make it possible for Maritime Rescue

[3] Detail on the catalyst for these amendments are contained in section 6.

[4] Accessible from: http://news.bbc.co.uk/1/shared/bsp/hi/pdfs/07_09_05_marchioness.pdf

Coordination Centres to monitor the location of ships which is especially important if a ship is in trouble. Likewise for Search and Rescue assets that respond to incidents.

5. Amendments to the pilot transfer arrangements aim to reduce the use of obsolete unsafe equipment and make use of lessons learned to ensure the safety of pilots when embarking or disembarking a ship.
6. A slight alteration to the text regarding safe manning levels and a reference to a new IMO resolution that combines and replaces two previous IMO resolutions into one document. The aim is to ensure that all Administrations, have a transparent auditable process for safe manning levels based firmly on IMO guidelines, for the benefit of seafarer safety.
7. The extension of scope for when ballast water exchange may be undertaken in order to address difficulties experienced by industry in relation to maintaining bridge visibility during such exchanges.

3.2 Introduce Ambulatory Referencing and reduce legal uncertainty

It is intended that the recast Regulations incorporate a requirement for ships to comply directly with SOLAS Chapter V in its up to date form. This will ensure that in the future, from a legal perspective, the UK is always up to date with the transposition of SOLAS Chapter V requirements[5].

Supporting documentation (e.g. Merchant Shipping Notice (MSN) or Marine Guidance Note (MGN)) will be used to add legal prescription or additional guidance, as required. For example, where the Convention states that a requirement is "to the satisfaction of the administration", the Maritime and Coastguard Agency will specify what it required to meet this obligation.

During the Red Tape Challenge industry raised its concern regarding the lengthy delay between amendments to international Conventions coming into force globally and the same amendments being transposed into UK law. These delays lead to legal uncertainty and disparity between national and international legislation, which has already been adopted by other maritime administrations.

Specifically the UK Chamber of Shipping's[6] response to the Red Tape Challenge was:

> *"The UK shipping industry was very pleased to contribute to the Government's recent Red Tape Challenge initiative and proposed a number of basic principles which might help ensure 'better regulation' into the future.*
>
> *One of these involved the direct read-across through 'ambulatory references' of international conventions which have been accepted by Government into UK law without their provisions having to be rewritten in the national context.*
>
> *This would in particular help with keeping the national law up to date when amendments were agreed, of course again subject to their acceptance by Government.*
>
> *The international convention text would clearly remain subject to the same scrutiny as at present and could be supplemented by guidance in the UK as to interpretation as necessary.*
>
> *We believe that such a practice in the UK would substantially reduce the regulatory and legal process surrounding the adoption in this country of international regulations, which are an essential part of international shipping and without which the UK merchant fleet would not be able to operate."*

In response, DfT sought regulatory reform through the Deregulatory Act 2015. The Act introduced an additional power which allows for ambulatory referencing to be made to international instruments. Ambulatory Reference means a reference in legislation to an international instrument as modified from time to time (and not simply to the version of the instrument that exists at the time the secondary legislation is made).

It is worthwhile noting that whilst the UK Chamber of Shipping advocates 'ambulatory references', this does not negate the Government's principle of consultation. Amendments to international Conventions are developed and agreed at the IMO, where in addition to Member States, industry is well represented.

[5] Annex 1 provides background on Ambulatory Referencing.

[6] The UK Chamber of Shipping is a trade association and considered to be voice for the UK shipping industry. It has around 150 members from across the maritime sector. Further information on the Chamber is available from: https://www.ukchamberofshipping.com/about-us/

Industry is therefore heavily involved with policy development and also in helping to shape the UK's negotiating position. Working in partnership UK officials and industry actively contributes to negotiations on new initiatives to ensure they are appropriate and proportionate measures to improve safety.

3.3 Level Playing Field

UK ships are liable for detention in a non-UK port if they are not in compliance with the latest requirements of SOLAS. Although this is considered unlikely as most UK owners and operators comply as a matter of course with the up to date requirements of SOLAS (regardless of whether the UK has transposed them into UK legislation) to continue operating worldwide to mitigate the risk of detention. Whilst the cost of rectifying a detention to enable the ship to sail may be low, the commercial cost of the time lost to the operator can be extremely high.

Without transposition of the latest SOLAS requirements into UK law, the UK is unable to take enforcement action against non-UK flagged ships that are not compliant with the latest requirements of SOLAS.

3.4 UK Reputation and status on the white list

As a signatory to the SOLAS Convention, the UK has an obligation to implement any changes to SOLAS Chapter V in UK law. Whilst the IMO does not take action for failure of Member States to implement amendments, such failures are noted as part of the now mandatory IMO audit scheme[7].

3.5 Compliance with the Flag State Directive[8]

Recital 3 of the Directive, which is theoretically non-binding, requires the implementation of IMO Conventions into Member States law. Article 4(1) of the same Directive requires Member States to take all the measures it deems appropriate to ensure that the ship in question complies with the applicable international rules and regulations. Reading both recital and article in conjunction, the requirement can be deduced as implementation of IMO Conventions into domestic law.

The European Commission will take a keen interest in the IMO Member State Audit Scheme, a non-compliance for implementing IMO Conventions in their up to date form will be indicative of the UK failing to meet obligations under the Directive. The Commission would then be able to commence infraction proceedings against the UK.

4. Description of options considered

4.1 Do nothing

The UK, as a signatory to the SOLAS Convention, has an obligation to implement any changes to SOLAS Chapter V in UK law. Without timely implementation:

- there is a lack of legal certainty for operators due to differing international and domestic requirements;
- the playing field is not level for UK operators; and
- the UK's reputation is at risk.

Further details on each of these rationale for intervention are contained under section 3 of this IA. Therefore 'Do Nothing' is the baseline against which Options 1 and 2 are assessed.

4.2 Option 1: Bring UK law in line with recent updates to international navigational requirements

This option would address the UK's current breach of its obligation to give effect to the requirements in SOLAS by transposing the requirements for (i) the carriage of BNWAS, (ii) ECDIS, (iii) acceptance of ECDIS as meeting the requirement for the carriage of nautical charts and publications, (iv) annual testing of AIS, (v) revised pilot transfer arrangements, (vi) adoption of transparent safe manning procedures, and (vii) extension of scope to when ballast water exchange may be undertaken.

[7] Prior to 2016, the IMO operated a voluntary audit scheme. The UK was one of the Member States to volunteer for two reasons:
1. undergoing the IMO audit was a prerequisite for achieving 'White List' status for Port State Control schemes (e.g. Paris MoU), which means that UK ships are considered as low risk and therefore less likely to be targeted for inspection at ports; and
2. the European Commission expected all EU Member States to volunteer for the IMO audit.

[8] Directive 2009/21/EC of the European Parliament and of the Council of 23 April 2009 on compliance with flag state requirements.

In relation to the transposition of the outstanding SOLAS amendments, the UK will implement the international requirements in the least burdensome way for business through making full use of our right under SOLAS Chapter V Regulation 1.4. This regulation allows the UK to exempt certain categories of ships from the BNWAS carriage requirements. Further detail on the rationale for the exemption is provided in section 3.1.

In 2012, the MCA conducted a 12 week consultation on a draft MSN which detailed the SOLAS Chapter V amendments (i-v). Seven responses were received which included responses from the major stakeholders. The most substantive responses discussed the detail of the technical changes, but no opposition to the measures was expressed.

However, this option would fail to recognise industry's concerns raised during the Red Tape Challenge about the delays in transposition of international requirements.

4.3 Option 2: Bring UK law in line with recent updates to international navigational requirements and introduce ambulatory referencing to refer UK industry to the most up to date international legislation in this area

In addition to the proposals outlined under Option 1, this option will introduce ambulatory referencing to SOLAS Chapter V which will directly fulfil the main request of industry from the Red Tape Challenge, which was to address the delay in transposition of international requirements. This option also:

- provides the legal certainty sought by industry as domestic legislation will no-longer be out of step with international requirements;
- reduces the administrative burden for industry, as it can focus on the convention text (SOLAS Chapter V) in technical areas rather than also having to refer to national implementing legislation;
- meets the industry desire for copy-out text, and reduce debates on whether a provision has been "gold-plated"; and
- provides a level playing field between UK ships calling at foreign ports and foreign flagged ships calling at UK ports.

This option has the support of the UK shipping industry and is therefore the preferred option.

5. Monetised and non-monetised costs and benefits of each option (including administrative burden)

5.1 Introduction

This impact assessment (IA) assesses the additional costs and benefits of the recast Regulations compared to the 'Do Nothing' scenario; the 'Do Nothing' scenario represents what would happen if the Government does not take action. In line with the Better Regulation Framework and the Treasury's Green Book, a 10 year appraisal period has been used in this IA.

The discussion of the costs and benefits under Options 1 and 2 is structured as follows:

Description of ships affected	Option 1	Option 2
Monetised costs to business	Section 5.2.1	Section 5.3.1
Non-monetised costs to business	Section 5.2.2	Section 5.3.2
Monetised benefits to business	-	Section 5.3.3
Non-monetised benefits to business	Section 5.2.3	Section 5.3.4

Given the limitations of the available evidence base, it has not been possible to monetise some of the costs and benefits of each option. Where it has not been possible to monetise a cost or benefit a full qualitative description of the impact has been provided. A number of questions are posed in this consultation IA in order to obtain more information on the costs and benefits identified via consultation.

Note: Unless otherwise stated, the numbers of ships quoted from this point onwards are based on the UK Ship Register (UKSR) as at 16 October 2015.

5.2 *Option 1: Bring UK law in line with recent updates to international navigational requirements*

5.2.1 Monetised Costs

5.2.1.1 **BNWAS**

The purpose of a BNWAS is to monitor bridge activity and detect operator disability, which could lead to maritime accidents. The system monitors the awareness of the watch officer and automatically alerts the master or another qualified watch officer if for any reason the first watch officer becomes incapable of performing their duties. This purpose is achieved by a series of indications and alarms to alert the first watch officer and, if there is no response, then to alert the master or another qualified watch officer. Additionally, BNWAS provides the watch officer with a means of calling for immediate assistance if require.

The mandatory use of BNWAS was proposed by Bahamas and Denmark[9] in 2005 to the IMO's Maritime Safety Committee (MSC) as a result of investigations into a number of groundings and collisions. One such incident was the collision of the KAREN DANIELSEN (a Bahamian cargo ship of 3,120GT) with a combined road and railway bridge across the Great Belt in Denmark which resulted in the death of the chief officer and serious injury of the ship's master and cook. Whilst the ship was fitted with a simple type of BNWAS, at the time of the incident the device was switched off and the chief officer had an excessive blood alcohol level. The investigation into this incident concluded had BNWAS been functioning the accident could have been avoided. BNWAS would have signalled to the master or another responsible officer that the navigation officer on duty was not alert.

The results of the analysis into the other incidents showed that an operational BNWAS would have prevented many of the accidents. Given the strength of evidence in support of the use of BNWAS and the development of the performance standard in successive MSC sessions, the requirement for the mandatory use of BNWAS was adopted into SOLAS in June 2009 and came into force on 1 July 2011**.** The requirement for the carriage of BNWAS is specified in Regulation 19 of SOLAS V and applies to the following ships:

- Non passenger ships of 150GT and upwards; and
- All passenger ships.

However, SOLAS Chapter V permits Administrations to decide the extent to which the requirements of Regulation 19 are applied to certain categories of ships. Therefore we have already taken the opportunity to derogate and the following ships are already exempt from the requirements of SOLAS Chapter V, Regulation 19 in the existing Regulations:

- Ships operating solely on categorised waters/ inland waterways[10] (20 ships)
- Pleasure Yachts less than 150GT[11] (32 ships)

In addition, as detailed in Section 4.1, a further exemption[12] will be introduced for all passenger ships under 150GT engaged on any voyage and all passenger ships of under 500GT not engaged on international voyages from the requirement to carry BNWAS. A total of 103 ships are covered by this new exemption.

Table 1 explains the phase in dates for BNWAS and the number of existing ships affected. Dates of compliance which have already passed are in grey.

Table 1: UK ships required to carry BNWAS

Description of ships affected	**Deadline to comply with carriage requirement**	**Number affected**
Cargo ships of 150 gross tonnage and upwards and passenger ships irrespective of size constructed on or after 1 July 2011	1 Jul 2011	590
Passenger ships irrespective of size constructed before 1 July 2011	1 Jul 2012	
Cargo ships of 3,000 gross tonnage and upwards constructed before 1 July 2011	1 Jul 2012	

[9] This proposal is contained in IMO paper MSC 81/23/2, accessible from: https://webaccounts.imo.org/Common/WebLogin.aspx?AD=False

[10] In exercise of SOLAS V, Regulation 19, paragraph 2.

[11] In exercise of SOLAS V, Regulation 19, paragraph 4.1.

[12] In exercise of SOLAS V, Regulation 19, paragraph 4.

Cargo ships of 500 gross tonnage and upwards but less than 3,000 gross tonnage constructed before 1 July 2011	1 Jul 2013	
Cargo ships of 150 gross tonnage and upwards but less than 500 gross tonnage constructed before 1 July 2011	1 Jul 2014	
Passenger ships constructed before 1 July 2002 (excluding those covered by the exemption)	1 Jan 2016	
Cargo ships of 3,000GT and upwards constructed before 1 July 2002	1 Jan 2016	
Cargo Ships of 500GT and upwards (but less than 3,000GT) constructed before 1 July 2002	1 Jan 2017	257
Cargo Ships of 150GT and upwards (but less than 500GT) constructed before 1 July 2002	1 Jan 2018	105

Whilst 952 existing UK ships are affected by this measure, only 362 potentially have yet to incur a cost and therefore are monetised in this IA.

a) Ships already required to carry BNWAS (i.e. phase-in deadline has passed)

The cost of compliance for types of ships where the requirement is already in force is considered to be cost neutral. This is because these ships will already have BNWAS installed in order to continue trading internationally. This assumption is supported by Port State Control (PSC) inspection records[13] which show that since the entry into force of the requirement for BNWAS, there have been approximately 8,000 inspections of UK ships[14], with only two UK ships receiving deficiencies noted on their records for not having BNWAS. This deficiency is not repeated at subsequent inspections and therefore it is deduced that these ships now have BNWAS installed.

b) Existing ships on UK flag and forecasted transfers where BNWAS carriage requirements have yet to be phased in

Existing ships on UK flag: It is assumed that where the phase in date has yet to be reached, the affected ships have yet to have BNWAS installed. The cost of installation could be spread over the next two years but equally they may all be incurred in the first year. In order to meet the phase-in deadlines, it is assumed for the purposes of this IA that all ships between 500GT – 3,000GT and half of the ships between 150GT – 500GT will comply in year 1, with the remaining in year 2.

Forecasted transfers to UK flag: Based on information obtained from the UKSR for ships transferring onto, and ships leaving the UK flag between April 2007 and September 2015 (for which the phase-in date for BNWAS has yet to pass), there have been:

- 137 existing ships transferring onto the UK flag which equates to an average of 16 existing ships transferring onto the UK flag each year; and
- 214 existing ships leaving the UK flag which equates to an average of 25 existing ships leaving the UK flag each year.

The net cost for ships transferring onto and leaving the UK flag has been monetised for years 1 and 2, i.e. until all vessel types have passed the phase-in deadline.

The average cost of purchasing and installing a new BNWAS is £3,094[15]. Assuming the trend in cargo ships flagging onto and leaving the UK flag remains similar to the last 8.5 years, the best estimate costs for installation of BNWAS is as follows (rounded to the nearest £10,000):

- Year 1 (301 ships[16] will require BNWAS): £ 930,000

[13] See section 6 of this IA for background on PSC records.

[14] This figure is in relation to inspections of merchant navy ships on the UK flag between July 2011 and September 2015 recorded on the SIAS and THETIS databases. Owing to the information provided on the reports by both databases it is not possible to specifically identify the number of inspections which were carried out on ships that would need to comply with BNWAS carriage requirements.

[15] This figure includes: cost of BNWAS equipment (approved under Marine Equipment Directive), installation and cables. The figure is an average cost from a number of quotes sought. The high estimate is £3505 and low estimate is £2711.

[16] 257 ships between 150GT and 499GT + 50% * 105 ships between 500GT and 2999GT – 9 ships (net transfers) = 301 ships

- Year 2 (52 ships[17] will require BNWAS): £ 160,000
- Total (353 ships will require BNWAS): £ 1,090,000

Question to Consultees:

Does your company own any UK flagged ships that meet the criteria below, for which BNWAS has already been installed?
- Cargo Ships of 500GT and upwards (but less than 3,000GT) constructed before 1 July 2002
- Cargo Ships of 150GT and upwards (but less than 500GT) constructed before 1 July 2002

Question to Consultees:

Is £3,094 representative of purchasing and installing BNWAS?

c) Forecasted new builds for the UK flag

Based on information obtained from the UKSR for new builds joining the UK flag between April 2007 and September 2015, there have been 429 new builds which meet the criteria for BNWAS carriage requirements. This equates to a best estimate average of 50 new builds joining the UK flag each year over the last eight and a half years which meet the criteria for BNWAS carriage requirements. Therefore, assuming the rate of number of new builds on the UK flag remains constant, an average of 50 new builds per year are expected to join the UK flag which would need to comply with BNWAS carriage requirements. We use a high estimate of 70 new builds (based on the average number of new builds between 2007 and 2015 for the four highest years) and a low estimate of 30 new builds (based on the average over the four lowest years).

It is expected that new ships built from 2011 (when the carriage requirement was introduced) will automatically have BNWAS drawn into the design of the ship and therefore the cost would be subsumed within in the overall costs to design and build the ship. When the cost is subsumed within the design and build costs it is virtually impossible to quantify due to the multitude of factors that affect the overall costs involved in the design and construction of a new ship. For instance, the bidding price quoted by a shipyard and timing of building the ship are both subject to external commercial considerations, such as availability of services and shipyard capacity. Furthermore, shipyard construction costs do not necessarily correspond directly to the design characteristics or size of a ship. Rather, they tend to fluctuate according to supply and demand within the shipbuilding industry, and reflect the general economic conditions prevalent at the time. It is also not possible to know whether costs incurred at the design and construction stage would be absorbed by the ship builder or passed on to the ship's purchaser.

As a result, it has been assumed the marginal cost of installing BNWAS onto a new ship is equal to the cost of installation on an existing ship. This is likely to be an overestimate.

The total cost, undiscounted and in 2015 prices, is therefore £155,000 per annum (50 ships × £3,094) over the ten year appraisal period.

5.2.1.2 **ECDIS**

ECDIS is a computer-based navigation information system which can be used as an alternative to paper nautical charts. It integrates position information from position, heading and speed through water reference systems and optionally other navigational sensors. In terms of application, ECDIS provides continuous position and navigational information. The system generates audible and/or visual alarms when the ship is in proximity to navigational hazards.

The mandatory use of ECDIS was proposed by Denmark and Norway[18] in 2005 to the IMO's Maritime Safety Committee (MSC). This proposal was made following the results of two Formal Safety Assessment (FSA)[19] studies conducted by the IMO into the cost-effectiveness of ECDIS for both passenger and cargo

[17] 50% * 105 ships between 500GT and 2999GT – 2 ships (net transfers between 500GT and 2999GT) = approximately 52 ships

[18] This proposal is contained in IMO paper MSC 81/23/13, accessible from: https://webaccounts.imo.org/Common/WebLogin.aspx?AD=False

[19] The objective of Formal Safety Assessment (FSA) by the IMO is to ensure that action is taken before a disaster occurs. FSA is described as "a rational and systematic process for assessing the risks associated with shipping activity and for evaluating the costs and benefits of IMO's options for reducing these risks." It can be used as a tool to help evaluate new regulations or to compare proposed changes with existing

ships. Three ships of distinct type, size and trading routes were used as case studies for the FSA into cargo ships. The risk assessment for all three cases concluded the fitting and use of ECDIS would have a risk reduction effect on grounding risk of approximately one third[20]. Given the compelling conclusion of the FSA and subsequent development of revised performance standards for ECDIS by the IMO, the requirement for the mandatory use of ECDIS was also adopted into SOLAS in June 2009 and came into force on 1 July 2012. SOLAS outlines a phase in approach for the installation of ECDIS.

Ships engaged on international voyages are required to be fitted with ECDIS in following instances:

- Passenger ships of 500GT and upwards;
- Tankers of 3,000GT and upwards;
- Cargo ships of 10,000GT and upwards; and
- Cargo ships of 3,000GT and upwards constructed 2014 or later.

Table 2 explains the phase in dates for ECDIS and the number of existing ships affected. Dates of compliance which have already passed are in grey.

Table 2: UK ships required to carry ECDIS

Description of ships affected	**Deadline to comply with carriage requirement**	**Number[21] affected**
Passenger ships of 500 gross tonnage and upwards constructed on or after 1 July 2012	1 Jul 2012	143
Tankers of 3,000 gross tonnage and upwards constructed on or after 1 July 2012	1 Jul 2012	
Cargo ships, other than tankers, of 10,000 gross tonnage and upwards constructed on or after 1 July 2013	1 Jul 2013	
cargo ships, other than tankers, of 3,000 gross tonnage and upwards but less than 10,000 gross tonnage constructed on or after 1 July 2014	1 Jul 2014	
Passenger ships of 500 gross tonnage and upwards constructed before 1 July 2012	1 Jul 2014	
Tankers of 3,000 gross tonnage and upwards constructed before 1 July 2012	1 Jul 2015	
Cargo ships, other than tankers, of 50,000GT and upwards constructed before 1 July 2013	1 Jul 2016	83
Cargo ships, other than tankers, of 20,000GT and upwards but less than 50,000 GT constructed before 1 July 2013	1 Jul 2017	38
Cargo ships, other than tankers, of 10,000GT and upwards but less than 20,000 GT constructed before 1 July 2013	1 Jul 2018	25

Whilst 289 existing UK ships are affected by this measure, only 146 potentially have yet to incur a cost and therefore are monetised in this IA.

standards. It enables a balance to be drawn between the various technical and operational issues, including the human element and between safety and costs. Further information on FSA is available from: http://www.imo.org/en/OurWork/Safety/SafetyTopics/Pages/FormalSafetyAssessment.aspx

[20] Further details of the FSA into ECDIS is contained in paper MSC 81/18/1, accessible from: https://webaccounts.imo.org/Common/WebLogin.aspx?AD=False

[21] These numbers are based on ships belonging to the UKSR as at 16 October 2015, which have not been adjusted for ships joining the UKSR over the next two years as the cost of ECDIS installation will be offset by ships flagging out (whose cost of installing ECDIS would not be attributable to the UK flag).

a) Ships already required to carry ECDIS (i.e. phase-in deadline has passed)

The cost of compliance for types of ships where the requirement is already in force is considered to be cost neutral. These ships will already have ECDIS installed in order to continue trading internationally. This assumption is supported by PSC inspection records[22] which show that since entry into force of the requirement for ECDIS, approximately 8,000 UK flagged ships have been inspected[23], with no UK ships receiving deficiencies noted on their records for lacking this equipment.

b) Existing ships on UK flag and forecasted transfers where ECDIS carriage requirements have yet to be phased in

Existing ships on the UK flag: It is assumed that where the phase in date has yet to be reached, the affected ships have yet to have ECDIS installed. The cost of installation could be spread over the next two years but equally they may all be incurred in the first year. In order to meet the phase-in deadlines, it is assumed for the purposes of this IA that purchase and installation will be as follows:

- In Year 1: all cargo ships of 50,000GT and upwards constructed before 1 July 2013, and half of cargo ships of 20,000GT and upwards but less than 50,000GT constructed before 1 July 2013.
- In Year 2: half of cargo ships of 20,000GT and upwards but less than 50,000GTconstructed before 1 July 2013, and half of cargo ships of 10,000GT and upwards but less than 20,000GT constructed before 1 July 2013.
- In Year 3: half of cargo ships of 10,000GT and upwards but less than 20,000GT constructed before 1 July 2013.

Forecast transfers to UK flag: Based on information obtained from the UKSR for ships transferring onto, and ships leaving the UK flag between April 2007 and September 2015 (for which the phase-in date for BNWAS has yet to pass), there have been:

- 61 existing ships transferring onto the UK flag which equates to an average of 7 existing ships transferring onto the UK flag each year; and
- 202 existing ships leaving the UK flag which equates to a best average of 24 existing ships leaving the UK flag each year.

The net cost for ships transferring onto and leaving the UK flag has been monetised for years 1, 2 and 3, i.e. until all vessel types have passed the phase-in deadline.

The average cost of purchasing and installing a new ECDIS is £8,658[24]. Assuming the trend in cargo ships flagging onto and leaving the UK flag remains similar to the last 8.5 years, the best estimate costs for installation of ECDIS is as follows (rounded to the nearest £10,000):

- Year 1 (93 ships[25] will require ECDIS): £ 800,000
- Year 2 (34 ships[26] will require ECDIS): £ 300,000
- Year 3 (14 ships[27] will require ECDIS): £ 120,000
- Total (141 ships will require ECDIS): £ 1,220,000

Question to Consultees:

[22] See section 6 of this IA for background on PSC records.

[23] This figure is in relation to inspections of merchant navy ships on the UK flag between July 2011 and September 2015 recorded on the SIAS and THETIS databases. Owing to the information provided on the reports by both databases it is not possible to specifically identify the number of inspections which were carried out on ships that would need to comply with ECDIS carriage requirements.

[24] This figure includes: cost of ECDIS equipment (approved under Marine Equipment Directive), installation and cables. The figure is an average cost from a number of quotes sought. Based on an average of highest and lowest quotes, we use a low-cost estimate of £6,440 and a high cost estimate of £9,956.

[25] 83 ships of 50,000GT and upwards constructed before 01/07/13 + 50% * 38 ships between 20,000GT and 49,999GT constructed before 01/07/13 – 9 ships (net transfers) = 93 ships

[26] 50% * 38 ships between 20,000GT and 49,999GT constructed before 01/07/13 + 50% * 25 ships between 10,000GT and 19,999GT constructed before 01/07/13 + 3 ships (net transfers between 10,000GT and 49,999GT) = approximately 34 ships

[27] 50% * 25 ships between 10,000GT and 19,999GT constructed before 01/07/13 + 2 ships (net transfers between 10,000 and 19,999GT) = approximately 14 ships

Does your company own any UK flagged ships the meet the criteria below, for which ECDIS has already been installed?
- Cargo ships, other than tankers, of 50,000GT and upwards constructed before 1 July 2013
- Cargo ships, other than tankers, of 20,000GT and upwards but less than 50,000 GT constructed before 1 July 2013
- Cargo ships, other than tankers, of 10,000GT and upwards but less than 20,000 GT constructed before 1 July 2013

Question to Consultees:

Is £8,658 representative of purchasing and installing ECDIS?

c) Forecasted new builds for the UK flag

Based on information obtained from the UKSR for new builds joining the UK flag between April 2007 and September 2015, 278 new builds would need to comply with the ECDIS carriage requirement. This equates to a best estimate average of 30 new builds per year, and this figure is used to forecast new builds joining the UK flag over the next ten years that will need to comply with ECDIS carriage requirements. We use a high estimate of 50 new builds a year (an average of the four highest years between 2007 and 2015) and a low estimate of 20 new builds a year (an average of the four lowest years between 2007 and 2015).

On the same vein as BNWAS, the cost of ECDIS for new builds since the carriage requirement was introduced in 2011, is expected to be subsumed within in the overall costs to design and build the ship.

Assuming a marginal cost of £8,658 per ship, the cost of complying with the ECDIS carriage requirement is approximately £260,000 per annum (30 ships x £8,658).

5.2.1.3 **Annual AIS testing**

AIS is an automatic tracking system used on ships and by vessel traffic services for identifying and locating ships by electronically exchanging data with other nearby ships, AIS base stations and satellites. AIS is

considered to be one of the primary methods of collision avoidance on the water. The requirement to carry AIS equipment on board UK ships became mandatory in 2002 and was further extended to more ships by Commission Directive 2011/15/EU of 23rd February 2011. The costs of which were accounted for in Impact Assessment (DFT00085) but at that time carriage requirements did not require annual testing.

The following ships are required to be fitted with AIS:

- all ships of 300GT and upwards engaged on international voyages;
- cargo ships of 500GT and upwards not engaged on international voyages; and
- all passenger vessels.

In 2006, the UK submitted an information paper[28] to the IMO advising that the UK was carrying out active surveillance of AIS as the MCA had received many reports of vessels transmitting incorrect AIS information. This inaccurate information poses a danger to navigation and weakens confidence in the system. Building on the UK's findings, the Republic of Korea submitted a proposal in 2007 to the IMO's MSC for the mandatory annual performance testing of AIS by a qualified radio inspector.

Following discussion at the various IMO Committees and Sub-Committees, the requirement for mandatory annual performance testing of AIS was adopted by SOLAS in December 2010 and came into force on 1 July 2012. Through the MCA's ongoing stakeholder engagement, it has been established that AIS testing is often carried out as part of a ship's annual radio surveys. Anecdotal evidence from stakeholders suggests that no specific additional cost is attributed to the annual performance testing of AIS alongside annual checks on communications and radar equipment which are already mandatory.

Whilst the ship-owner may not directly incur an additional cost, the annual performance test of AIS still represents a regulatory burden on industry. To show an indicative cost, the annual AIS test takes approximately 30 minutes and the hourly fee rate for getting communications and radar equipment checked is approximately £200 per hour, based on the average fee of the testing organisations. Therefore, it can be assumed that any ship owners/operators who approach organisations specifically for an AIS annual test may be charged on average £100.

Question to Consultees:

Is £100 a representative cost for the annual performance testing of AIS?

a) Existing ships on the UK flag and forecasted transfers required to carry AIS and therefore undergo annual performance testing

Existing ships on the UK flag: There are 849 ships on the UKSR that are affected by this new requirement, but it is difficult to calculate how many ships will already have the cost of the AIS annual test subsumed within the annual radio surveys and how many may have to pay an additional cost; it is more likely they would take their business to another testing organisation that does not make an additional charge.

Forecasted transfers and new builds to UK flag: Based on information obtained from the UKSR for ships transferring onto the UK flag between April 2007 and September 2015, which meet the criteria for AIS carriage requirements, there have been:

- 241 existing ships transferring onto the UK flag which equates to a best average of 30 existing ships transferring onto the UK flag each year; and
- 636 existing ships have left the UK flag, which equates to a best average of 70 ships leaving the UK flag each year.
- New builds for the UK flag: Based on information obtained from the UKSR for new builds joining the UK flag between April 2007 and September 2015, 378 new builds would need to comply with the AIS carriage requirement. This equates to a best average of 40 new builds per year.

Our best estimate of the net amount of ships eligible for AIS testing has amounted to 0[29], as the new builds and transfers outweigh the ships flagging out. Our high estimate of the net transfer is a gain of 40 ships per annum and the low estimate is a reduction of 40 ships per annum. Therefore the annual amount of

[28] The paper is entitled Automatic Identification Systems: Accuracy of Transmissions (NAV 54/INF.4) and is accessible from: https://webaccounts.imo.org/Common/WebLogin.aspx?AD=False

[29] 849 ships + 30 (transfers) -70 (flagging out) + 40 (new builds) = 849 ships.

ships requiring AIS testing is 849, costing £84,900, each year over the 10 year period as the cost of annual performance test for AIS is £100.

5.2.2 Non-Monetised Costs

5.2.2.1 **Pilot Transfer Arrangements**

Where there is a pilotage requirement for a body of water (e.g. harbours, dangerous/congested waterways), ships are required to employ a pilot that is qualified to manoeuvre the ship through the specified body of water. Typically pilots reach the ship by launch/cutter transfer and board using a ladder.

As a result of continuing injuries and loss of life, culminating in death of three pilots in boarding /landing operations in January 2006, the United States, Brazil and the International Maritime Pilots' Association submitted a proposal to the IMO's MSC in 2006 on improving the safety of pilot transfer arrangements[30]. The proposals put forward were based on the results of a two year study on the specification of ladders undertaken by the International Maritime Pilot' Association and its 50 member associations. Following discussion and development at various IMO Committees and Sub-Committees the revised pilot transfer arrangements were adopted by SOLAS in December 2010 and came into force on 1 July 2012.

The amendments to pilot transfer arrangements apply to equipment and arrangements put in place after 1 July 2012. The new international regulation states that any ships with systems already in place before this date need only comply with the old regulation, meaning that there will be no changes to ships which are already operating and, therefore, has no impact.

It is assumed that for new build ships and any ships replacing their equipment after 1 July 2012, the new regulations would not introduce any added cost burden because the amendments are simply technical changes to the same type of equipment that would have been needed under the old regulation; for example ropes previously had to exceed 28 mm in diameter, under new regulations they have to be between 28 mm and 32 mm in diameter. Therefore the cost of equipment is assumed to be comparable.

Question to Consultees:

Have the revised pilot transfer arrangements altered your company's expenditure in this area? If so, please detail the specific item and change in cost.

The only major change introduced by the revised pilot transfer arrangements is the prohibition of using mechanical pilot hoists, which involves a pilot hoist being rigged together with a pilot ladder that is impossible to realistically operate. Pilots generally consider mechanical hoists to be dangerous and are reluctant or refuse to use them. Some existing ships were fitted with these hoists but they have now been designated as dangerous. Under the Merchant Shipping (Means of Access) Regulations 1988 (SI 1988/1637)[31] it was mandatory to carry an accommodation ladder, therefore any ship previously using a mechanical pilot hoist would always have an alternative way to bring a pilot on board. Subsequently operators do not incur additional costs as a result of the revised pilot transfer arrangements as (i) an alternative means of access already exists, and (ii) there is no requirement to remove mechanical pilot hoists under the new regulation.

5.2.2.2 **Safe Manning**

Minimum safe manning is deemed to be the minimum manning to allow a vessel to travel safely from one port to another. The minimum safe manning level for each ship must be approved by the flag state administration (in the case of the UK, this is the MCA) which issues a safe manning document to confirm the minimum manning levels.

In 2005, the European Commission (EC) submitted a proposal[32] to the IMO's MSC to review the principles for establishing the safe manning level of vessels. The catalyst for this proposal were investigations by the UK's Marine Accident Investigation Branch (MAIB) and the Swedish Maritime Administration (SMA) into a number of accidents and near misses occurring in a ten and five year periods within UK and Swedish waters respectively. These investigations showed that a significant number of the accidents and near-misses were attributable to fatigue-related problems affecting bridge watchkeepers. The findings of MAIB

[30] Details of the proposal are set out in MSC 82/21/17, accessible from: https://webaccounts.imo.org/Common/WebLogin.aspx?AD=False

[31] These Regulations were revoked by The Merchant Shipping (Miscellaneous Safety) (Revocations) Regulations 2015 (SI 2015/0068).

[32] Details of the proposal are set out in MSC 81/23/3, accessible from: https://webaccounts.imo.org/Common/WebLogin.aspx?AD=False

and SMA indicated that fatigue was probably due to a combination of manning levels and irregular work patterns, it was evident that full and proper consideration had not been given to published IMO guidance when determining the safe manning levels on the ships investigated.

Whilst the UK led EC proposal was not adopted in full, the requirement for a transparent procedure to determine safe manning level was adopted by the IMO in May 2012 and came into force on January 2014. The requirement for a transparent procedure which takes into account IMO guidance when establishing the safe manning procedures/levels on ships engaged on international voyages. By 'transparent procedure' this means that the Administration should publish guidance to industry on:

- the responsibilities of companies; and
- the criteria through which safe manning is determined and against which is approval by the Administration

The UK process for determining safe manning levels already takes into consideration guidance issued by the IMO on the matter and is transparent. Details of the UK process are underpinned by both an SI and MSN[33] and have been in place since 1997, well before the SOLAS amendment.

Therefore there is no associated cost to the ship operator (as safe manning numbers are not affected) or administrative cost to the Government as guidance is already in place.

5.2.3 Non-Monetised Benefits

5.2.3.1 **Improving the safety of the seafaring environment**

All of the measures are aimed at bringing an improvement to the safety of the seafaring environment, the benefits of which are reducing the number of accidents occurring to UK ships. This is difficult to monetise as there is no evidence that directly links the prevention of an incident through application of one of the measures covered in this IA.

Nevertheless, an idea of the associated benefit of the measure can be gleaned from past accidents that could have been prevented had amendments been in force. Table 3 below identifies a number of accidents that could have been prevented if the measures in this IA had been in force.

Table 3: Preventable accidents

Ship	Year	Description of Accident	Impact	Measure that could have prevented accident
JAMBO	2003	The vessel ran aground after the chief officer fell asleep whilst on watchkeeping duty. The chief officer was keeping watch alone.	Total loss of the ship	Use of BNWAS, which would have alerted the rest of the crew that the watchkeeper was not alert. Revised Safe Manning requirements, Administrations are now more strongly encouraged not to approve proposals for less than three qualified officers in charge of a navigational watch.
KAREN DANIELSEN	2005	Chief officer keeping watch was alone on bridge but incapacitated by excessive alcohol consumption. Ship subsequently collides with a bridge. BNWAS had been disabled.	One loss of life and two persons injured. Repairs required to ship.	Use of BNWAS, which would have alerted the rest of the crew that the watchkeeper was not alert.
Various	2006	A number of accidents in 2006 connected with the embarkation	Eight lives lost in one year	Revised pilot transfer arrangements, which includes

[33] The underpinning legislation are the Merchant Shipping (Standards of Training, Certification and Watchkeeping) Regulations 2015 (SI 2015/0782) and Standards of Training, Certification & Watchkeeping Convention: UK Requirements for Safe Manning and Watchkeeping (MSN 1868). These documents replaced The Merchant Shipping (Safe Manning, Hours of Work and Watchkeeping) Regulations 1997 (SI 1997/1320) Hours of Work and Safe Manning and Watchkeeping Revised Provisions from 7 September 2002 (MSN 1767).

		and disembarkation of pilots – specifically using pilot ladders		more rigorous guidelines for pilot ladders
ANTARI	2008	The vessel ran aground after the chief officer fell asleep whilst on watchkeeping duty. The chief officer was keeping watch alone. BNWAS had been disabled.	Material damage to vessel's bottom over 70% length from forward.	Use of BNWAS, which would have alerted the rest of the crew that the watchkeeper was not alert. Revised Safe Manning requirements, Administrations are now more strongly encouraged not to approve proposals for less than three qualified officers in charge of a navigational watch.

Using the Department for Transport's guidance on appraisal, WebTAG, the cost of a road fatality has been estimated at £1.9m, in 2015 values and 2015 prices. From the yearly average of the undiscounted best estimate cost to business, as calculated in this impact assessment, 0.4 lives would need to be saved in the first year in order for the NPV of this regulation to become positive. In subsequent years, the value per fatality would increase and fewer lives would then need to be saved to achieve a positive NPV. The cost to the environment of accidents involving vessels at sea has not been taken into account, nor has the cost of repairs to damaged ships, suggesting a higher cost per fatality. Furthermore, the cost of a fatality at sea is likely to be greater than a road fatality, given the logistical difficulties of dealing with maritime incidents.

The table above shows the need for the changes in SOLAS to be implemented, and suggests that there is the possibility for benefits in the future, given the potential lives to be saved and the valuation of lives lost.

5.2.3.2 **Acceptance of ECDIS as meeting nautical chart and publications carriage requirements**

For every voyage, the ship's route and intended voyage are to be clearly defined, and the ship's position throughout the voyage must be plotted and monitored. Traditionally these requirements are achieved through plotting on paper charts, therefore all ships were required to carry up to date nautical charts and publications. However, with technological advances the objectives of voyage planning and monitoring can be achieved electronically through ECDIS. The proposal to accept ECDIS as meeting the chart carriage requirements was discussed at the IMO's Sub-Committee on Safety of Navigation, before the amendment was adopted in 2009 by the MSC. The amendment came into force on 1 January 2011.

The acceptance of ECDIS as meeting chart carriage requirements has not been monetised as in practice if ships owners choose to use ECDIS as a primary means of navigation, there must also be an alternative means of navigation in place. The alternative means could be the existing paper publications or a secondary ECDIS system. Therefore the benefit is the flexibility for ship owners to choose whether to use paper or ECDIS as the ship's primary means of navigation.

5.2.3.3 **Ballast Water Exchange**

Ships operating in certain parts of the world are required to have ballast water management plans, these plans are proposed by ship owners and reviewed by Classification Societies to ensure they are compliant with regulatory requirements. Ballast water exchange is an element which forms part of the ballast water management plan.

In 2002 the International Association of Classification Societies submitted a paper[34] to the IMO's Marine Environment Protection Committee (MEPC) highlighting the difficulty for ship operators to achieve ballast water exchange sequences that fulfil all the relevant criteria during all the stages of the sequence(s). A particular difficulty was maintaining bridge visibility throughout the exchange operation, the standards of which are set out in Regulation 22 of SOLAS Chapter V on navigation bridge visibility. There were discussions at subsequent sessions of MEPC for extending the scope for when ballast water exchange could occur, the UK actively participated in discussions and proposed solution to the 52nd session of MEPC. The final agreed text which allows the master of a ship (i) once having taken into consideration blind sectors or reduced fields of vision; and (ii) arranged for appropriate lookout to be maintained at all

[34] Paper MEPC 48/2/7 on "Issues associated with ballast water exchange at sea", accessible from: https://webaccounts.imo.org/Common/WebLogin.aspx?AD=False

times, to undertake ballast water exchange was transmitted to the IMO's MSC for adoption in 2006 and came into force 1 July 2010.

Whilst the extension of scope for ballast water exchange is beneficial to ship owners, in that it allows more situations where the exchange can be undertaken, due to the intangible nature of the benefit, it is not monetised.

5.2.3.4 **Removal of Gold-Plating in relation to AIS carriage requirements for Government owned or operated ships used only on government non-commercial service**

Unless expressly specified by Contracting Governments to SOLAS, Chapter V does not apply to government owned or operated ships that are used only for government non-commercial services. The requirement for carriage of AIS in the existing Regulations does not apply to such ships owned/operated by other Governments in UK waters, but it does apply to ships owned/operated by the UK Government in the same waters. It is proposed to amend the Regulations so that no ships owned/operated by any Government providing government non-commercial services in UK waters be required to carry AIS. This would remove the gold-plating from the existing Regulations and create a level playing field. This benefit has not been monetised as it is a saving to Government on new ships (as opposed to industry).

5.2.3.5 **Giving effect to SOLAS**

Through implementing the outstanding amendments, the UK will no-longer be in breach of its obligation to give effect to SOLAS. This will:

- give legal clarity to operators – there will no-longer be disparity between national and international requirements;
- provide a level playing field between UK and foreign ships calling at UK ports as the UK will be able to enforce the full requirements of SOLAS to foreign ships visiting the UK, in line with what is enforced against UK ships calling at foreign ports where authorities have already implemented the latest SOLAS Chapter V amendments;
- ensure the UK's reputation, which would be threatened should the UK be identified during a future IMO audit for failing to meet its obligation to give effect to SOLAS, which was a finding of the previous audit; and
- safeguard the UK's influence at the IMO.

5.2.3.6 **Reduction in insurance premium for compliance**

As previously stated in 5.2.3.1, the measures introduced are aimed at bringing an improvement to the safety of the seafaring environment, the benefits of which are reducing the number of accidents occurring to and on UK ships. A possible consequence of this reduction is the potential of reduced insurance costs as a result of fewer injuries and accidents to and losses of vessels. This idea was explored within the consultation IA of The Fishing Vessels (Code of Practice) Regulations 2016 (DfT00278). Consultees were invited to submit any additional evidence or relevant information on the impact of the proposed Regulations on insurance costs.

One insurance firm responded to the consultation and stated that if incident rates decline, then claim costs will reduce and this will impact on future premium increases. Another respondee felt that insurance costs would not be affected. Neither respondees believed insurance costs would fall as a result of compliance with Regulations, however from the first answer it could be deduced that within the fishing sector, compliance can potentially reduce the rate of increase for insurance premiums.

Question to Consultees:
Does compliance with the up to date requirements of SOLAS impact on insurance costs? If so, please state the differential cost.

5.3 ***Option 2: Bring UK law in line with recent updates to international navigational requirements and introduce ambulatory referencing to refer UK industry to the most up to date international legislation in this area***

5.3.1 Monetised Costs

Please refer to section 5.3.1 for the monetised costs of this option.

5.3.2 Non-Monetised Costs

In addition to the non-monetised costs identified in section 5.3.2, there will be cost associated with future amendments to SOLAS Chapter V, which through ambulatory referencing will automatically come into force. The cost associated with future amendments cannot be monetised at this stage as there is currently no indication of what form future amendments may take. It is proposed that regular Post Implementation Reviews (PIR) will be undertaken to evaluate whether the use of ambulatory reference to SOLAS Chapter V has achieved its goal and is still valid, and also to estimate the costs and benefits of all the technical amendments enacted since this impact assessment.

As an initial steer for the cost of future amendments, none is expected prior to 2024. The IMO does not have any outputs[35] for the 2016-17 biennium that will result in an amendment to SOLAS Chapter V. Therefore based on the speed with which the measures covered by this impact assessment have been developed from proposal to adoption[36], should a proposal be put forward in 2016 and added to the IMO's work agenda which would necessitate an amendment to SOLAS Chapter V, it is unlikely that the amendment would be adopted until 2020. From 1 January 2016, new SOLAS amendments will follow a four year cycle (first entry into force date will be 1 January 2020), unless adopted under conditions of exceptional circumstance. Therefore with adoption in 2020, any proposed measure is unlikely to come into force before 2024.

5.3.3 Monetised Benefits

Ship operators will benefit from a reduction in time spent to familiarise themselves with both international and national legislation. At present ship operators need to be sure that where provisions of international conventions have been framed differently in UK law, it is given the same interpretation that it has internationally (in the convention). The introduction of an ambulatory reference to SOLAS Chapter V means that ship operators can focus on the convention text in technical areas rather than also having to refer to national implementing legislation; which presents a benefit to industry. In order to monetise this benefit, the questions below are posed to industry.

Question to Consultees:

On average how many hours does it take for a member of your organisation to familiarise themselves with UK legislation on SOLAS Chapter V?

At what level of seniority would a member of staff be expected to be (on behalf of the organisation) familiar with UK legislation on SOLAS Chapter V?

5.3.4 Non-Monetised Benefits

In addition to the non-monetised benefits identified in section 5.3.4, the introduction of ambulatory referencing to SOLAS Chapter V into the recast Regulations will:

- simplify the regulatory framework for both industry and regulatory users – currently a mixture of primary and secondary legislation is used to implement international maritime conventions;

[35] Every six years the IMO develops a strategic plan (adopted by the Assembly) which enables IMO to achieve its mission objectives. This plan includes all IMO priorities (planned outputs) over a biennium and provides the link between the IMO's strategy, the work of the various committees and the biennial budget.

[36] The table below reflects key dates for each of the amendments covered in this impact assessment:

Amendment/Measure	Proposal Date	Adoption Date	Entry into Force Date	Proposal to Entry into Force
Mandatory use of BNWAS	2005	2009	2011	6 years
Mandatory use of ECDIS	2005	2009	2012	7 years
Acceptance of ECDIS meeting chart carriage requirements	Unknown	2009	2011	
AIS annual performance standard testing	2006	2010	2012	6 years
Revised Pilot Transfer Arrangements	2006	2010	2012	6 years
Transparent Safe Manning Procedure	2005	2012	2014	9 years
Additional Conditions for Ballast Water Exchange	Unknown	2006	2010	

- give legal clarity to operators – there will no-longer be disparity between national and international requirements;
- provide a level playing field between UK and foreign operators calling at UK ports – the automatic incorporation of amendments in legislation means that the UK will be able to enforce amendments as soon as they come into force internationally;
- in the long term reduce burden on the MCA, Government lawyers and parliamentary time;
- protect the UK's reputation. It could be detrimental the UK's reputation should the UK be identified during a future IMO audit for failing to meet its obligation to give effect to the latest version of SOLAS, which was a finding of the previous audit; and
- safeguard the UK's influence at the IMO.

6. Rationale and evidence that justify the level of analysis used in the IA (proportionality approach)

The proposed recast of the Merchant Shipping (Safety of Navigation) Regulations to reflect the outstanding SOLAS Chapter V amendments and the incorporation of ambulatory referencing direct to SOLAS Chapter V is fully supported by industry. Industry has been fully engaged throughout the process of policy development at the IMO and contributing towards the UK negotiating position at the IMO. Industry voiced its support for the use ambulatory references to facilitate prompt incorporation of amendments to international requirements into domestic law. In spite of legal uncertainty arising from the discrepancy between domestic and international requirements, industry complies with international requirements to avoid commercial disruption caused by non-compliance delays at PSC when operating worldwide.

Figures relating to the number of ships affected by the amendments are taken directly from the UK Ship Register which is correct as at 16 October 2015. Details for PSC records are taken from the Ship Inspection and Surveys (SIAS) and THETIS databases. SIAS is maintained by the MCA and documents inspections and surveys for UK flagged ships. Authorised officials from 27 countries (including EU Member States) upload details from PSC inspections onto THETIS[37].

Equipment costs are based on a sample of quotes obtained from manufacturers/suppliers for "wheelmark" products. Under the Marine Equipment Directive 96/98/EC, as amended, Marine equipment can only be installed on board ships flying the flag of an EU country, Norway, Iceland and other flag states if it is marked with the MED mark of conformity, also known as the "wheelmark".

The level of analysis undertaken is in line with the depth of available information.

7. Risks and assumptions

7.1 Risks of doing nothing

The risk of doing nothing is the damage to the UK's reputation as a world leader in the maritime industry. This would have a negative effect on the UK's influence at the IMO and in the EU forum on maritime issues. Furthermore the UK would not be able to detain and/or prosecute any substandard non-UK ships operating in UK waters, especially if an incident occurred, as is currently the case.

7.2 Risks of only bringing UK law in line with recent updates to international navigational requirements

Whilst the recent updates will be implemented into UK law, this option only brings temporary relief to the backlog of international legislation to be implemented into UK law. Owing to finite policy/legal/analytical resources, any future amendments to SOLAS Chapter V will join the aforementioned backlog. Therefore this option will not address industry's key demand during the RTC for the use of ambulatory referencing to expedite the implementation of amendments to international conventions.

7.3 Risks of implementing all the options

[37] Further information on THETIS is available from: http://emsa.europa.eu/psc-main/thetis.html

There are no risks involved in implementing the SOLAS Chapter V measures; industry are fully aware of the changes and are in compliance in order to continue trading internationally without hindrance.

There is a low risk of adverse publicity in connection with introducing Ambulatory Reference, in that there may be suggestions that this is by-passing the parliamentary and public scrutiny process for new legislation. However, this should be easily refuted by referral to the new scrutiny process, which not only incorporates public scrutiny, but does so at an earlier stage, with the involvement of industry. The reason the risk is assessed as "low" is that industry as a whole have requested Ambulatory Reference to give them legal certainty – so few of their members are likely to challenge it - and members of the public are unlikely to challenge it as the new process incorporates public element of consultation for those relatively few members of the public who have an interest in the highly technical detail involved.

7.4 Assumptions in relation to the monetary analysis

The following assumptions have been made for the cost-benefit calculations:

- Operators have already installed BNWAS and ECDIS on ships where the phase in deadline has passed, therefore the cost is considered neutral as it has already been incurred. This assumption is supported by PSC data and the fact that ships operators will comply to mitigate the potential for delays at PSC which can be very costly due to the logistical implications.
- The figures used for average cost of purchasing and installing BNWAS and ECDIS are representative. The cost of the individual pieces of equipment are fairly standard, however it was difficult to ascertain the cost of installation (labour and cables) as multiple factors need to be considered. These factors include: the size of the ship, layout in relation to the bridge and accommodation (where an alert would sound), and whether BNWAS is compatible to be linked with other pieces of navigation equipment.
- Ships to which carriage requirements for BNWAS and ECDIS have yet to come into force, have not installed the equipment to date.
- The trend for ships joining and leaving the UK flag continue as per the last eight and a half years.
- The revised pilot transfer arrangements have not attracted additional cost for operators.

Questions are posed in the body of this IA to solicit responses from industry to validate/challenge the above assumptions.

8. Direct costs and benefits to business calculations (following OITO methodology)

The proposed regulations are not in scope of One In, Three Out as it implements the international requirements set out in SOLAS Chapter V according to the minimal requirement. Furthermore as an international measure it is a Non-Qualifying Regulatory Provision (NQRP) which will not score against the Business Impact Target.

8.1 Costs and benefits based on assumptions

The MCA considers the equivalent annual net cost to business (EANCB) to be £0.75million over the next ten years. Tables 4 and 5 provide a summary of the best estimate and maximum possible undiscounted costs and benefits over the next 10 year period for the preferred option (Option 2). Note that figures have not been discounted and are based on the information in the cost and benefit section.

Table 4: Best Estimate Costs and Benefits (£m, undiscounted 2015 prices)

	Y1	Y2	Y3	Y4	Y5	Y6	Y7	Y8	Y9	Y10	**Total**
Installation of BNWAS on existing ships and net transfers	0.93	0.16	-	-	-	-	-	-	-	-	**1.09**
Installation of ECDIS on existing ships and net transfers	0.80	0.30	0.12	-	-	-	-	-	-	-	**1.22**
Installation of BNWAS on new builds	0.15	0.15	0.15	0.15	0.15	0.15	0.15	0.15	0.15	0.15	**1.55**

Installation of ECDIS on new builds	0.26	0.26	0.26	0.26	0.26	0.26	0.26	0.26	0.26	0.26	**2.60**
Conducting annual test for AIS (existing, new builds, transfers)	0.08	0.08	0.08	0.08	0.08	0.08	0.08	0.08	0.08	0.08	**0.85**
Total Cost	**2.23**	**0.95**	**0.62**	**0.50**	**0.50**	**0.50**	**0.50**	**0.50**	**0.50**	**0.50**	**7.31**

Table 5: High Estimate Costs and Benefits (£m, undiscounted 2015 prices)

	Y1	Y2	Y3	Y4	Y5	Y6	Y7	Y8	Y9	Y10	**Total**
Installation of BNWAS on existing ships and net transfers	1.06	0.18	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	**1.24**
Installation of ECDIS on existing ships and net transfers	0.92	0.34	0.14	0.00	0.00	0.00	0.00	0.00	0.00	0.00	**1.40**
Installation of BNWAS on new builds	0.25	0.25	0.25	0.25	0.25	0.25	0.25	0.25	0.25	0.25	**2.45**
Installation of ECDIS on new builds	0.50	0.50	0.50	0.50	0.50	0.50	0.50	0.50	0.50	0.50	**4.98**
Conducting annual test for AIS (existing, new builds, transfers)	0.09	0.09	0.10	0.10	0.10	0.11	0.11	0.12	0.12	0.12	**1.07**
Total Cost	**2.81**	**1.36**	**0.98**	**0.84**	**0.85**	**0.85**	**0.86**	**0.86**	**0.86**	**0.87**	**11.14**

Table 6: Low Estimate Costs and Benefits (£m, undiscounted 2015 prices)

	Y1	Y2	Y3	Y4	Y5	Y6	Y7	Y8	Y9	Y10	**Total**
Installation of BNWAS on existing ships and net transfers	0.82	0.14	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	**0.96**
Installation of ECDIS on existing ships and net transfers	0.60	0.22	0.09	0.00	0.00	0.00	0.00	0.00	0.00	0.00	**0.91**
Installation of BNWAS on new builds	0.08	0.08	0.08	0.08	0.08	0.08	0.08	0.08	0.08	0.08	**0.81**
Installation of ECDIS on new builds	0.13	0.13	0.13	0.13	0.13	0.13	0.13	0.13	0.13	0.13	**1.29**
Conducting annual test for AIS (existing, new builds, transfers)	0.08	0.08	0.07	0.07	0.06	0.06	0.06	0.05	0.05	0.04	**0.63**
Total Cost	**1.71**	**0.65**	**0.37**	**0.28**	**0.28**	**0.27**	**0.27**	**0.26**	**0.26**	**0.26**	**4.60**

8.2 Administrative costs

Ambulatory Referencing

The introduction of Ambulatory Referencing into the recast Regulations is expected to reduce the overall administrative burden, as amendments to SOLAS Chapter V will automatically come into force without the need to revise secondary legislation. This will in the long term reduce administrative burden on the MCA, Government lawyers and parliamentary time.

Amendments to SOLAS V

There is very little additional administrative burden placed on the MCA of implementing the SOLAS Chapter V amendments. A Marine Guidance Note has already been issued to assist with the mandatory testing of AIS.

9. Wider impacts

9.1 Small and Micro Business Assessment (SaMBA)

Based on an analysis of the companies owning UK registered vessels (as at 16 October 2015), it is concluded that the majority of these companies affected by the SOLAS Chapter V amendments are large,

multinational or subsidiaries of multinationals and would therefore fall outside of the scope of the SaMBA[38]. It is estimated that around 3% of ships (approximately 25 ships) on the UKSR are owned by companies which may employ less than 50 people. These smaller companies include the operators of tugs and local passenger ferries.

The SOLAS amendments are primarily concerned with the carriage of navigational equipment on board ships. In the interests of safety we cannot differ carriage requirements because a company has fewer employees. However, many small firms will benefit from the exemption for carriage of BNWAS applied to all passenger ships under 150GT engaged on any voyage, and all passenger ships of under 500GT not engaged on international voyages.

The constant equipment cost associated with the regulations entails no disproportionate burden for small and micro businesses.

9.2 Competition assessment

The new measures apply equally to all ships calling at UK ports. Issues would not arise in respect of competition as SOLAS applies equally to all international ships.

9.3 Environmental & Carbon Impact

None of the options would have any adverse environmental or carbon impact.

9.4 Race, Disability and Gender Impact Assessment

All options have been assessed for relevance but the measures proposed are not going to have any variation in impact on different groups; an Equalities Impact assessment is therefore not required.

9.5 Human Rights

We believe that the Minister would be able to make the following statement: “In my view the provisions are compatible with the Convention rights.”

9.6 Family Test

It is considered that there are no significant impacts on families.

9.7 Enforcement

There are no new penalties being introduced by these new measures as the existing offenses and penalties are sufficiently broad to cover all requirements which fall under Regulation 19 of SOLAS V. The inspection regime for MCA surveyors would include checks on the ECDIS and BNWAS. Upon introduction of the recast Regulations, the MCA enforcement team could then prosecute those ships that do not comply.

Summary and preferred option

Under the preferred option, the UK will fulfil its obligation to give effect to SOLAS and retain its reputation as a leading maritime nation and influence at the IMO. Transposition of the SOLAS V amendments will

[38] The following business size definitions were used to categorise companies which own ships on the UKSR:
- micro firm: 0 - 9 employees
- small firm: 0 - 49 employees (includes micro)
- medium firm: 50 - 249 employees
- large firm: over 250 employees

The following assumptions have been made when analysing companies owning UK registered ships:
i. Multinational / Multidisciplinary companies are unlikely to be smaller than a medium sized firm – otherwise they will not be able to conduct their operations
ii. Companies operating 6 small cargo/ 5 small passenger ships or more are unlikely to be smaller than a medium sized firm – otherwise it would not be able to comply with safe manning requirements and provide the shore based personnel infrastructure to deliver business needs. For example, based on a sample of the minimum number of crew required to comply with safe manning requirements for ships less than 50,000GT, it was found that on average:

Ship Type and Size	Min. no. of crew
Cargo Ship 150GT - 499GT	5
Cargo Ship 500GT - 2,999GT	10
Cargo Ship 3,000GT - 19,999GT	14
Cargo Ship 20,000GT - 49,999GT	17

Ship Type and Size	Min. no. of crew
Passenger Ship 150GT - 499GT	6
Passenger Ship 500GT - 2,999GT	10
Passenger Ship 3,000GT - 19,999GT	16
Passenger Ship 20,000GT - 49,999GT	31

create a level playing field and allow the UK to take enforcement action against any substandard ships in UK waters. The inclusion of ambulatory reference to SOLAS Chapter V will provide legal certainty for industry and address their concern regarding delays in transposition raised during the Red Tape Challenge.

10. Post Implementation Review Plan (PIR)

1. **Review status:** Please classify with an 'x' and provide any explanations below.

	Sunset clause		Other review clause		Political commitment		Other reason		No plan to review
		X							

2. **Expected review date** (month and year, xx/xx):

0	4	/	2	2

Rationale for PIR approach:

Describe the rationale for the evidence that will be sought and the level of resources that will be used to collect it.

- **Will the level of evidence and resourcing be low, medium or high? (See Guidance for Conducting PIRs)**

The level of evidence and resourcing for this review will be low. The Regulations implement Chapter V of the International Convention for the Safety of Life at Sea (SOLAS), and aspects of a number of EU Directives which echo the requirements of SOLAS Chapter V.

- **What forms of monitoring data will be collected?**

The review will include analysing data contained on the Ship Inspection and Surveys (SIAS) and THETIS databases to identify non-compliances with the requirements of SOLAS Chapter V established through Port State Control inspections.

- **What evaluation approaches will be used? (e.g. impact, process, economic)**

Aspects of impact, process and economic evaluation processes will be used. The review will engage with industry and classification societies to better understand the actual costs experienced. The Maritime & Coastguard Agency (MCA) will check whether the shipping industry is complying with the new Regulations and, where possible, also whether they are having the desired effect on improving safety.

- **How will stakeholder views be collected? (e.g. feedback mechanisms, consultations, research)**

Officials from the MCA regularly host and/or attend meetings with stakeholders – their feedback on whether measures have had the desired effect or problems encountered is sought as part of ongoing stakeholder engagement.

Ambulatory Reference

Definition of ambulatory reference

An ambulatory reference for the purposes of this Impact Assessment is a reference in domestic legislation to specific provision in an international instrument which is interpreted as a reference to the specific provision as modified from time to time (and not simply the version of that provision which exists at the time the domestic legislation is made).

What does an ambulatory reference provision achieve?

The effect of the ambulatory reference provision is that amendments to any parts of the International Convention which are specifically referred to in the Statutory Instrument (SI) will automatically transposed into UK law at the same time as they come into force internationally. No additional SIs/ amendments to existing SIs will be required to bring such amendments into force.

Enabling Power to make Ambulatory Reference

On 26 March 2015, the Deregulation Act 2015 received Royal Assent. The Act inserted new section 306A of the Merchant Shipping Act 1995 (MSA 95), which contains a power to make ambulatory references to international instruments. This power will only be used for "technical", and therefore non-controversial, aspects of the Convention.

What assurances are in place to prevent undesirable amendments to international Conventions automatically coming into force?

1. 1. A new SI must be created to introduce an ambulatory reference provision in relation to an international Convention. The suitability of the international Convention will be assessed (taking into consideration the nature of amendments and the likelihood of whether they will be controversial) prior to the use of the power being approved.
2. Where the UK does not agree with a proposed amendment to an international Convention, the Secretary of State (SoS) may object to block to it amendments to International Conventions in order to prevent it coming into force with respect to which the UK does not agree. This facility will be available for exceptional circumstances; however, this "opt-out" it is not expected to be used frequently, if at all, because:
   - any UK arguments deemed necessary to shape the amendments will have been applied argued in the international negotiation stage;
   - the amendments, being of a technical nature, are not expected to be politically controversial;
   - the amendments, once agreed, will in any case be binding on the international community and therefore it will be necessary for UK ships wishing to operate internationally without hindrance to comply anyway.

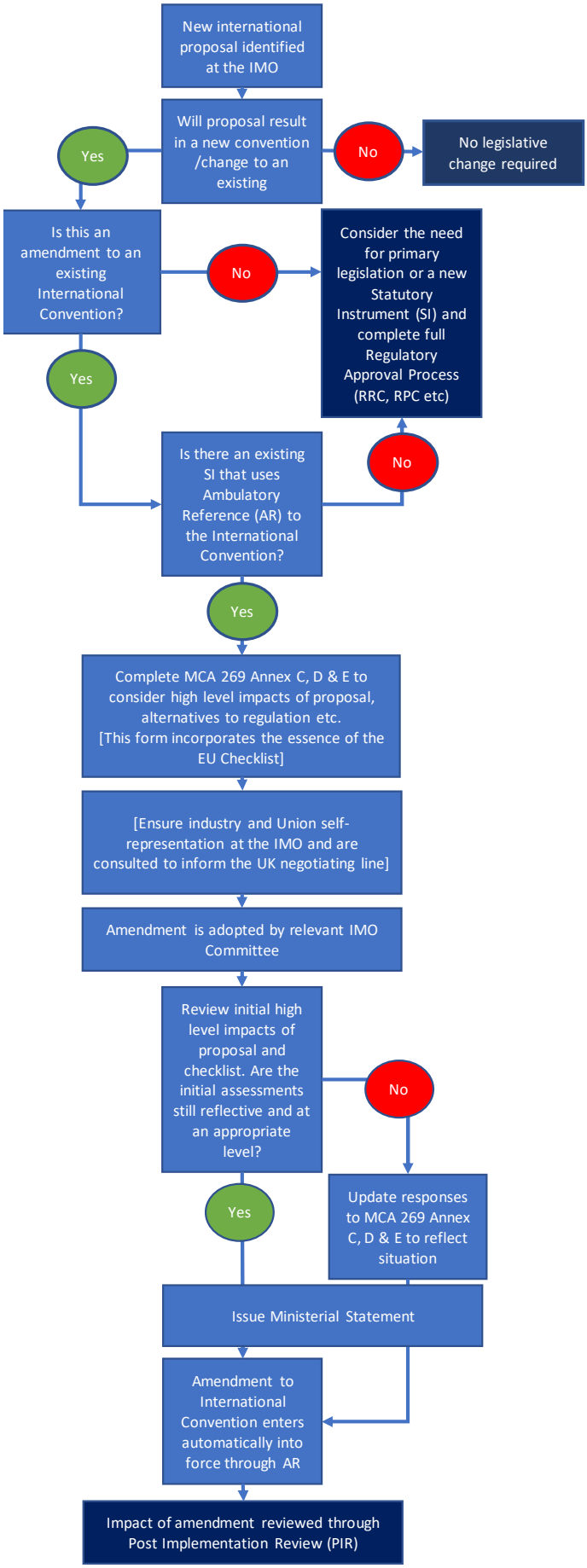
Regulatory process supported by the Better Regulation Executive for Ambulatory Reference measures

A flow diagram of the agreed scrutiny process is depicted overleaf, in essence the process will require:

- an ambulatory reference provision to be included in secondary legislation which will follow the full Parliamentary and Regulatory processes;
- subsequent technical amendments during the international negotiation process, will continue to be subject to:
  - consideration of high level impacts
  - stakeholder engagement
- full Post Implementation Review to be undertaken to evaluate whether the policy has achieved its goal and is still valid, and also evaluate the costs and benefits of all the technical amendments enacted since the previous review (or impact assessment).

The proposed approach streamlines the traditional regulatory process and directs it where the greatest influence can be achieved, at negotiation stage. The principles of Better Regulation are still captured:

- Alternatives to Regulation – prior to work commencing on any proposal at the IMO, a case for action must be demonstrated against the following criteria: practicality, feasibility and proportionality; costs and benefits to industry, including legislative and administrative burdens; and alternatives to regulation.
- Consultation – industry is represented at the IMO through non-governmental organisations, which are heavily involved in early stage policy development, contributing to working and drafting groups where policy is designed, as well as participating in plenary where policy is examined. Industry representatives are invited to meetings hosted by the MCA prior to IMO sessions to assist with the development of the UK's negotiating position.
- Assessment of Impact – a high level consideration of impact is undertaken at proposal stage to inform the UK's negotiation position. Post Implementation Reviews will be used to assess the robustness of the original assessment and will be timed to ensure they can feed into negotiations for future rounds of amendments.


New international proposal identified at the IMO
Will proposal result in a new convention /change to an existing
Yes
No
No legislative change required
Is this an amendment to an existing International Convention?
No
Consider the need for primary legislation or a new Statutory Instrument (SI) and complete full Regulatory Approval Process (RRC, RPC etc)
Yes
Is there an existing SI that uses Ambulatory Reference (AR) to the International Convention?
No
Yes
Complete MCA 269 Annex C, D & E to consider high level impacts of proposal, alternatives to regulation etc. [This form incorporates the essence of the EU Checklist]
[Ensure industry and Union self-representation at the IMO and are consulted to inform the UK negotiating line]
Amendment is adopted by relevant IMO Committee
Review initial high level impacts of proposal and checklist. Are the initial assessments still reflective and at an appropriate level?
No
Yes
Update responses to MCA 269 Annex C, D & E to reflect situation
Issue Ministerial Statement
Amendment to International Convention enters automatically into force through AR
Impact of amendment reviewed through Post Implementation Review (PIR)

How does Ambulatory Reference support Economic Growth?

The UK's ability to implement international agreements efficiently and effectively is important to the commercial shipping sector for a number of reasons:

- timely implementation means that UK ships plying internationally can properly be issued with certificates that confirm compliance with relevant international rules. Recent experience with the Maritime Labour Convention has highlighted a risk that current implementation practice could result in the UK delaying ratification of major agreements, potentially restricting the participation of UK shipping in international trade;

- the uniform implementation of international rules in all contracting states is vital in order to achieve a level playing field for UK ships that trade internationally. The UK must be capable of certifying its own ships to the relevant standards; failure to do so makes it much more likely that a UK ship will be detained in a non-UK port for non-compliance. We must also be able to enforce those same standards against non-UK ships in UK ports, to ensure that compliant UK ships are not disadvantaged;

- current implementation practice has created a complicated and disjointed regulatory regime that diverges significantly from the international structure. This creates administrative burden for industry, because of the needless duplication of effort needed to ascertain the domestic legal position, and because of the unnecessary complexity of the domestic regime;

- a transparent, accessible and up-to-date legal regime is a vital component of a quality flag. Improving the way we implement international law will reflect the UK's ambition to make its flag a more attractive place to do business, as well as protecting our reputation as a world-class maritime administration, both with industry and the international institutions (such as the EU and the IMO) with responsibility for maritime policy;

- when discussing technical matters with overseas clients or shipyards and designers, it helps to have a common source of reference. Those working within the UK regime will be familiar with the UK's implementation, but those in other states will have no knowledge of it;

- when an owner wishes to change flag to the UK, the ship will have been constructed to the international requirements. Differences in UK law (occasionally deliberate gold-plating, but mostly differences in legislative drafting styles and delays in implementing amendments) make assessing a ship's compliance unnecessarily complicated, and may create additional hurdles capable of discouraging owners from transferring to the UK.