

# LNG Transport regulation by ship– A comparison of Norwegian and US Law

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# 1 INTRODUCTION

## 1.1 Objective of the dissertation and main legal questions

This thesis aims to analyze the differences and similarities between the Norwegian and American law on the transport of Liquefied Natural Gas by sea.

The topic is of interest for the following reasons:

Firstly, production and carriage of LNG have increased making this natural resource an important alternative to oil. Secondly, both US and Norway are among the main producers of LNG. The American Petroleum Institute informed on their report about *Liquefied Natural Gas Exports – America’s Opportunity and Advantage*<sup>1</sup> of May 2015, that LNG exports could contribute as much as \$10 to \$31 billion per state to the economies of natural gas-producing by 2035. According to the information given by the Norwegian Ministry of Petroleum and Energy<sup>2</sup>, Norway is contemplated as the third largest gas exporter in the world. Almost all Norwegian gas is sold on the European market. Thirdly, when it comes to the law regulating these matters, there is such a difference between the procedure used to solve legal questions among these countries and its control over the LNG tankers.

## 1.2 Legal systems

### 1.2.1 – Norwegian law

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<sup>1</sup> America’s oil and Gas Industry, ‘Liquefied Natural Gas – Exports – America’s opportunities and advantages’, last modified 15 October 2015, <http://www.api.org/policy-and-issues/policy-items/lng-exports/~media/Files/Policy/LNG-Exports/LNG-primer/Liquefied-Natural-Gas-exports-lowres.pdf>

<sup>2</sup> Government of Norway, ‘Gas exports from the Norwegian shelf’, last modified 22

Three main statutes in Norway regulate the transportation of LNG: The Norwegian Constitution<sup>3</sup>, the Norwegian Maritime Code<sup>4</sup> and the Petroleum Act<sup>5</sup>. My analysis will be based on these regulations and the relevant case law.

### *1.2.2 – American Law*

Under the American law, the rules applicable to the regulation on the transportation of LNG by vessel are: Regulations regarding strict control and supervision by the United States Coast Guard, the Code of Federal Regulations and the protection of the United States Environmental Protection Agency in case of pollution accident. Thus my analysis will be based on these regulations and also the relevant case law.

## **1.3 Method**

The thesis will be structured as follows:

The first and the second part will give an introduction to the carriage of LNG by vessel. In addition, it will be a discussion about the LNG market: historical perspective, the role of international institutions concerning LNG vessels (NGO's, Classification Societies) and also an analysis about the type of LNG contracts of carriage, paying attention on the clauses used for the charter party ShellLNGTime1.

The third and the fourth parts will expose the regulation of the transport of LNG in each jurisdiction, both Norwegian and American. The fifth part would be the core of the thesis, as it will analyze the similarities and differences between the two systems. At the end of the thesis I will give a conclusion.

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<sup>3</sup> The Norwegian Constitution as laid down on 17 May 1814

<sup>4</sup> The Norwegian Maritime Code 14 June 1994 no. 39 with amendments including Act 7 June 2013 no. 30

<sup>5</sup> 29 November 1996 no 72 relating to Petroleum Activities

## 2 LNG MARKET AND TRANSPORTATION BY SHIP

### 2.1 Introduction of the LNG trade in US and Norway

Despite the initiation of the Natural Gas Liquefaction dates back to the 19<sup>th</sup> century<sup>6</sup>, until the beginning of the 20<sup>th</sup> century there was not an established trade of LNG in the US. The first LNG plant started operating in 1917 but it was not until 1959 that the world's first LNG tanker carried cargo from Lake Charles, Louisiana (US) to Canvey Island (UK)<sup>7</sup>. After that, the market it has increased considerably and the US became today one of the main exporters of LNG in the world. In case of Norway on its side, currently is considered as the third largest LNG gas exporter in the world<sup>8</sup>. As I would come back to later, two main legal bodies were established in order to regulate the production and commercialization of the Norwegian gas: Gassco<sup>9</sup> and Gassled<sup>10</sup>, which are going to be explained in the following sections.

### 2.2 Features of LNG Transportation by ship

#### 2.2.1 The Vessels

LNG carrying vessels differ from other commercial vessels such as oil tankers and container carriers. LNG ships are constructed mostly to attend a unique project for long periods between 20 and 25 years and most of them were built during the 70's<sup>11</sup>. Besides, the design

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<sup>6</sup> Center for Energy Economics, 'Brief history of LNG', last modified 15 October 2015, [http://www.beg.utexas.edu/energyecon/lng/LNG\\_introduction\\_06.php](http://www.beg.utexas.edu/energyecon/lng/LNG_introduction_06.php)

<sup>7</sup> B. Greenwald, ed., *Liquefied Natural Gas: Developing and Financing International Energy projects* (London: Kluwer Law International Ltd, 1998), 16.

<sup>8</sup> Ministry of Petroleum and Energy, 'Oil and Gas', last modified 20 October, 2015, <https://www.regjeringen.no/en/topics/energy/oil-and-gas/id1003/>

<sup>9</sup> Gassco, 'About Gassco', last modified 20 October 2015, <https://www.gassco.no/en/about-gassco/>

<sup>10</sup> Gassco, 'About Gassled', last modified 20 October 2015, <https://www.gassco.no/en/about-gassco/gassled-eng/>

<sup>11</sup> Aronson, Jonathan David; Westermeyer, William. 'US public and private regulation of LNG transport.' *8300 defect for UNSW Marine Policy* (1982): 12. doi: 10.1016/0308-597X(82)90039-2



of these types of vessels is under the perspective of high criterions of safety and trustworthiness, which are expected to keep during the extent of the ship's life<sup>12</sup>.

Also, the main feature of the LNG ships, which distinguishes them from other vessels, is the temperature of the cargo<sup>13</sup>. Liquid Natural Gas consists of methane and some heavier hydrocarbons such as ethane and propane, which boil at above minus 163 degrees centigrade at atmospheric temperature. Thus, the design requires special materials for insulation and handling equipment in order to keep the cargo in optimum conditions.

#### 2.2.2. LNG Charter Terms - *Shelltime 4*<sup>14</sup> vs. *ShellLNG Time 1*

The carriage of LNG is normally performed on Time Charter Party terms. Notwithstanding the fact that the US and Norway have different approaches to the regulation of LNG tankers, the rules applicable to the carriage of goods will in both jurisdictions be subject mainly to the conditions agreed in the contract<sup>15</sup>.

When it comes to LNG Charter Terms, we have to take into account the following issues<sup>16</sup>:

Firstly, features concerning the *Operation of the vessel*, such as the condition and availability of the tanker. Also the Charter Party forms impose number of obligations on the owner at delivery. For example the classification of the ship and all the certificates and documents that allow the vessel to navigate.

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<sup>12</sup> N.Swan, Peter. *Legal aspects of the ocean carriage and receipt of liquefied natural gas*. (Oregon State University: Sea grant communications, 1977), 23

<sup>13</sup> Swan, *Legal aspects of the ocean carriage and receipt of liquefied natural gas*, 24.

<sup>14</sup> See charter party annex 1

<sup>15</sup> See charter party annex 2

<sup>16</sup> Curtis David Garrard, International Lawyers at London, A Guide to LNG Charter Agreements <http://es.scribd.com/doc/28546305/A-Guide-to-LNG-Charter-Agreements-Final#scribd>

About the *Maintenance* of the tanker, the Charterer has to be concerned to ensure that the vessel remains available to fulfill the Charterer's obligations agreed in the contract. As well as when there is a change in Law during the carriage of the cargo, the owner has an obligation to keep it on, and follow again the terms agreed in the Charter Party. Other features to take into account are those related to the *Condition of the cargo*, due to LNG has to be transported under cold temperatures, therefore the Charter Party will contain provisions dealing with the costs and time associated with purging and cooling down the vessel's cargo tanks.

Finally, relating to the *Termination* of the Charter, the Owner can withdraw the vessel where the Charterer defaults in a proper and timely payment of hire. On the other hand, the Charterer may also terminate the Charter in the event that the performance of the Owner or the manager of the vessel is deficient.

#### *Shelltime 4*<sup>17</sup> vs. *ShellLNG Time 1*<sup>18</sup>

The LNG Time Charter Party *ShellLNGTime 1* is considered the most shared template used in the LNG trade, basing its clauses on the *Shelltime4*. However, its features differ from one Charter Party to the other. In order to understand those differences, the following examination of the similarities and differences between these Charter Parties will be based on the information given by different experts in this field.

For example, Marcus Dodds, partner in the law firm ReedSmith<sup>19</sup> considers that the main differences and similarities between both types of contract are:

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<sup>17</sup> See annex 1

<sup>18</sup> See annex 2

<sup>19</sup> ReedSmith, 'LNG-Standard Form Charters', last modified March 2013  
<http://www.reedsmith.com/files/Publication/dccc948a-3be9-42e7-96c2-4de2d48d8d07/Presentation/PublicationAttachment/ebb360ff-a648-411c-b38e-4f3d78ab027c/LNG%20-%20Standard%20Form%20Charters%20-%20March%202013.pdf>

Firstly, most of the LNG provisions were grounded on the clauses for oil trade. Thus the creation of these clauses was not such a hard work, due to the similarity to the oil ones<sup>20</sup>. In addition, the main distinction between the LNG and Oil trades is that the ShellLNGTime1 form addresses to the issue of boil-off<sup>21</sup>. The consequence is that in ShellLNGTime 1 the allocation of the risk is between the charterer's employment or either the owner's operation causes.

Also another difference between both types of contract is that the ShellLNGTime 1 leaves apart the *warranted service speed approach*<sup>22</sup>, which is concerned on ShellTime4. In other words, ShellLNGTime 1 accepts what is called a *Scheduled Arrival Time (SAT)*. This system requires that the vessel meet scheduling requirements by adjusting its performance speed to match the required time. This clause could be seen at the Appendix C of the contract, clause 2. (a): '*Prior to each voyage, charterers may, subject to Article 1(b) instruct the Vessel to proceed so as to arrive at the pilot boarding station at each port at given date and time (the Scheduled Arrival Time or SAT)*'.

Besides when it comes to wind speed limit, ShellLNGTime 1 establishes its limits in force 5 of Beaufort force<sup>23</sup>, where on the other hand, ShellTime 4 sets force 8. In addition another difference between both contracts is set out in the first part, which relates to *Description and Condition of the Vessel*.

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<sup>20</sup> Reedsmith, 'LNG-Standard Form Charters'.

<sup>21</sup> The reader should take into account that LNG tanks are expensive to build and LNG can only be stored for a limited period of time due to boil off. By contrast, competing fossil fuels such as coal and oil are easier to store and transport and they can often permit smaller size developments.

<sup>22</sup> See ShellTimeLNG 1 Clause 1

<sup>23</sup> The Beaufort scale is a measure that relates wind speed to observed conditions at sea or on land.

In case of ShellLNGTime1, article 1 (b) line 8 sets that if the vessel is fifteen years old or over, it shall obtain and maintain a LNG *Condition Assessment Program* (CAP) if not less than two. This program, as DNV sets out on its webpage<sup>24</sup>, has the purpose to create a document for shipowners to qualify their vessels beyond the scope of the Classification Society. Thus the CAP is an independent verification of the actual condition of the vessel at the time of inspection.

To sum up, ShellLNGTime1 does not differ so much from its original source ShellTime 4. It adds extra features that mark mainly to the schedule and the speed, but in essence the design is analogous.

### 2.2.3 IMO and Classification Societies<sup>25</sup>

The International Maritime Organization (IMO) adopted two codes about the construction, safety and carriage of LNG by ship. These are the *Code for the Construction and Equipment of Ships Carrying Liquefied Gases in Bulk – IMO Resolution 1.328 (IX)* known also as the *Gas Tanker Code*<sup>26</sup>. It contains detailed standards for the design, construction, equipment requirements and operation of a liquefied gas tanker and also applies to the new gas tankers design.

Secondly *the Code for existing Ships Carrying Liquefied Natural Gases in Bulk, IMO Resolution A.329 (IX)*<sup>27</sup>. Even though the title of this resolution is similar to the previous one, this affects to those vessels that were built before the previous resolution came into

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<sup>24</sup> Det Norske Veritas, *Condition Assessed Programme (CAP)*, last modified, 2014, <http://www.dnv.in/industry/maritime/servicessolutions/consulting/technicalconsulting/cap.asp>

<sup>25</sup> B.Greenwald, *Liquefied Natural Gas: Developing and Financing*, 202

<sup>26</sup> IMO, 'Gases in bulk (IGC Code)', last modified 2015, <http://www.imo.org/en/OurWork/Environment/PollutionPrevention/ChemicalPollution/Pages/IGCCode.aspx>

<sup>27</sup> IMO, 'IGC Code'.

force. In addition, we should keep in mind that both codes are under the scope of the maritime safety standard *SOLAS* (International Convention for the Safety of Life at Sea).

On the other hand, the Classification Societies assure that the tankers are adequately constructed and maintained. For instance, in ShellLNGTime 1 Line 6 sets out that that *'the delivery of the Vessel under this charter and throughout the charter period shall be classed by a Classification Society, which is a member of the International Association of Classification Societies'*.

#### 2.2.4 *FOB and DES Clauses*<sup>28</sup>

About the trade of LNG the most common clauses used in contracts are *FOB* (free on board) and *DES* (delivered ex-ship).

In a *FOB*<sup>29</sup> clause, the buyer is free to divert the cargo to any other unloading port of its choosing after loading. This formulation provide that custody, title and risk in respect of the sales quantity of LNG will transfer from the seller to the buyer at the loading port, at the point of interconnection between the buyer's ship and seller's loading facilities.

On the other hand, in a *DES* sale<sup>30</sup> is quite different, until the cargo is unloaded at the nominated unloading port. In that case, either the seller or the buyer could require the cargo to be delivered to an alternative unloading port during its transit time<sup>31</sup>. The buyer feels that it can require the seller to disuade the cargo to an alternative unloading port of the buyer's choosing if the buyer so requests. The negotiation is expressed in the wording contractual

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<sup>28</sup> Robert, Peter; Maalouf Ruchdi. 'Contractual issues in the international gas trade: LNG – the key to the golden age of gas'. In *Research handbook on International Energy Law*, ed. Edward Elgar (Northampton, MA, USA, 2014), 329.

<sup>29</sup> Peter and Maalouf, 'Contractual issues in the international gas trade', 333.

<sup>30</sup> Peter and Maalouf, 'Contractual issues in the international gas trade', 334

<sup>31</sup> During that transit time the seller still has legal title to the cargo, bears the risk of loss of the cargo and will be contractually committed to compensate the buyer for a failure to deliver the cargo when required.

agreement. Relating to the costs of such transportation, these will typically be added into the overall contract price<sup>32</sup> payable by the buyer for the LNG.

Authors Roberts and Maalouf<sup>33</sup> add that usually, the LNG sales formulation used is one where the seller promises to sell and deliver LNG and the buyer obliges to take delivery of and to pay for LNG, with each party's obligations being firm. If the buyer fails to take delivery off and pay for the required quantity of LNG, then the buyer will be liable to compensate the seller for that breach of contract.

### **2.3 Insurance of LNG tankers**

The *Society of International Gas Tanker Terminal and Operators (SIGTTO)*<sup>34</sup> considers that there is an excellent safety record of LNG marine transport. But it establishes situations where liability comes into action. Firstly, if a LNG accident occurs, the Vessel Owner and Operator will be exposed to liability for injuries to third parties in almost every maritime jurisdiction. Liability will normally be based on negligence but strict liability could also apply.

Concerning the US, SIGTTO makes a reference to the *US Limitation Act*. On it, limitations affect to owners and demise charterers only. In this sense, the restriction of liability is equal to the amount or value of the interest of such owner in such vessel and the freight then pending. As the amount is made at the termination of the voyage, the liability is limited to the post-casualty value of the vessel plus an unpaid freight. SIGTTO points out that the limitation is not available if incurred with the privity or knowledge of the owner.

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<sup>32</sup> Robert, Peter. 'Gas and LNG Sales Contracts', in *Gas Sales and Gas Transportation Agreements*, ed Sweet & Maxwell (Oslo: University of Oslo, 2014), 317.

<sup>33</sup> Peter and Maalouf, 'Contractual issues in the international gas trade', 337.

<sup>34</sup> The Society of International Gas Tanker and Operators, 'Potential Liabilities for casualties in LNG shipping', Last update, 21st April 2004, [http://www.kslaw.com/library/pdf/weems\\_lng.pdf](http://www.kslaw.com/library/pdf/weems_lng.pdf)

In some cases, LNG terminals could also require a *PLA* (Port Liability Agreement) signature. This is a signature increases the vessel's interest's liability on one hand and could limit the terminal interest's liability on the other one. These PLAs have been accepted by the P&I Clubs.

For example, if we take a look at the rules of two Norwegian P&I Clubs, Skuld and Gard, LNG tankers are not explicitly mentioned. Skuld P&I Rules for 2015<sup>35</sup>, in appendix 1 under the title *Drilling or Production Operations*, exposes that '*these operations are in connection with oil or gas exploration or production, and also, a vessel shall be deemed to be carrying out production operations if it is a storage tanker or other vessel engaged in the storage of oil and either – in letter b – the storage vessel has oil and gas separation equipment on board and gas is being separated from oil whilst on board the storage vessel other than by natural venting*'. Hence, under this long statement, they could approach LNG tankers, but there is not further mention among the rules. In my opinion, insurance LNG tanker's coverage would be insufficient.

Gard exposes on its rules for 2015<sup>36</sup> concerning to LNG tankers the following: Firstly, rule 60 almost the same as Skuld did, regarding drilling production and accommodation vessels. Basically rule 60.1 exposes that '*the Ship shall be deemed to be carrying out production operators if it is a storage tanker or other vessel engaged in the storage of oil and gas separation equipment on board and gas is being separated from oil whilst on board the storage tanker other than by natural venting*'.

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<sup>35</sup>Skuld, 'P&I Rules 2015' last modified February 2015  
[http://www.skuld.com/Documents/Library/Rules\\_Terms\\_Conditions/2015/Skuld\\_P\\_andI\\_Rules\\_web.pdf](http://www.skuld.com/Documents/Library/Rules_Terms_Conditions/2015/Skuld_P_andI_Rules_web.pdf)

<sup>36</sup> Gard, 'Gard Rules 2015', last update April 2015  
[http://www.gard.no/Content/20811922/Rules\\_2015\\_web.pdf](http://www.gard.no/Content/20811922/Rules_2015_web.pdf)

To sum up, both P&I clubs approach in the same way, although they do not mention directly this type of tankers and transportation and they do not refer in further rules what kind of protection do they proportionate.



### 3. NORWEGIAN LNG TANKER REGULATION

#### 3.1 Introduction and sources of law

When it comes to the Norwegian regulation concerning the carriage of LNG by ship, we have to keep in mind two different sources of law:

##### 3.1.1 EEA Legislation

Norway is through the EEA Agreement part of the EU internal market on the same terms as the rest of the EU Member states.

Thus, in terms of Gas -including LNG- Norway has to take into consideration those statements approved by the European Union in order to be aligned with the common internal market. There is one EU directive of particular relevance: the Directive 2009/73/EC about common rules for the internal market in natural gas (repeals Directive 2003/55/EC).

The Petroleum Act of 29 November 1996 No.72 incorporates both directives into Norwegian law. The rules based on the European directive mainly concern two points, namely the regulation of the gas market and anti-competitive rules. The latter group of rules is relevant when discussing third party access for the carriage of LNG by ship. EU competition law provisions prohibit two main types of anti-competitive activities, namely anti-competitive agreements between businesses (article 101 TFEU) and businesses abusing their dominant market position (article 102 TFEU).

Looking further into the Directive 2009/73/EC, there is an issue to take into consideration. The European rule does not mention in any section the words *tanker*, *vessel* or *ship*, so we can presume that indirectly it could affect to this way of carriage of goods. For example, the Directive in article 2.3 defines the concept of *transmission*, which means the transport of natural gas through a network, which mainly contains high-pressure pipelines other than an upstream pipeline. Therefore, *non-vessel transportation* is considered. Either chapter III

under the title of *Transmission, Storage and LNG* does not say specifically anything regarding the carriage of LNG by ship. Thus, in my opinion, the coverage of the European Directive to LNG tankers would be done by analogy. Nevertheless, as there is no word in its text for the vessels carrying the good, I would conclude that there is a legal loophole regarding this shipping method.

### *3.1.2 Domestic Legislation*

In Norway we have to take into consideration three regulations concerning gas activities, and in our case, regarding the LNG transport by ship. These are:

#### *3.1.2.1 The Norwegian Constitution*

As a general rule, all undertakings that desire to establish their services of supply or proportionate oil or gas in Norway, they must follow firstly the principle set in article 112 of the Constitution.

This section sets out that *'every person has the right to an environment that is conducive to health and to a natural environment whose productivity and diversity are maintained. Natural resources shall be managed on the basis of comprehensive long-term considerations, which will safeguard this right for future generations as well'*. In order to protect their right in accordance with the foregoing paragraph, citizens are entitled to information on the state of the natural environment and on the effects of any infringement on nature that is planned or developed.

#### *3.1.2.2 The Act of 29 November 1996 No.72 relating to Petroleum Activities (the Petroleum Activities Act)*

Even though the title of this act concerns apparently exclusivity to the petroleum activities, it approaches also to those activities on the Norwegian continental shelf that includes gas exploration and exploitation. When it comes to LNG transportation, the following articles should be highlighted:

Firstly, section 1-6 letter (n) under the title *Definition: 'Natural gas undertaking any natural or legal person carrying out at least one of the following functions: production, transmission, distribution, supply, purchase or storage of natural gas, including liquefied natural gas (LNG) and which is responsible for the commercial and technical tasks or maintenance related to these functions but shall not include final customers'*. Thus following the wording of the section, transportation of LNG by ship fits into this section and fits under the application of the Norwegian Petroleum Act

Further, section 1-5 applies and allows to the application of the Norwegian Maritime Code. Under the title '*Other Norwegian law*', section 1-5 sets out that '*the Norwegian law other than this Act, including provisions relating to licenses, consents or approvals required according to the legislation, shall also be applicable to petroleum activities. This applies unless otherwise warranted by an Act, a decision by the King, international law or agreement with a foreign state*'.

### *3.1.2.3 The Norwegian Maritime Code*

Since I am focusing my analysis on the transportation of LNG by ship, the main rules applying in that case are those concerning the carriage of goods by ship, aiming firstly to the Contracts of Carriage when we talk about Charter Parties and secondly when it comes to Liability in case of pollution.

Even though there is no specific rule, which specifically points out to LNG tankers, as I did in the previous section, the following rules are in my view applicable:

Firstly, as the main standard used for LNG bunkers is a Time Charter Party, as I explained in previous sections, apart from the statements settled on the contract, if the parties decide to apply Norwegian law, Chapter 14 of the Maritime Code would be applicable, particularly section IV from sections 161 until sections 170.

Secondly, in case of an accident at sea, part III of the Code could apply in relation to Liability. Thus, in my point of view, from section 151 concerning the vicarious liability to 182 would apply to LNG tankers as well. However, when it comes to pollution different questions come up.

There is a fact to take into consideration: When LNG spills on the ground or water it vaporizes quickly and leaves behind no residues. Thus if the cargo spills on water do not harm aquatic life or damage waterways in any way. As LNG vaporizes, the vapor cloud can inflame if there is a source of ignition, but otherwise, LNG dissipates completely<sup>37</sup>. Hence, LNG shipping is considered much safer than crude oil shipping. So, following this statement, in case of liability it would only be related to the coverage on fire and damage and not on environmental pollution.

The part of the Norwegian Maritime Code applicable in case of pollution caused by a LNG tanker is Chapter 10.1 *Liability and compensation pursuant to the International Convention on civil liability for Bunker Oil Pollution Damage 2001 (Bunkers Convention)*. Section 183 to 190 only apply, however in cases ‘*where the pollution arises out resulting from the escape or discharge of bunker oil from the ship*’, - and following the wording of the code-, ‘*understanding bunker oil as all oils containing hydrocarbons including lubricating oil used for the operation or propulsion of the ship and all residues of such oil*’.

As we have seen, there is not specific regulation in Norwegian law concerning LNG tankers. Thus, the problem for Norwegian jurists is to difference where the liability regime under the Petroleum Act ends and the liability regime under the Maritime Code begin. In my opinion, from a Norwegian perspective, a lawyer should apply the conjunction of both regimes, even though both end up with a legal loophole towards the carriage of LNG by ship.

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<sup>37</sup> Breaking energy, ‘How dangerous is LNG’, last modified 22 December 2004 <http://breakingenergy.com/2014/12/22/how-dangerous-is-lng/>

Going through the question discussed above, taking back again the Petroleum Act, the only possible chapter applicable to my analysis would be chapter 7, concerning pollution damage. This section applies to liability for pollution damage. However, focusing on section 7-1 2<sup>nd</sup> paragraph last sentence: *'The same applies to ships for transport of petroleum during the time when loading from the facility takes place'* cannot be applied to my case, given that, LNG tankers does not transport oil as a cargo. The only oil transport in an LNG tanker would be the one used for the engines and the propulsion for the vessel, so in case of an accident and in consequence, pollution on the Norwegian continental shelf, the only section applicable would be those mentioned in the Norwegian maritime code.

### **3.2 Control of gas transportation in Norway – The role of Gassco and Gassled**

Establishing a line in time, we have to take into account three dates in the beginning of the twenty-first century in order to understand the regulation gas transportation in Norway<sup>38</sup>. In May 2001, an independent gas transportation operator company Gassco was formed and from 1 January 2002 Gassco took over the operations of most of the gas pipelines on the Norwegian continental shelf. Gassco is an operator with no commercial interests in the gas market and no ownership in the network.

Gassco<sup>39</sup> was established in order to secure neutrality and effectiveness in the gas transportation system. Its formation was initiated by the privatization of Statoil. Furthermore, the various joint ventures owning different parts of the upstream gas pipeline network pursuant

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<sup>38</sup> Brautaset, Are 'The new Framework for gas transportation in Norway'. In *European Energy law – Report I*, 6

<sup>39</sup> Brautaset, Are 'The new Framework for gas transportation in Norway'. In *European Energy law – Report I*, 7

to individual pipeline licenses decided to merge into one joint venture called Gassled<sup>40</sup>. Therefore, Gassco is considered the operator for Gassled.

Even though the role of Gassco and Gassled is focused on the upstream part, they also indirectly supervise the task of the LNG tankers. In this sense, I am going to differentiate the term *transporter* (operator of LNG vessels) to *shipper* (pipeline operator)<sup>41</sup>. In terms of upstream (pipeline) system, Gassco operates in two markets: the primary and the secondary. However, for my analysis, I will point out where the LNG tanker operators enter into scene. This can happen in the secondary market, because when it comes to this market, the main object is the capacity rights under existing transportation contracts, as the Petroleum Regulation sets out.

Therefore we should take a look at section 64 of the Petroleum Regulation. First paragraph says that *'the right to use capacity in an upstream pipeline network may be transferred by agreement in the secondary market and such agreements may only be entered into with natural gas undertakings and eligible customers who have a duly substantiated reasonable need for transport'*.

Under this approach, the use of LNG tankers by a third party would have been accepted. In addition, following the wording of paragraph three, the shippers shall inform to Gassco of available capacity rights, following the terms settled in paragraph two: *'When a party who has a right to use capacity in an upstream pipeline network no longer has a duly substantiated reasonable need for all or part of that capacity, the natural gas undertakings and eligible customers who satisfy the conditions in the first paragraph shall have a right of access to this capacity'*.

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<sup>40</sup> Brautaset, Are 'The new Framework for gas transportation in Norway'. In *European Energy law – Report I*, 9

<sup>41</sup> Arnesen, Finn; Hammer, Ulf; Høisveen, Per Håkon; Kaasen, Knut & Nygaard, Daginn. 'Energy Law in Norway' in *Energy Law in Europe*. (Oxford: Oxford University Press 2015), 225

### **3.3 Norwegian LNG case law**

There is not an extensive case law in Norway concerning specifically LNG tankers. However, we can highlight the arbitration award published in *ND 1976-342I*. The case concerns a dispute regarding the right for the building yard to claim a premium for excess deadweight on a LNG carrier. The arbitrators found that the premium tonnage was not determined with reference to a cargo of LNG, but on the other hand, there was no further qualification regarding the specific gravity of the cargo, given that the relevant clause requires that the deadweight must be present with the vessel on even keel, but the Arbitrators allowed calculation based on main moulded draft corrected for even keel as long as the trim was not in excess of the requirements in the specifications.

Unfortunately, I have not found any other Norwegian cases involving disputes on LNG pollution or concerning to the carriage of LNG as cargo or to the charterparty's clauses.

## 4. AMERICAN LNG TANKER REGULATION

### 4.1 US regulation concerning LNG tankers in US Ports<sup>42</sup>

Three set of regulations are of particular relevance for the carriage of LNG under American law: firstly, the Port and Tanker Safety Act, secondly, the Code of Federal Regulations (CFR). The regulations codify general and permanent rules published in the *Federal Register* by the executive departments and agencies of the Federal Government. The CFR Parts 33 (concerning Navigation and navigable waters) and 46 (shipping) are of particular relevance for LNG transport.

Thirdly, also the *United States Environmental Protection Agency* (the 'EPA'). The task of EPA is to protect the human health and environment, and as LNG is considered a hazardous cargo, the function of the EPA comes into operation, specially regarding to the Vessel General Permit, which will be explained further.

#### 4.1.1 Port and Waterways Safety Act of 1972 (revised in 1978)

The Act aims to increase the navigation and vessel safety while protecting the marine environment and life, property and those structures adjacent to the navigable waters of the United States. The Act does, inter alia establish the operation and maintenance of what is called *Vessel Traffic Services* (the 'VTS')<sup>43</sup>. This is a marine traffic monitoring system established by the harbor or port authorities that determines strict control over the vessel's movements. In addition, the Act recognized the requirements for the operation of the vessel into the American ports and other issues related to port safety controls.

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<sup>42</sup> First of all, I would like to appreciate that most of the information explained in this section has been proportionated by the American Bureau of Shipping in Oslo. Thus, all the analysis that comes further it has been contrasted using the ABS's information as a support.

<sup>43</sup> See annex 3 – ABS Seminar: Marine and Offshore Technology 'Overview of the key requirements for foreign flag LNG carriers operating in US waters', last update 17 April 2015.



The 1978 amendments of the Act provided the Coast Guard with broader, more extensive and explicitly stated authorities.<sup>44</sup> Also, applying to the LNG Carriers, the Act addresses advances in the management and control on the vessels operating in the US navigable waters and in the safety of all tank containers which transport and transfer oil or other hazardous cargoes in the US. In addition, the Act provides the strongest authority for the USCG in relation to the Marine Safety and Security (MSS) Program. Roughly, the program sets the basis for the navigation safety regulation and the Marine Safety Information.

Additional statutes that provide the primary authority for the USCG's marine Safety and Security Program include the *Oil Pollution Act of 1990*. The aim of the Act is to mitigate and prevent civil liability from the future oil spills off the coast of the US<sup>45</sup>. The law states that the companies must have a plan to prevent spills that may occur and have a detailed containment and cleanup plan for oil spills. Connecting it with the previous section III of the thesis, the Oil Pollution Act shares certain similarity to the Norwegian Petroleum Act, given that both achieve the same goal and protection.

Further specific requirements may be found under the USCG COMDTINST 16000.7B (Change 1) - '*USCG marine Safety Manual Volume II – Materiel Inspection*'. The last edition was published in June 2014<sup>46</sup> and basically the purpose of this manual is providing operational guidance for the Coast Guard personnel.

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<sup>44</sup> Aronson, Jonathan David; Westermeyer, William. 'US public and private regulation of LNG transport.' *8300 defect for UNSW Marine Policy* (1982): 12. doi: 10.1016/0308-597X(82)90039-2

<sup>45</sup> National Pollution Funds Center, 'Oil Pollution Act of 1990 (OPA)' [http://www.uscg.mil/npfc/About\\_NPFC/opa.asp](http://www.uscg.mil/npfc/About_NPFC/opa.asp)

<sup>46</sup>United States Coast Guard, 'Marine Safety Manual – Volume II: Materiel Inspection' last update 25 June 2014 [https://www.uscg.mil/directives/cim/16000-16999/CIM\\_16000\\_7B.pdf](https://www.uscg.mil/directives/cim/16000-16999/CIM_16000_7B.pdf)

#### 4.1.2 CFR 33 and 46

CFR sections 33 and 46 are of particular importance for LNG tankers. Starting with section 33, which is linked to the MARPOL's rules, under the title *Navigation and Navigable Waters*, I will only focus on those parts of this section linked to LNG tankers.

Firstly, part 127 which is located under *subchapter I Coast Guard Department of Homeland Security, Letter L waterfront facilities*. A bulk liquefied gas waterfront facility is any pier, wharf, dock to which a vessel may be secured to transfer Liquefied Natural Gas (LNG) to or from a vessel (in bulk). Thus this section applies to all LNG waterfront facilities and specifies standards for facility design, construction, equipment, operations, maintenance, training, firefighting and security.

There are two other issues to take into account: Firstly, the *Notification of Arrival*<sup>47</sup> and secondly the *Moving Security Zone*<sup>48</sup>. The *Notification of Arrival* is set in *subsection 160.201*. It applies to US and foreign vessels bound for or departing from ports or places in the US. Thus the main commitment of this regulation is to recognize the cargo of the vessel, given that LNG carriers are considered ships transporting *Certain Dangerous Cargo* (CDC). Thus, the tanker has to specify the type of cargo and the amount transported.

Going back again to 33 CFR part 127, an issue comes up in order to determine where and when LNG is a hazardous material. Part 127 makes a difference between the carriage in bulk of hazardous materials and LNG, even though LNG is it considered as well. But, subsection 160.201 considers it as a 'Certain Dangerous Cargo'. Further, is in subsection 160.204 (7) where we can find this statement and its definition of LNG as a CDC. But, if

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<sup>47</sup> See annex 3 – ABS Seminar: Marine and Offshore Technology 'Overview of the key requirements for foreign flag LNG carriers operating in US waters'

<sup>48</sup> Aronson, Jonathan David; Westermeyer, William. 'US public and private regulation of LNG transport.' *8300 defect for UNSW Marine Policy* (1982): 17. doi: 10.1016/0308-597X(82)90039-2

we pay attention to this section, the USCG equates LNG to poison materials (subsection 5), poison gas (subsection 3) or other explosives gas.

The Institute of Makers of Explosives notified on their webpage in June 17-2010 that the United States Coast Guard has proposed a bill in order to harmonize its current regulations governing the carriage of solid bulk cargoes to the use of the International Maritime Solid Bulk Cargoes (IMSBC) Code. On one hand, the IMSBC<sup>49</sup> is a guide, produced by Lloyd's Register and the UK P&I Club, which aims to help all those responsible to manage the risks of carrying solid bulk cargoes and achieve compliance with SOLAS. Basically, it outlines the precautions that should be taken before accepting cargoes for shipment and the procedures that should be followed for safe loading and carriage.

To sum up, it seems that the overall aim of the mentioned subsections is to align the American rules concerning LNG with the IMSBC Code. However, there is not an exact difference between what is considered a 'dangerous good' and 'certain dangerous good'. They barely describe the properties that carry a CDC product but in terms of 'what is the main difference of both' there is not a clear distinction between both terms. Thus, in my point of view, there would be a contradiction not in terms of grammar spelling, but there is in reference to the reason of keeping LNG out from the rest of hazardous materials.

On the other hand, regarding *Moving Security Zones*, it is located in 33 CFR 165 and specially applies to LNG carriers. Essentially a moving security zone begins at US territorial waters and moves with the vessel throughout the entire transit into the port.

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<sup>49</sup> Institute of makers of explosives, 'Certain Dangerous Cargoes'  
[https://www.ime.org/content/certain\\_dangerous\\_cargoes](https://www.ime.org/content/certain_dangerous_cargoes)

Section 46 is linked directly to SOLAS and to what it is declared as *Certificate of Compliance* and it specially affects to foreign flag vessels<sup>50</sup>. Therefore, we have to take a look to subsection 154 which approaches to safety standards for self-propelled vessels carrying bulk liquefied gases, where particularly links to LNG tankers. The Guidance for applying to this Certificate is found exactly in 46 CFR subsection 154.22. To request for an endorsed *Certificate of Compliance*, one must submit to the US Coast Guard the following features, such as the vessel's valid IMO certificate (*subsection 154.24 letters a and b*), descriptions of the vessel and a general arrangement plan of the ship.

There are also specific issues if the vessel is a new gas vessel or an existing vessel that does not meet 154.12 (b), (c) or (d), this concerns to technical aspects outside from the scope of this thesis. To sum up, this certificate confirms that the vessels have been thoroughly inspected and conforms to the US regulation.

#### *4.1.3 Vessel General Permit (VGP)*

The EPA mentioned above comes into action with regard to the VGP. Fundamentally, the VGP program<sup>51</sup> controls the water pollution by regulating point sources that discharge pollutants into waters of the US. In this sense, all ships must obtain a VGP. However, LNG tankers are not, as oil tankers, subject to other vessel specific requirements.

This makes sense, given that, LNG does not pollute the water, due to as we said when previously we talked about the Norwegian legislation, when the LNG establishes contact with the atmospheric temperature, it boils off, being dangerous if there is a source of ignition around, but if not, it would not contaminate the water. In my point of view, the control of the VGP would only be useful in respect of LNG tankers in case of an accident in an off-

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<sup>50</sup> Foreign flag of means to have a vessel owned by national of one country and registered under the maritime laws of another country.

<sup>51</sup> United States Environmental Protection Agency, 'Vessel General Permit', last update 2013, <http://water.epa.gov/polwaste/npdes/vessels/Vessel-General-Permit.cfm>

shore LNG platform which encompasses other residues providing from the tanker, or other situations that the vessel could be involved.

Regarding LNG terminals, there are other technical-bureaucratic issues to keep in mind when a vessel reaches an LNG Terminal. For example, the tanker at the loading terminal should obtain the Marine Operations Manual<sup>52</sup> for that facility, which sets out the technical requirements for the procedure of loading and unloading LNG. On the other hand, when a vessel arrives to US ports, apart from meeting international requirements such as SOLAS and MARPOL, it may also comply with the applicable Port State Control restrictions unique to the specific port.

#### **4.2 US Coast Guard's control over LNG tankers**

The US Coast Guard is responsible for ensuring the safety of life and property at sea and also at related shoreside facilities. Its regulations seek to ensure ship stability and survivability as well as to establish the criteria for ships hull materials, electrical systems, temperature and the pressure limits. In addition its regulations also specify the means by which cargo is to be loaded and unloaded and the standards for personnel qualifications for LNG carriers.

The Coast Guard is also in charge with Managing Traffic Control into ports. For instance all the LNG vessels entering to an US port are controlled by the Coast guard through a contingency plan developed in cooperation with the maritime industry and state and local officials. The plan in this sense requires prior notification of the LNG vessel movements, estimated times of arrival and departure, escort details, vessel inspection and safety checks.

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<sup>52</sup> Freeport LNG Development, 'Facility Marine Operations Manual', last update 2010, [http://www.freeportlng.com/Marine\\_Operations\\_Manual.asp](http://www.freeportlng.com/Marine_Operations_Manual.asp)

### 4.3 US case law concerning LNG tankers

In general, there is not much American case law that deals with LNG tankers. Most of those I have found concern two issues: Firstly, misunderstanding of the contractual terms regarding shipbuilding contracts, or either LNG tankers play a secondary role through another issue involving a LNG plan.

*Ikanco Inc v. Daewoo Shipbuilding and Marine Engineering CO. LTD*<sup>53</sup>

The case concerns contract interpretation case, where Ikanco sued to Daewoo Shipbuilding and Marine Engineering Co for breaching of it. Apparently Ikanco was obliged to provide services to Daewoo in securing a shipbuilding project 1. The aim of the agreement was the construction of LNG tankers to develop a large-scale natural gas project in Qatar.

The trial court deemed the contract between Ikanco and Daewoo ambiguous and submitted it to the jury of interpretation, which finally, it determined that Daewoo breached the agreement by refusing to compensate Ikanco for services as required under the agreement and it awarded a huge quantity of money in damages to Ikanco.

*Weaver Cove Energy LLC v. Rhode Island Coastal Resources Management Council*<sup>54</sup>

In this case, the company Weaver Cove Energy LLC proposed to build and operate a LNG terminal in Fall River. The project received the FERC's approval in 2005 but following certain conditions imposed setting that the plan promoted the public interest by increasing the availability of natural gas supplies in the New England market.

However, under the first original LNG proposal submitted in 2003, all the tankers carrying LNG would pass through waters in both Rhode Island and Massachusetts, travelling up the

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<sup>53</sup> <http://caselaw.findlaw.com/tx-court-of-appeals/1607362.html> and <http://caselaw.findlaw.com/tx-court-of-appeals/1607362.html#sthash.PCLSnJKF.dpuf>

<sup>54</sup> <http://caselaw.findlaw.com/us-1st-circuit/1499212.html>

Taunton River to the terminal location. Apparently it changed in 2009. According to the Weavers Code 2009 ‘*Offshore Berth Amendment*’, the proposal called thus for ship to deliver their cargo to an offshore berth in Mount Hope Bay, from which the LNG would be transported via submerged pipeline to the onshore terminal. Hence, the offshore berth, the pipeline and the terminal would all be located in Massachusetts, but in both the original proposal and the amended version, the only planned activity in Rhode Island waters was dredging in a federal navigation channel to ensure the safe passage of the LNG tankers. The question that concerns us in this case it is not related to any contractual term, but it is connected to the safety and carriage of this type of gas under appropriate operational conditions.

*Sierra Club v. Dominion Cove Point*<sup>55</sup>

In this circumstance, the case relates to a dispute of the exploitation of an area, referred to as Cove Point. The parties had entered an unambiguous agreement permitting Dominion to expand its operations to include exploration. Thus the case concerns an unauthorized exportation activity not anticipated under the terms of the contract.

Back in time, Columbia Gas was Dominions predecessor in ownership of this parcel in Maryland and referred to as Cove Point. In 1972 Columbia Gas began to construct a liquid natural gas import terminal on a portion of the land. However during the 80’s, these operations were suspended, and turn it back again during the 90’s until 2005 adding peaking services. Dominion purchased Cove Point from Columbia gas in 2002. In 2005 Dominion wanted to increase its operations. As a result, a new agreement was agreed, replacing the previous ones. It provided that Dominion could use an area designated as the LNG Terminal Site solely to perform LNG operations, and concerning to our thesis, including LNG tankers storage, maintenance and procedures.

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<sup>55</sup> <http://caselaw.findlaw.com/md-court-of-special-appeals/1659149.html>

During the last years fracking developments increased in US and Dominion announced other plans to expand its Cove Point operations, which affected the LNG exportations and to the transport of LNG by tankers. Sierra argues that the 2005 Agreement does not authorize the exportation of LNG from the Terminal Site. It asserted that LNG may be received by tanker but not delivered to tankers and that the only marine operations in the agreement. In conclusion, the case involves one of the types of problems that LNG tankers could be involved, misunderstanding with the terms on the contract.

*AES Sparrows Point LNG LLV v. Wilson*<sup>56</sup>

The case concerns a proposal by AES to build and operate a LNG marine import terminal at Sparrows Point (an area close to Baltimore's harbor) and an 88 miles pipeline connecting the terminal to three interstate natural gas pipelines in Eagle, Pennsylvania. For our analysis, the project comprises environmental issues, which affects to the water and sediments around the Sparrows Point, making aquatic life virtually impossible and in addition, its possible navigation either.

*American Overseas Marine Corporation v. Golar Commodities LTD (The LNG Gemini)*<sup>57</sup>

In this situation, the claimant, American Overseas Marine Corporation (AOM) was the managing owner of a liquefied natural gas carrier, LNG Gemini. By a charterparty of 3 January 2011, AOM time-chartered the vessel to the defendant Golar Commodities Ltd (Golar). In this sense, clause 30 of the charterparty provided a statement about Injurious Cargoes. AOM alleged that in May 2011 Golar loaded at the Cameron Terminal, Louisiana, a cargo of LNG that was injurious to the vessel containing metal particles and as a

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<sup>56</sup> <http://caselaw.findlaw.com/us-4th-circuit/1499194.html>

<sup>57</sup> [https://www.ilaw.com/ilaw/doc/view.htm?queryString=\(LNG+\)%3aKEYWORDS&sort=date&dateRange=100&sort=date&databaseMatchName=LawReports&searchType=case-search&se=0&id=344892&searched=true](https://www.ilaw.com/ilaw/doc/view.htm?queryString=(LNG+)%3aKEYWORDS&sort=date&dateRange=100&sort=date&databaseMatchName=LawReports&searchType=case-search&se=0&id=344892&searched=true)



result, major repairs to the ship were required, given that the cargo pumps and tanks were found to be contaminated. In consequence, AOM claimed damages

## **5. COMPARISON BETWEEN NORWEGIAN AND AMERICAN LNG TANKER LEGISLATION**

### **5.1 Introduction to the comparison**

As we have seen in the previous sections, Norwegian and American Law include different rules and provisions on the carriage of LNG gas. In the following, I will highlight what I consider to be the most important similarities and differences between the two jurisdictions.

### **5.2 Pollution damage**

Firstly, both American and Norwegian Law have a strong focus on environmental protection. The Scandinavian country sets out in its Constitution the importance of protection of the environment and its benefit to the whole Norwegian society -as is mentioned in section III-. Both jurisdictions have however, different ways to put the environmental protection into practice.

Regarding LNG carriage the Maritime Code and the Petroleum Act only apply in case of bunker spill off to the Norwegian continental shelf, but not in case of accident of a LNG vessel, cf. my above discussion. Moreover, there are no expressed provisions on neither LNG plant nor facilities. In case of an accident between a tanker and a plant of liquefaction and procurement of its material, there is no specific rule covering it. Accordingly the issues that arise must be sought solved on the basis of analogies from the provision in the Acts and/or the general principles of Norwegian contract law. Therefore, in my opinion, there is a legal loophole regarding this matter.

In addition, this illustrates a current need in Norway for a legislation regulating the specific issues the carriage of LNG gas rise. The legislator should develop an adequate regulation appreciating that this is a business that is currently in a growing process. Nevertheless,

there are not legal loopholes when it comes to the *Upstream Sector*, due to the strict control of the Petroleum Act in this aspect. But again, in my opinion it does not cover enough LNG tankers trade.

To sum up, I do think that the regulation of LNG gas in Norway over tanker vessels is not adequate develop. Basically, the regulatory powers decided to focus more on the *upstream sector* in order to align the domestic law to the European one, instead of approaching other elements involved with this trade. In addition, the Norwegian Maritime Code does not make a reference to this specific type of tankers. I do not expose that it should be revised but the Code should take over this point, for example, making a reference in Part III, Chapter 10 to Liability in case of pollution accident, or going through again the Petroleum Act and making a reference.

Comparing the Norwegian Maritime Code to the American Law, I find the Norwegian legislation much easier to understand but less complete. The reasons are:

If I start with the American law, sections 33 and 46 CFR are wider and more precise than the Norwegian Maritime Code. Roughly it directly names and concerns to LNG tankers and facilities, when on the other hand, the Maritime Code does not. To point out, the American Federal Sections establish a detailed procedure to follow for LNG tankers when they navigate along US waters. There is also a route to obey when a foreign vessel enters into Norwegian waters; however, I consider it less precise than the one used in America.

In my opinion, I think that the US is more involved into this business and it has anticipated the extent and impact of it for the American economy onto its domestic legislation. Also, as the US was one of the first countries to establish the LNG market, more experience and obligations they had in order to develop a law that gave protection and support to its flag LNG vessels.

Another issue to take into consideration is the *Port and Waterways Safety Act*. As I have explained above, the purpose of this Act is to increase the navigation and vessel safety in US waters. The reader must remember part 127 of it, Letter L concerning waterfront facilities. Thus, the US regulation takes over all the features concerning LNG trade, fact that the Norwegian does not in the same way, given that its legislation does not cover this issue, and in a hypothetical case, this would be regulated by analogy and following Norwegian Law Principles.

### **5.3 Upstream vs. Downstream Gas**

In the US, the *upstream* phase of the gas trade is more regulated than the *midstream* and *downstream* phases. The LNG carriage by sea this is located mainly under the midstream sector. In this sense, the USCG standardizes the navigation of LNG tankers exhaustively under its scope, using sections 33 and 46 CFR.

In comparison, Norway focuses more on the *upstream* one instead of the other ones, but concerning to the features of the carriage of goods, Norway has developed it more precisely than the United States using the terms covered under the NMC. For example, if we compare the *Maritime Transportation Security Act of 2002*<sup>58</sup> and the *Shipping Act of 1984*<sup>59</sup> and the Norwegian Maritime Code, the American Code refers directly to technical aspects and documentation on the carriage by ship, instead of those issues relating to liability of the transport of goods as the Norwegian Maritime Code does. For example, taking a look back to section III, Norwegian law controls much more those issues concerning vicarious liability or protection of the carriage of goods in Norway than the US does.

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<sup>58</sup> Public Law 107-295 – Nov. 25, 2002, ‘Maritime Transportation Security Act of 2002’  
<http://www.admiraltylawguide.com/documents/martransecact02.pdf>

<sup>59</sup> Legal Information Institute, ‘46.US Code Part A – Ocean Shipping’  
<https://www.law.cornell.edu/uscode/text/46/subtitle-IV/part-A>

In my opinion, I would consider that Norway made a step forward to harmonize all the aspects relating to the maritime trade and regulation of the carriage of goods. However, when it comes specifically to LNG features, American law is much more detailed than the Norwegian law.

#### **5.4 Is LNG a dangerous good?**

Once I have seen how the carriage of LNG is regulated in both jurisdictions, there is a question that concerns me: Is the transport of LNG dangerous?

If I take into account the American law and I compare different opinions about it, such as the one given by the lawyers Philip Stephenson, Richard Singleton and Charles Wagner, they argue in a bulletin from *Standard Club*<sup>60</sup> that ‘*while LNG and LPG are not named as hazardous substances under US Federal Law, they might be listed as such under state environmental statutes*’.

Authors Sabatino Ditali and Roberto Fiore sets out in their report *A realistic assessment of LNG hazards and consequences of release scenarios*<sup>61</sup> that ‘*the main hazardous result for an LNG tanker is its contact with an ignition source, but this would be the only dangerous issue to take into consideration*’.

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<sup>60</sup> Stephenson, Philip; Singleton, Richard; Wagner, Charles, ‘What pollution legislation is specific to LNG/LPG Cargo?’ *Standard Bulletin*, March 2011: 10  
<http://www.standard-club.com/media/1558044/what-pollution-legislation-is-specific-to-lng-lpg-cargo.pdf>

<sup>61</sup> Ditali, Sabatino; Fiore, Roberto, ‘A realistic assessment of LNG Hazards and consequences of release scenarios’, *Health, Safety and Environment – Design, Snamprogetti SpA*, Associazione Italiana Di Ingegneria Chimica: 1  
<http://www.aidic.it/CISAP3/webpapers/80Ditali.pdf>

Moreover, Edward Dodge writes at the media *Breaking Energy*<sup>62</sup> an article of LNG trade and he came up with the same question as I did: Is the perception of the toxicity and dangerousness of LNG accurate? He adds in his report that '*LNG has the best safety record of all common fuel types and is completely non-toxic, even though, its natural gas vapors are flammable and present safety hazards must be managed, but these are less than for gasoline, diesel or other liquid fuels*'.

Comparing different points of view and focusing on the paralleling between the American and Norwegian legislation, I would like to summarize the following issues:

Firstly, I would like to point out the incongruity of the American law when it includes LNG as a Certain Dangerous Cargo (CDC). Some authors consider it as hazardous and other ones do not take any estimation. In comparison, the Norwegian Acts have non-parallel expressed definition of the term 'dangerous goods'.

Focusing on the Norwegian Maritime Code, section 257 only refers to dangerous goods as the way that it has to be marked. Linking this subsection to the first one referring to pollution to the sea, the Norwegian Maritime Code does not refer in any case to gas or LNG as a dangerous good. Does it mean that the American legislation is much complete than the Norwegian? In my opinion, even though I disagree in some points mentioned before, the American shows a better dominance in terms of LNG than the Norwegian. In this case, a Norwegian jurist would end up solving this issue applying again Norwegian Law Principles and by analogy the possibilities given by the Petroleum Act.

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<sup>62</sup> Breaking energy, 'How dangerous is LNG'

In addition to support this conclusion, taking a look at Statoil's website<sup>63</sup>, it exposes that '*LNG shares many of the properties of methane, being odourless, colourless, non-corrosive and non-toxic*'. Statoil is one of the main businesses concerning LNG in Norway and under my point of view; it has a strong legitimacy towards the consumers and all over the Norwegian economic side. Thus, a research of LNG features, comparing and reading different perspectives and legislations, I finally conclude the following:

I would consider the carriage of LNG as a dangerous cargo due to two reasons: The first one, it has flammable properties that could provoke serious damages in case of an accident. Secondly, the design of LNG tankers requires specific features to keep it in good condition in order to avoid releases and future damages. Therefore, this type of carriage should be considered as hazardous.

## **5.5 Gassco and LNG tankers**

The Ministry of Petroleum and Energy and Gassco controls the gas sector in Norway, mainly focused as is said above on the *upstream* sector. Gassco, as an independent operator, took over the operator of most of the gas pipelines on the Norwegian continental shelf. Gassco is considered as a neutral operator to safeguard the coordinative advantages of the system.

Referring to Gassco, the media *LNG World News*<sup>64</sup> published on its webpage that '*a total of 101 billion standard cubic meters of gas were transported in 2014 having Gassco's operatorship from the Norwegian continental shelf to terminals in Europe*'.

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<sup>63</sup> Statoil, 'About LNG', last modified 2014

<http://www.statoil.com/en/TechnologyInnovation/gas/LiquefiedNaturalGasLNG/Pages/AboutLiquefiedNaturalGas.aspx>

<sup>64</sup> LNG World News – The industry's LNG news terminal, 'Gassco's gas deliveries regular and stable through 2014', last update 13 January 2015

<https://www.lngworldnews.com/gasscos-gas-deliveries-regular-and-stable-through-2014/>

The article adds that Gassco's object is to operate the integrated transport system for Norwegian gas ensuring the highest possible security of supply. Paying attention to this sentence, I came up with one question: What is the meaning of a third party access to the LNG trade. Does it consider, for example, a LNG tanker company?

Taking the European Directive 2009/73 article 82 it does not specify if this third – party access involves the carriage of LNG by tanker: *'Member States shall ensure the implementation of a system of third party access to the transmission and distribution system and LNG facilities, based on published tariffs, applicable to eligible customers, including supply undertakings and applied objectively and without discrimination between system users'*. Considering the Directive to the Petroleum Act and to the Regulations to Act relating to Petroleum Activities, there is nowhere a consideration to a third party access involving exclusively tankers.

In my opinion, Gassco would control an LNG tanker company in case that it would be part of the Joint Venture Gassled – explained in section III-. However, if the company operates independently, the control would be established following the conditions agreed on the contract and having the Ministry of Petroleum and Energy as a supreme responsible of the gas trade in Norway.

In the US there is no operators such as Gassco. The USCG takes over the *upstream* gas sector and its transportation by ship, establishing the conditions over these vessels. For example, on the 26<sup>th</sup> of August 2015 there was a fire in a gas pipeline and the USCG took responsible for it<sup>65</sup>. In this sense, its scope of control and protection is much wider than Gassco or the European Directives. To sum up, in my opinion Gassco focuses extensively

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<sup>65</sup> USCG Newsroom, 'Coast Guard responds to report of natural gas pipeline fire', last update 26<sup>th</sup> August 2015 <http://www.uscgnews.com/go/doc/4007/2589182/Coast-Guard-responds-to-report-of-a-natural-gas-pipeline-fire>

over the pipeline sector instead of making a strict control to LNG tankers as the USCG does, controlling both areas: upstream and midstream.

### **5.6 Certificate of compliance for foreign flags vessels**

As explained above, when a LNG tanker enters into US waters, it has to carry a Certificate of Compliance, which allows the vessel to navigate along the American coast and it is a method to identify the vessel by the authorities as well. However, does Norway call for a Certificate of Compliance for foreign flag vessels navigating into its waters?

Professors Thor Falkanger, Hans Jacob Bull and Lasse Brautaset set out in the *Scandinavian Maritime Law – The Norwegian Perspective*<sup>66</sup> the following concerning the identification of a ship: ‘*Norwegian tankers are identified by a Certificate of Nationality as the Maritime Code sets out in sections 5 and 9*’.

However, in respect of foreign vessels, there are some requirements to consider: Firstly, while a vessel is under construction, a certificate will be expedited in order to proof that the vessel meets the required standards. As a consequence, it will be inspected. In Norway, in case that a ship its is not adjusted to the relevant regulations<sup>67</sup>, following a survey or otherwise, a condition may be imposed for the completion of certain work, with imposition of fines as a possibility, or certification instead could be withdrawn, as it is set in section 51 of the NMC.

Another aspect to take into consideration for foreign flag vessels is the *Ship Safety and Security Act of 2007*. Basically, the purpose of the act is to safeguard life, health, property and the environment. In addition, the act requires the presence of quality assurance systems. Concerning to foreign flag vessels, Article 2 of the Act applies both to Norwegian as and

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<sup>66</sup> Thor Falkanger, Jacob Bull and Lasse Brautset, *Scandinavian Maritime law – The Norwegian perspective* (Oslo: Universitetsforlaget, 2011), 47.

<sup>67</sup> Falkanger, Bull, Brautatset, *Scandinavian Maritime Law – The Norwegian perspective*, 81.



foreign ship. There is a point to take into consideration: If the ship is registered under *NOR* or *NIS* registers, it will be considered Norwegian, but if it is not registered there or either in any foreign registry, it will be considered Norwegian when the owning interests satisfy the requirements of Maritime Code section 1.

In addition, regarding geographical limitation, Article 3 of the Convention has affects to Norwegian ships but to the foreign ones, they are subject to the act when they are within Norwegian territorial waters, in the Norwegian economic zone and on the Norwegian continental shelf.

When it comes to the Port State Control (PSC) in Norway for foreign vessels, the Norwegian Maritime Authority (NMA)<sup>68</sup> establishes an exhaustive control procedure. As the NMA informs, PSC is an international obligation to inspect a certain quota of foreign vessels calling at Norwegian ports. Thus, those vessels that are reluctant would be subjected to a penalty charge. In addition, foreign tankers must comply with the following procedures when they arrive to Norwegian ports<sup>69</sup>: Vessel's estimated time of Arrival (ETA)<sup>70</sup>, Vessel's actual time of arrival (ATA)<sup>71</sup> and vessel's actual time of departure (ATD)<sup>72</sup>. Essentially, these three ways establish supervision and inspection over the tankers when those are in Norwegian ports.

To conclude, as the US legislation, when a tanker comes into Norwegian waters and ports, it has to follow a procedure and carry out those certificates, which are compatible with the

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<sup>68</sup> Norwegian Maritime Authority, 'Port State Control', last update April 2<sup>nd</sup> 2012  
<https://www.sjofartsdir.no/en/vessels/inspection/port-state-control/>

<sup>69</sup> Norwegian Maritime Authority, 'Port State Control'  
<https://www.sjofartsdir.no/en/vessels/inspection/port-state-control/>

<sup>70</sup> No later than 72 hrs, before estimated time of arrival at a Norwegian port if the vessel would be subjected to an inspection.

<sup>71</sup> No later than 1 hour after arrival at a Norwegian port, this time must be reported. Basically is when the ship is anchored at the anchorage

<sup>72</sup> No later than 1 hour after departure from a Norwegian port.

law of the country. Nevertheless, Classifications Societies as DNV (Det Norske Veritas) would bring into account role of certification.

### **5.7 Case Law – Norwegian and American**

Making a comparison between the Norwegian and American case law explained correspondingly in the previous sections, I can extract the following conclusion:

First, there is not such an extent case law concerning to LNG tankers in both jurisprudences, in which case demonstrates the lack of regulation concerning this trade.

Taking in addition American case law analyzed in section IV, I can conclude the following: Disputes are more varied and cover mostly those aspects related to LNG plants, such as the environmental consequences or those aspects relating to the transportation of the tankers.

## 6. CONCLUSION

The LNG market is in growing and has become much more important. Challenging economic situations as the currently oil crisis or disagreements between gas producers and its neighboring countries have promoted an essential investment in this sector. In this sense, the carriage of LNG by ship has become in the last decades one of the strengths in this business. However, after the analysis of the legal aspects on this market using two of the main LNG exporter countries as a reference, and as a consequence, I would like to conclude with the following two issues:

First, coming out to the legal aspects to LNG tankers, these are not enough developed and it could trigger to legal loopholes. Mainly, its protection is based on the application by analogy of the rules applicable to oil tankers and General Principles of Law, as Norwegian law does. Nevertheless, legislators had focused largely on the *upstream sector* of the LNG trade, but putting aside other issues as the carriage of LNG by ship.

However, it is a fact that this type of vessels are supervised under a strict procedures when for example, they want to anchorage in American ports or they want to be allowed to commercialize in US ports. Fact that it is not in the same way contemplated in European territories, such as Norway. In this sense, it should be the same rules concerning this trade, indistinctly the national Law applicable to the tanker, in order to avoid legal loopholes.

As well as, external domestic bodies as Classification Societies play such an important role in order to certificate and evaluate the availability of the tankers. However, these are private companies that certificate under its point of view. In my opinion, as the trade of LNG by vessel is growing up, those potential countries should harmonize its rules in order to facilitate and proportionate an effective trade.

## **7. SUMMARY**

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1. The EEA Agreement
2. Directive 2009/73/EC concerning common rules for the internal market in natural gas and repealing Directive 2003/55/EC

##### *Norwegian law*

1. The Norwegian Maritime Code
2. The Norwegian Constitution
3. 29 November 1996 No 72 relating to Petroleum Activities (the Petroleum Activities Act)
4. Regulations to Act relating to petroleum Activities laid down by Royal Decree 27 June 1997 pursuant to Act 29 November 1996 no. 72.

##### *American law*

1. Port and Tanker Safety Act of 1978
2. The Code of Federal Regulations

#### **CONTRACTS**

ShellTime 4

ShellLNGTime 1

#### **CASE LAW**

##### *Norwegian*

ND 1976-342I

##### *American*

American Overseas Marine Corporation v. Golar Commodities LTD (The LNG Gemini)

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Sierra Club v. Dominion Cove Point

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Gard

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## **LIST OF ABBREVIATIONS**

LNG: Liquefied Natural Gas

NMC: Norwegian Maritime Code

PA: Petroleum Act

FERC: Federal Energy Regulatory Commission

USCG: United States Coast Guard

EPA: Environmental Protection Agency

SAT: Scheduled Arrival Time

CAP: Condition Assessment Program

SOLAS: International Convention for the Safety of Life at Sea

FOB: Free On Board

DES: Delivered Ex-Ship

SIGTTO: Society of International Gas Tanker Terminal and Operators

PLA: Port Liability Agreement

VTS: Vessel Traffic Services

CDC: Certain Dangerous Cargo

IMSBC: International Maritime Solid Bulk Cargoes