

# What is the Real Issue with Floating Storage and Regasification Units? Regulations Related to the FSRU Implementation Process in the Baltic Sea

A. Koska-Legieć

*University of Gdańsk, Gdańsk, Poland*

**ABSTRACT:** The aim of this article is to dispel any nomenclatural confusion related to the notion of FSRU. Sometimes FSRUs are classified as ships or vessels; sometimes as stationary units. The article will attempt to explain in which case FSRUs may be classified as ships. This article describes one of the most persistent legal problems in Polish maritime law, which is the FSRU implementation in the Baltic Sea. The application of FSRU solutions was analysed in relation to LNG maritime transport. This analysis is concerned only with a fragment of wider theoretical considerations about the placement of the definition of the ship in different national legal systems as well as the importance of translation and correct understanding of the words denoting the ship or the vessel.

## 1 INTRODUCTION

In June 1979, the first accident involving an LNG transporter *El Paso Paul Kaiser* took place in Algeciras, Spain. It ran aground with 125,000 m<sup>3</sup> LNG on board. A double hull<sup>5</sup> and a specific construction of the tanks prevented a cargo leakage and environmental pollution.—The rescue sister ship *El Paso Sonatrach* salvaged *El Paso Paul Kaiser*'s cargo. It was the first time a liquified natural gas cargo had been transferred from ship to ship. This operation was the first step towards regular reloading of LNG at sea. The cargo was transferred at – 162 degrees Celcius and safely delivered to a destination port. The

Technology used for these kinds of operations was developed after 1979. Shipyards built Floating Production Units used for mining and production purposes.

In 2007, the shipping industry concerned with transporting gas freight started using FSRUs (Floating Storage Regasification Units). These units were multifunctional. Firstly, they could be used for storage. Secondly, they could store the cargo from larger units and could also transfer LNG to other ships. Moreover, FSRU allowed for regasifying liquid gas and delivering it directly into pipelines.<sup>6</sup>

The latest technological solution related to LNG transportation and regasifying at sea is the LNG bunkering barge which might be incorporated in

<sup>5</sup> Double-hull- is the requirement from MARPOL Convention. The double hull requirement was adopted in 1992, following the *Erika* incident off the coast of France in December 1999. In April 2001, IMO adopted a revised phase-out schedule for single hull tankers, which entered into force on 1 September 2003 (the 2001 amendments to MARPOL 73/78).

<sup>6</sup> FSRU- floating storage and regasification units (FSRUs), has the onboard capability to vaporize LNG and deliver natural gas, regasified LNG at pipeline pressure at flow rates.

Polish ports. It would enable using the capacities of Polish Ports to the full without being restricted by shallow waters and cables installed at the bottom of the sea.

The first LNG terminal in Poland, placed in Świnoujście was opened in 2015. The plan for diversification of the energy sources brought about the need for finding a new solution for the LNG industry in Poland. In the Author's opinion, the most profitable option would be incorporating Floating Storage Regasification Units into the LNG transport. But it should be noted that there are many advantages of this idea. Firstly, the cost of regasification on this kind of unit is lower than on a land-based terminal. Secondly, the matter of mobility and flexibility of usage might be optimised, depending on the actual demand for gas and could be customized to the local conditions or market requirements.

Table 1. Made by Energy Maritime Associates in 2017 shows the increasing usage of FSRU in the last decade and in the years to come.

YEAR	AMOUNT of FSRU
2008	2
2009	4
2010	5
2011	7
2012	7
2013	9
2014	14
2015	18
2016	22
2017	27
2018	35 (forecast)
2020	40 (forecast)

Technical development and the policy of diversifying energy sources, prompts the search for new solutions. FSRUs provide a great opportunity in this context. The FSRU is multifunctional and can be used in different ways proportionally to the actual demand. The proximity of the terminal in Świnoujście provides numerous business opportunities. Preparations to develop an FSRU unit in the Baltic Sea- in the Gdańsk harbour, besides the obvious financial aspect, requires an in-depth analysis of all types of legal regulations: international, regional ( the European Union) and the local Polish law. Depending on the adopted interpretation, legal regulations can create opportunities or limit them.

Analyzing the FSRU theme, one can notice three main questions to be considered. This article compares the international conventions and Polish regulations and focuses on theoretical aspects of using FSRUs in the Baltic Sea.

## 2 WHAT TYPE OF INSTALLATION/ EQUIPMENT IT IS?

J. Łopuski noticed [3] that international maritime relationships allow us to distinguish following aspects:

- 1 relationships among countries concerning sovereignty over sea areas and sovereign rights over the natural resources of the sea

- 2 safety at sea, protection of the marine environment and of the biological resources of the sea
- 3 private- legal relationships related to marine activities
- 4 protection of the labour at sea

The definition of the ship (vessel) is related to the area of maritime relations. As it will demonstrated in the subsequent sections of this article, the definition of the ship bears significant implications for the considerations regarding the implementation of the FSRU at sea.

Firstly, it should be indicated that The United Nations Convention on the Law of the Sea UNCLOS 1982<sup>7</sup> in article 92 specifies the status of a ship<sup>8</sup> flying flag of the state. If an FRSU is classified as a ship/ vessel, the convention connects several duties of a state, effectively exercising its jurisdiction and control in administrative, technical and social matters, including keeping a register of ships. The aforementioned aspects are connected with the first area distinguished by Jan Łopuski - sovereignty over sea areas.

An FSRU as a unit is used for transportation of LNG. The shipment of dangerous goods should comply with numerous safety and security regulations. The UNCLOS Convention regulates the responsibility of the state for ensuring safety:

“Every State shall take such measures for ships flying its flag as are necessary to ensure safety at sea with regard, inter alia, to:

- (a) the construction, equipment and seaworthiness of ships;
- (b) the manning of ships, labour conditions and the training of crews, taking into account the applicable international instruments;
- (c) the use of signals, the maintenance of communications and the prevention of collisions.”<sup>9</sup>

These general regulations are being further developed in specific conventions. Construction, equipment and seaworthiness conditions are included in the International Convention for the Safety Life at Sea of 1974 – SOLAS<sup>10</sup>.

In Regulation 2, under “Definitions” there are clear definitions of the ship and the cargo ship:

“For the purpose of the present regulations, unless expressly provided otherwise: (...) (g). A cargo ship is any ship which is not a passenger ship.

<sup>7</sup> Dz.U. 2002 r. Nr 59, poz. 543 zał.

<sup>8</sup> Article 92 “Status of ships 1. Ships shall sail under the flag of one State only and, save in exceptional cases expressly provided for in international treaties or in this Convention, shall be subject to its exclusive jurisdiction on the high seas. A ship may not change its flag during a voyage or while in a port of call, save in the case of a real transfer of ownership or change of registry.

A ship which sails under the flags of two or more States, using them according to convenience, may not claim any of the nationalities in question with respect to any other State, and may be assimilated to a ship without nationality”.

<sup>9</sup> Article 94

<sup>10</sup> Dz.U. z 1984 r. Nr 61, poz. 318 i 319,

Dz. U. z 1986r. Nr 35, poz. 177

Dz. U. 2005 r. Nr 120, poz. 1016

(h) . A tanker is a cargo ship constructed or adapted for the carriage in bulk of liquid cargoes of an inflammable nature. “

An FSRU could be regarded as a cargo ship or as a tanker because it can be used for carrying the liquefied natural gas in this case. However, there are some exceptions from Regulation 3 “Exceptions” “(a) . The present regulations, unless expressly provided otherwise, do not apply to: (...) (iii) Ships not propelled by mechanical means. “ A fixed FSRU unit without an engine is not the ship in the meaning of the SOLAS Convention.

As a result International Gas Code (IGC Code) – a part of SOLAS referring to the construction and building rules for gas carriers would not be applied to an FSRU<sup>11</sup>.

On 1st January 2017 International Code of Safety for Ships Using Gases or Other Low-Flashpoint Fuels (IGF Code)<sup>12</sup> came into force. This Code included the rules of LNG usage as a fuel, best practises and procedures of installation and infrastructure controlling, service and crew training in safe exploitation of the ship.

International Safety Management Code is the most important act in the aspect of appropriate and efficient management of ships, cargo transport and crew. The Code consists of the suggestions for building effectiveness in procedures and plans in emergency situations, safety and environmental-protection policy. Additionally, the Code specifies the shipping company, the crew and the means which enable both parties to achieve the best results.

The Code ensures effective procedures and plans in emergency situations, safety precautions and environment protection policies. Moreover, it gives clear guidelines as to the responsibility of the company to the crew and vice-versa with an aim of attaining the best possible outcomes. In this respect, the most important element is the achievement of the acceptable risk level through risk management.<sup>13</sup> Effective management is very important in dangerous good transport like LNG- the FSRUs cargo.

The next regulation which should be mentioned is Fire Safety System (FSS Code).<sup>14</sup> This is a code functioning as a part of the SOLAS. It defines the risks related to the fire, necessary extinguishing systems for the ship and equipment for the crew. The most important element in this Code is diversification related to the type of the ship. According to the FSS Code, gas carriers have to be equipped with a powder coating system, gas detectors and special personal protective equipment. It would be especially important for FSRUs, because besides the cargo

<sup>11</sup> The International Code of the Construction and Equipment of Ships Carrying Liquefied Gases in Bulk (IGC Code), adopted by resolution MSC.5(48), has been mandatory under SOLAS chapter VII since 1 July 1986.

<sup>12</sup> The International Code of Safety for Ships using Gases or other Low-flashpoint Fuels (IGF Code) was adopted by the Maritime Safety Committee (MSC) at its ninety-fifth session in June 2015, by resolution MSC.391(95)

<sup>14</sup> The Fire Safety System Code (FSS code) came into force on July 2002 after Marine Safety Committee (MSC) adopted it in 73 session and became mandatory by resolution MSC 99(73) on chapter II-2 of SOLAS.

operations these units have the capacity for storing LNG, conducting regasification processes and transferring a cargo directly to the pipeline.

Strict and clear regulations for navigation create safety on the sea. Marine traffic is highly regulated and the world wide maritime trading respects the rules of *International Regulations for Preventing Collisions at Sea, 1972* COLREG. W. Rymarz [7] observed that “the objective range of the Convention is very large, because it calls to “all vessels” and the meaning of the word vessel is implied by Rule 3.

Rule 3 General definitions:

“(a) The word "vessel" includes every description of watercraft, including non-displacement craft and seaplanes, used or capable of being used as a means of transportation on water.”<sup>15</sup>

It is not important if the unit is mechanically propelled but what kind of activity it is used for as a means of water transport.

This conclusion implies incidents connected with the traffic at sea which are collisions. Such accidents could take place not only when moving objects are involved. There is a high risk of an accident with a vessel restricted in her ability to manoeuvre or be moored.

As J. Łopuski [3] indicated, “protection of the marine environment” is the second aspect of activity connected with safety at sea.

The ground for the international legal order in the area of environmental protection in maritime trade is MARPOL – created as a response to the Torrey Canyon case and the oil pollution caused by that ship. The *International Convention for the Prevention of Pollution from Ships, 1973*. Nowadays, the MARPOL Convention regulates all of the sources of pollution from ships and risk for the maritime environment – meaning the sea, the coast and the air space.

Article 2 – presents the conceptual net and also a definition of the “ship”.

It is a vehicle or a means of transport used “for the purposes of the present Convention, unless expressly provided otherwise:

4). "Ship" means a vessel of any type whatsoever operating in the marine environment and includes hydrofoil boats, air-cushion vehicles, submersibles, floating craft and fixed or floating platforms.”

This definition encompasses not only the units with an engine and the ability to move independently but also floating crafts and platforms. Hence, this particular definition also covers FSRU units which are permanently fixed. Every object which is functioning as part of the maritime system is regarded as a ship.

It should be noticed that the definition of the “vessel” from the COLREG Convention and the

<sup>15</sup> Dz.U. 1977 r. Nr 15, poz.61 zał.  
Dz.U. 1984 r. Nr 23, poz. 106

definition of the “ship” from MARPOL have the same semantic range.

The majority of accidents and environmental threats is created by human errors[6]. To minimise the risk of these errors occurring International Convention of Training Standards, Certification and Watchkeeping for Seafarers was constituted in 1978.

This Convention and its provisions define the structure of basic skills required of seafarers with an emphasis on transporting dangerous goods, including LNG.<sup>16</sup>

So as to create the exact picture of the regulations applied to the FSRU, the definition from the International Conventions should be compared to Polish law. The first enactment – The Maritime Code Act - is the first legal document to be considered.

The definition of the “ship” as it appears in The Maritime Code Act goes as follows:

Art. 2

“A sea-going vessel is any floating structure appropriated for, or employed in, navigation on the sea.” [2]

In view of the aforesaid definition an FSRU is the ship as it is understood in Polish law. It is not relevant whether it is equipped with an engine or what kind of activity it is used for. In Polish maritime law there is a second, more extend definition of the marine trade vessel. It goes as follows:

Art. 3 par 2

“Merchant sea-going vessels are sea-going vessels appropriated to or employed in the business activity, especially: carriage of cargo or of passengers, for sea fisheries or for the exploitation of other wealth of the sea, for towage or salvage of sea-going vessels, recovering property sunk in the sea and sourcing mineral supplies located under the seabed.”

A different concept of the ship/vessel is given by The Maritime Safety Act in article 5. This particular enactment defines the vessel as:

Art. 5

“Whenever the enactment speaks of:

1) “A vessel is any type of the floating structure appropriated for, operating in the marine environment. This definition also includes hydrofoil boats, air-cushion vehicles, submersibles, floating craft and floating platforms unless the international convention stipulates otherwise”.

The aforementioned definition includes more structures than merely vessels. For example, it covers floating rigs in the meaning of The Maritime Code Act. It means that every fixed FSRU is a vessel in accordance with the enactment but it is not a vessel as it is defined the Code.

The Maritime Safety Enactment takes into account safety and security issues of the construction and equipment of ships. Additionally, this enactment also refers to inspections, qualifications and composition of the crew as well as safe sailing and life saving at sea.

Another issue is the place of the international conventions in our legal system. In the Polish Constitution there is a catalogue of the legal sources listed in the appropriate sequence. The international agreements are universally binding law after the ratification. The procedure is impossible in case of collision with Constitution. Following the rule of incorporation, the entire international convention has been integrated with the Polish legal system. In view of this rule, all regulations are directly used and the internal regulations are the complementation [4]. In accordance with the constitutional catalogue, the definition of the FSRU is most important when considering its place in the international law.

The second question which is crucial for defining the status of FSRU is the matter of answering what type of activity the FSRU is used for. As it was mentioned above, the FSRU is a multifunctional unit. It could be used to transport a cargo for instance LNG. The FSRU can also be used as a storage unit but primarily it can be used for regasification and delivery of gas directly to the pipeline. In some cases the functioning of the FSRU and the activity the unit is used for, exert an impact on the qualification of that unit.

When it is used for transporting a cargo it will be defined under Polish law as a merchant sea-going vessel. There are FSRUs which are permanently connected to the seabed and in this respect the unit is treated as equipment for unloading the cargo, regasification and sending the LNG to the offshore infrastructure or a pipeline- in this case it would not be assumed as the merchant sea-going vessel. On the contrary it is a platform.

Another mean of the word “floating” is “seagoing”, the same as moving independently propelled by an engine. Admittedly, it could also mean “moved by a tugboat”. The translation of The Maritime Code Act by Jan Łopuski suggests the word “floating”. Following international conventions this particular lexical item should be endowed with several meanings or have a broad meaning. Therefore the word “floating” seems to be appropriate.

An FSRU could be any unit involved in regular international trade. It could be a fixed object without an engine. As far as its activity is concerned, an FSRU could be regarded as a ship, storing facility or mining unit.

The crossing of these two question give us an answer to the third one- which legal system determines functioning and operations of FSRUs. The operations of FSRUs are strictly connected with international safety and security regulations. When a unit is classified as a ship or a merchant sea-going vessel the international maritime conventions will be the basis for classification. Apart from legally – binding conventions there are non- legal recommendations and manuals. Safety and security procedures are recommendations created by non-

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<sup>16</sup> The regulations about special training of the crew on the gas carriers associated Code enter into force on 1 January 2012, with a five-year transitional period until 1 January 2017 as the “Manila Amendments” were adopted at a Diplomatic Conference in Manila, the Philippines, held in June 2010.

government organizations such as OCIMF, SGMF and SIGGTO. These organization's focuses on the LNG business and have formulated exact rules of practise precisely identifying the best practise based on experience.

We deal with a completely different situation when a unit is permanently fixed to the seabed and used as a storage facility. In this case the unit will be a part of energy infrastructure so it will be defined by energy law<sup>17</sup>.

The most important issue is that maritime safety and security regulations create a very effective LNG structure together with non- legal recommendations mentioned above. This system has prevented any dangerous accidents with leakage of the cargo from happening or damage may to the natural environment. The recognition the FSRU as a storage facility exclude the application of the maritime regulations. It raises doubts concerning the level of safety.

### 3 CONCLUSIONS

In the light of these considerations there is a doubt, if FSRU is to be referred as a ship or floating unit. It is the ship whenever an FSRU moves from point A to point B carrying a cargo in accordance with the SOLAS convention. When an FSRU has no capacity of moving independently it is not the ship in the meaning proposed by the SOLAS Convention- and consequently – it is a floating unit. The similar situation can be noticed when an FSRU is a regasification facility or a storage unit. In this case, it is not the ship in view of the SOLAS, but it is the ship in accordance with the COLREG and MARPOL Convention.

A very interesting option arises when an FSRU is permanently connected to the pipeline. It would be treated as a piece of equipment - part of the port or gas infrastructure.

To sum up, after the comparison of the definitions it can be concluded that the recognition of the legal status of the FSRU depends on the activity and functionality of the unit. The FSRU may be defined in a variety of way- a ship, floating unit, storage facility- as a result it may rise different legal implications .

### LITERATURE

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