

**National Interest Analysis [2016] ATNIA 1**

**with attachment on consultation**

**INTERNATIONAL CODE OF SAFETY FOR SHIPS USING GASES OR OTHER  
LOW-FLASHPOINT FUELS (IGF CODE)**

**Resolution MSC.391(95)**

(London, 11 June 2015)

**[2015] ATNIF 33**

**AMENDMENTS TO THE INTERNATIONAL CONVENTION FOR THE SAFETY  
OF LIFE AT SEA, 1974, AS AMENDED**

**RESOLUTION MSC.392(95)**

(London, 11 June 2015)

**[2015] ATNIF 34**

**AMENDMENTS TO THE PROTOCOL OF 1978 RELATING TO THE  
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(London, 11 June 2015)

**[2015] ATNIF 36**

**AMENDMENTS TO THE INTERNATIONAL CONVENTION ON STANDARDS OF  
TRAINING, CERTIFICATION AND WATCHKEEPING FOR SEAFARERS**

**(STCW), 1978, AS AMENDED**

**RESOLUTION MSC.396(95)**

(London, 11 June 2015)

**[2015] ATNIF 37**

**AMENDMENTS TO PART A OF THE SEAFARERS' TRAINING, CERTIFICATION  
AND WATCHKEEPING (STCW) CODE**

**RESOLUTION MSC.397(95)**

(London, 11 June 2015)

**[2015] ATNIF 38**

**NATIONAL INTEREST ANALYSIS: CATEGORY 1 TREATY**

**SUMMARY PAGE**

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## Nature and Timing of Treaty Action

1. The International Maritime Organization (IMO) is the specialised agency of the United Nations with responsibility for setting and maintaining a comprehensive regulatory framework for international shipping addressing safety, environmental, legal, technical, security and the efficiency of shipping.
2. The 95th session of IMO's Maritime Safety Committee ('MSC') in June 2015 adopted the *International Code of Safety for Ships using Gases or other Low-flashpoint Fuels* (IGF Code) in the Annex to Resolution MSC.391(95). The IGF Code will take effect on 1 January 2017 upon entry into force of amendments to the relevant IMO Conventions as set out at Paragraphs 5 and 6 below.
3. The purpose of the IGF Code is to provide an international standard for ships using low-flashpoint fuel, other than ships that are already covered by the International Code for the Construction and Equipment of Ships Carrying Liquefied Gases in Bulk ('IGC Code').
4. The IGF Code provides mandatory provisions for the arrangement, installation, control and monitoring of machinery, equipment and systems using low-flashpoint fuels, focusing initially on methane [i.e. liquefied natural gas ('LNG') or compressed natural gas ('CNG')], to minimise the risk to the ship, its crew and the environment, having regard to the nature of the fuels involved.
5. At the 95th session of MSC in June 2015, further Resolutions were adopted to amend the Conventions and the Code listed below, to make the IGF Code mandatory:
  - (a) *International Convention for the Safety of Life at Sea, 1974 As Amended* [1983] ATS 22 (SOLAS);
  - (b) *Protocol of 1978 relating to the International Convention for the Safety of Life at Sea, 1974* [1983] ATS 28 ('1978 SOLAS Protocol');
  - (c) *Protocol of 1988 relating to the International Convention for the Safety of Life at Sea, 1974* [2000] ATS 3 ('1988 SOLAS Protocol');
  - (d) *International Convention on Standards of Training, Certification and Watchkeeping for Seafarers, 1978* [1984] ATS 7 ('STCW'); and
  - (e) *Seafarers' Training, Certification and Watchkeeping Code* [1997] ATS 33 ('STCW Code').
6. The amendments were effected by way of six MSC Resolutions that are the subject of this NIA:
  - (a) **Resolution MSC.391(95)** *Adoption of the International Code of Safety for Ships using Gases or other Low-flashpoint Fuels (the IGF Code)* which contains the agreed text of the IGF Code;
  - (b) **Resolution MSC.392(95)** *Amendments to the International Convention for the Safety of Life at Sea, 1974, As Amended* which makes the IGF Code mandatory through amendments to **Chapters II-1 and II-2** and the **SOLAS Appendix**;
  - (c) **Resolution MSC.394(95)** *Amendments to the Protocol of 1978 Relating to the International Convention for the Safety of Life at Sea, 1974*, which together with Resolution MSC. 395(95) outlines changes to the form of the cargo and passenger ship safety certificates (contained in the **SOLAS Appendix**);
  - (d) **Resolution MSC.395(95)** *Amendments to the 1988 SOLAS Protocol*;

- (e) **Resolution MSC.396(95) Amendments to STCW**, which together with Resolution MSC.397(95) outlines training and qualifications requirements for personnel on ships subject to the IGF Code (STCW **Chapters I** and **V**, and STCW Code **Chapter V**, respectively); and
- (f) **Resolution MSC.397(95) Amendments to Part A of the STCW Code**.

7. The amendments to SOLAS (Resolution MSC.392(95); Resolution MSC.394(95) and Resolution MSC.395(95)), STCW (Resolution MSC.396(95)) and the STCW Code (Resolution MSC.397(95)) will all be deemed to be accepted on **1 July 2016**, unless, prior to that date, more than one third of the Contracting Governments to the respective Conventions or Contracting Governments the combined merchant fleets of which constitute not less than 50% of the gross tonnage of the world's merchant fleet, have notified to the Secretary-General their objections to the amendments. Subject to this condition being satisfied, the amendments and consequently the IGF Code (Resolution MSC.391(95)) will enter into force on **1 January 2017**.

## Overview and National Interest Summary

### *The IGF Code*

8. LNG carriers around the world have been using cargo boil-off gas as part of their fuel source for decades. For other ship types the use of LNG as a marine fuel has increased in recent years due to stricter regulations regarding ship emissions. LNG's appeal arises through its' lower sulphur and particulate emissions compared with heavy fuel oil or marine diesel oil; the relative abundance of natural gas, and its' favourable long-term economics. While the safe carriage of LNG as a cargo, and the use of cargo boil-off gas as fuel, has been undertaken for decades on ships, there has been a need for an international regulatory framework for the use of LNG and other gases as fuel on other ship types, to help the shipping industry move towards cleaner energy consumption.

9. In 2009 the IMO urgently developed interim guidelines to address a number of safety aspects affecting the design and building of ships using such fuels, including emergency shutdown arrangements and the location of fuel storage tanks. Gas and other low-flashpoint fuels such as low flashpoint diesel and kerosene pose their own set of safety challenges that need to be properly managed. The IGF Code aims to minimise the risk to the ship, its crew and the environment, having regard to the nature of the fuels involved.

10. The IGF Code contains mandatory provisions for the arrangement, installation, control and monitoring of machinery, equipment and systems using low-flashpoint fuels, focusing initially on methane. The Code addresses all areas that need special consideration for the usage of low-flashpoint fuels, taking a goal-based approach, with goals and functional requirements specified for each section forming the basis for the design, construction and operation of ships using this type of fuel.

### *The Amendments to SOLAS*

11. The amendments to SOLAS **Chapter II-1** (Construction – Structure, subdivision and stability, machinery and electrical installations), include amendments to **Part F** 'Alternative design and arrangements', to provide a methodology for alternative design and arrangements for machinery, electrical installations and low-flashpoint fuel storage and distribution systems. The amendments also include a new **Part G** 'Ships using low-flashpoint fuels', to add new regulations to require ships for which the building contract is placed on after the date

of entry into force of **1 January 2017**, constructed on or after 1 July 2017 or delivered after 1 January 2021 (subject to limited exceptions), to comply with the requirements of the IGF Code.

12. The amendments to SOLAS **Chapter II-2** (Construction – Fire protection, fire detection and fire extinction), include amendments to:
- (a) **Part B** ‘Prevention of fire and explosion’;
  - (b) **Part C** ‘Suppression of fire’, to add additional requirements for openings and pressure relief in tankers constructed on or after 1 January 2017;
  - (c) **Part F** ‘Alternative design and arrangements’, to accommodate the new **Chapter II-1 Part G** and add isolation requirements for tankers constructed on or after 1 January 2017; and
  - (d) **Chapter II-2 Part G** ‘Special requirements’, in particular for the separation of ventilation systems in both passenger and cargo ships.

13. An amendment to the SOLAS **Appendix** makes the form of certificates consistent with the amendments to **Chapters II-1**. The amendments to the 1978 and 1988 SOLAS Protocols, similarly update the Appendix to ensure the form of certificates are consistent with the new **Part G** of **Chapter II-1**.

#### *The Amendments to STCW and the STCW Code*

14. The amendments to STCW and the STCW Code include new mandatory minimum requirements for the training and qualifications of masters, officers, ratings and other personnel working on board ships certified to the IGF Code (subject to limited exemptions). The amendments also have an entry into force date of **1 January 2017**, in line with the SOLAS amendments related to the IGF Code.

#### **Reasons for Australia to Take the Treaty Action**

15. Australia is a long-standing supporter of the IMO and its international Conventions and standards on the safety of shipping, their crews and the protection of the marine environment.

16. The IGF Code will provide mandatory provisions for the arrangement, installation, control and monitoring of machinery, equipment and systems using low-flashpoint fuel to minimise the risk to the ship, its crew and the environment, having regard to the nature of the fuels involved.

17. Australia has been an actively-engaged, long standing supporter of the IGF Code both at the maritime administration and industry level. Acceptance of the Code is in accordance with Australia’s interests as the requirements provide clarity to the Australian shipping industry on regulatory standards, outline best practice in the use of gases or other low-flashpoint fuels and also ensure international regulatory consistency in ship building and seafarer training standards. The resultant outcome will increase maritime safety and security, enhance measures to protect the marine environment and promote smooth, effective and efficient international trade.

18. Currently, an estimated sixty five (65) LNG fueled vessels are in service worldwide. There are at least another eighty (80) in design or construction stages, including one for Australian operations. The IGF code will improve community confidence in the safety of

innovative vessels using low flashpoint fuels and thereby facilitate their increased commercial use.

## **Obligations**

19. The IGF Code contains mandatory provisions for the arrangement, installation, control and monitoring of machinery, equipment and systems using low-flashpoint fuel to minimise the risk to the ship, its crew and the environment, having regard to the nature of the fuels involved (Preamble).

20. The IGF Code addresses all areas that need special consideration for the usage of low-flashpoint fuel and utilises a goal based approach. Goals and functional requirements are specified for each section forming the basis for the design, construction and operation (Preamble).

21. The IGF Code includes regulations to meet the functional requirements for natural gas fuel. Developmental work is also ongoing into a range of alternate fuel sources including fuel cells and various low-flashpoint liquids and gases. Regulations for other low-flashpoint fuels will be added to the Code as, and when, they are developed by the Organization (Preamble). In the meantime, for other low-flashpoint fuels, compliance with the functional requirements of the IGF Code must be demonstrated through alternative design.

22. The IGF Code applies to new ships and to existing ships converting from the use of conventional oil fuel to the use of gases or other low-flashpoint fuels of more than 500 gross tonnage, on or after the date of entry into force of the Code. **Part A-1** contains specific requirements for ships using natural gas as fuel.

23. The IGF Code also addresses ship design and on-board arrangements (**Regulation 5, Part A-1**); fuel containment systems (**Regulation 6, Part A-1**); bunkering matters (Regulation 8, Part A-1); material and general pipe design (**Regulation 7, Part A-1**); ventilation and electrical installations (**Regulations 13 and 14**); control, monitoring and safety systems (**Regulation 15**); fire safety and explosion prevention (**Regulation 12**); drills and emergency exercises (**Regulation 17, Part C-1**) and operational procedures for the loading, storage, operation, maintenance and inspection of systems (**Regulation 18, Part C-1**).

24. Masters, officers, ratings and other personnel working on board ships subject to the IGF Code will be required to meet mandatory minimum requirements for training and qualifications as prescribed under STCW and the STCW Code (IGF Code **Regulation 19, Part D** and Resolution MSC 396(95)).

25. A basic training certificate is required for seafarers responsible for designated safety duties associated with the care, use or in emergency response to the fuel on board ships. Masters, engineering officers and all personnel with immediate responsibility for the care and use of fuels and fuel systems on ships subject to the IGF Code will be required to hold a certificate in advanced training for service on these ships (Resolution MSC 396(95)).

26. New SOLAS **Regulation II-1/56.5** provides the standard exclusion given to ships owned or operated by a Contracting Government and used, for the time being, only on Government non-commercial service.

## Implementation

27. The *Navigation Act 2012* (Cth) contains the primary legislative powers for Australia's obligations under SOLAS and STCW. As such, no amendment to the primary legislation is required. Some amendments to delegated legislation, Marine Orders administered by the Australian Maritime Safety Authority, are required to implement the IGF Code. Existing Marine Orders relating to construction, fire protection and seafarer training are likely to require amendment to capture the requirements outlined in the IGF Code.

28. The Marine Orders ('MO') expected to require amendment in order to enable implementation of the obligations in each of the Resolutions the subject of this treaty action are: MO12 (Construction – subdivision and stability, machinery and electrical installations); MOs 70 (Seafarer Certification), 71 (Masters and deck officers), 72 (Engineer officers), 73 (Ratings) on seafarer certification.

29. No State or Territory legislative action is required in relation to implementation of the IGF Code or other Resolutions the subject of this treaty action.

30. Unless more than one third of the Contracting Governments to the Convention or Contracting Governments the combined merchant fleets of which constitute not less than 50% of the gross tonnage of the world's merchant fleet, lodges an objection with the IMO prior to 1 July 2016, the IGF Code through each of its implementing Resolutions will enter into force internationally and for Australia on **1 January 2017**, subject to Australia's domestic treaty requirements.

31. Australia is not expected to lodge an objection with the IMO to these proposed amendments to SOLAS and STCW.

## Costs

32. The adoption of the IGF Code will provide the international standard for new ship builds after 1 January 2017, the costs of which will be included in the ship's construction budget.

33. Conversion costs for existing ships choosing to move from using conventional oil/distillate fuels, to gases or other low-flashpoint fuels would be subject to commercial business considerations addressing the fuel containment system, the fuel process technology and the suitability of the engines for modifications and/or adaption.

34. The financial effect of this treaty action on the Australian ship building and shipping industries is not likely to be significant, as there is likely to be only a very small number of registered Australian ships or Australian constructed ships using gases or low-flashpoint liquids as a fuel source. To date in Australia, one such vessel has been constructed with another vessel currently under construction.

35. No regulatory costs have been identified for business or the general community as a result of Australia's implementation of the proposed treaty action and Australia's adoption of the IGF Code is expected to have negligible administrative impact for business, with compliance costs likely to remain low.

36. There is only one, yet to be registered Australian ship, being built to use LNG as a fuel source (a major Australian shipper has designed and recently ordered a roll-on roll-off ('Ro-Ro') vessel to operate in Australia). Accordingly, the requirements under STCW and the STCW Code for mandatory minimum training and qualifications of masters, officers, ratings and other personnel working on board ships subject to the IGF Code is likely to be minimal.

While there will be costs for the Australian maritime industry to meet these requirements, the training experience already gained on liquefied gas carriers fulfil the training and qualification requirements in the Convention.

### **Future Treaty Action**

37. Throughout the development of the IGF Code it was recognised that the Code must be based upon sound naval architectural and engineering principles and the best understanding available of current operational experience, field data and research and development. Due to the rapidly evolving new fuels technology, IMO will periodically review this Code, taking into account both experience and technical developments.

38. Australia is participating at IMO to further develop guidelines for ships using ethyl or methyl alcohol as fuel and measures for fuel cells for future inclusion in the IGF Code.

39. Any future amendments to the IGF Code or further amendments to the SOLAS and STCW Conventions will be effected in accordance with the relevant amendment provisions specified in the respective Convention (**Article XIII**, SOLAS, **Article XII**, STCW). Any amendment to the Conventions for which IMO is responsible will be subject to Australia's treaty processes.

### **Withdrawal or Denunciation**

40. The SOLAS and STCW Conventions enable a Contracting Party to denounce the Convention at any stage following five years from the date on which the Convention entered into force for that Party (**Article XI**, SOLAS, **Article XV**, STCW). Denunciation is effected by depositing an instrument of denunciation with the IMO and the Secretary-General then informs other Contracting Parties of such receipt. Any future denunciation of either SOLAS or STCW would take effect one year following the deposit of the instrument, unless the instrument specifies a longer period.

41. Any decision by Australia to withdraw or denounce either SOLAS or STCW Conventions, will be undertaken in accordance with Australia's domestic treaty-making requirements, including consideration by JSCOT and Executive Council approval.

42. Neither SOLAS nor STCW contain specific provisions on withdrawal from the Conventions by IMO Members.

### **Contact Details**

#### **Maritime Economic Regulation Section**

Maritime and Shipping Branch

Surface Transport Policy Division

Department of Infrastructure and Regional Development



**ATTACHMENT ON CONSULTATION**

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## CONSULTATION

43. The *International Code of Safety for Ships using Gases or other Low-flashpoint Fuels* (IGF Code) was developed by the International Maritime Organization ('IMO'), which is comprised of 171 Member States.

44. In addition to government representation at IMO meetings, the IMO encourages Non-Government Organisations ('NGOs') to attend meetings on a "consultative status" basis, which enables the inclusion of a range of NGO interests to be incorporated into IMO discussions and resolutions. A wide range of shipping industry representatives encouraged and supported the development and implementation of the IGF Code at the relevant IMO meetings.

45. Consultation during the development of the IGF Code was undertaken with a number of industry organisations. The Department of Infrastructure and Regional Development, through the Australian Maritime Safety Authority ('AMSA'), has a demonstrated history of good positive engagement with industry. Consultation by AMSA during the development of the IGF Code primarily occurred with the following industry bodies, who have indicated that they are in favour of the Code's adoption by Australia:

- (a) **SeaRoad** – a privately owned Australian integrated transport and logistics service provider specialising in Bass Strait shipping and logistics through purpose-built Roll-on/Roll-off ('Ro-Ro') shipping vessels.
- (b) **Maritime Industry Australia Limited ('MIAL')** – MIAL represents the collective interests of maritime businesses, primarily those operating maritime assets or facilities from Australia
- (c) **Shipping Australia Limited ('SAL')** – SAL is a peak industry body whose members cover many of the major Australian and international ship owners, operators and agency companies involved in bulk, tanker, general cargo shipping, container, passenger and tramp trades.
- (d) **Revolution Design Pty Ltd** – This company works with the manufacturer Incat on research and development, structural design and analysis, naval architecture services and completes drafting and design services. Now a global enterprise, the Incat group of companies evolved from local Hobart boat building companies specialising in developing and building high speed ferries and catamarans, and using gas turbines fuelled by LNG.