



OLT Offshore LNG Toscana
Press Kit
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1. OLT Offshore LNG Toscana S.p.A.

OLT Offshore LNG Toscana S.p.A. (OLT) is the company that developed and now owns and manages the floating regasification Terminal “FSRU Toscana”. The OLT Terminal represents one of the main projects of national interest for gas supply in Italy. At full capacity, the plant has a regasification capacity of 3.75 billion cubic metres per year, which corresponds approximately to 4% of the annual national gas requirement.

OLT Offshore LNG Toscana was set up by some of the major industrial companies in the domestic and international energy sector, that hold the shares of the company:

IREN Group, holding the 49.07%, is a multi-utility listed on the Italian Stock Market and operates in the sectors of electricity (production, distribution and sale), heat energy (production and sale), gas (supply, distribution and sale), management and delivery of integrated water services, environmental services (waste collection and disposal) and services for Public Administrations. Within IREN Group is included also the share of 5.08% of ASA-Company Environmental Services of the Municipality of Livorno, another shareholder of the company.

Uniper Global Commodities SE, holding the 48.24%, is a leading international energy company with operations in more than 40 countries and roughly 13,000 employees. Its primary role is the reliable supply of energy and related services. Its core activities include the production of electricity in Europe and Russia, together with global energy trading. The company is headquartered in Düsseldorf.

Golar LNG, holding the 2.69%, is an LNG shipping company, belonging to the Fredriksen Group (owner of the largest oil tanker fleet in the world), engaged in the acquisition, ownership, operation and chartering of LNG carriers and FSRUs.

Overall IREN Group, also through the subsidiary company ASA, and Uniper hold about 97.31% of the shares. The governance remains equal between the two main shareholders.



2. The project

The OLT project consisted in the conversion of an existing LNG carrier ("Golar Frost") into a floating regasification terminal, which transforms the liquefied natural gas (LNG) back to its normal gaseous state.

"FSRU Toscana", through a mooring system, is permanently moored about 22 km off the Italian coast between Livorno and Pisa, in the Region of Tuscany, with a single point of rotation at the bow in order to allow the ship to move around the anchorage turret, adapting to sea weather conditions.

The Terminal is connected to the mainland through a pipeline of 36.5 km (29.5 km at the sea, 5 km in the floodway, the remaining 2 km on dry land), completely underground and directly connected to the Italian National Grid.

At full capacity, the plant has a regasification capacity of 3.75 billion m³ per year (covering roughly 4% of the national requirement), a maximum regasification capacity of 15 million Sm³ per day and a storage capacity 137,500 m³ of LNG.

The Terminal (out of water) has the following features: length 288.6 meters, width 48 meters, height 26.5 meters.

The project started in 2002 and it underwent a long and complex permitting process, which implied a significant extension of the project's realization timeframe. The connection pipeline was constructed and is currently managed by Snam Rete Gas. The works started in December 2009 and ended in August 2012.

The Terminal was realized by Saipem S.p.A. The works, started in Dubai in June 2009 at the shipyard Drydocks World Dubai, ended in June 2013, when the Terminal sailed away to reach the Italian coasts. "FSRU Toscana" arrived in Livorno on July 30th 2013.

Meanwhile, the mooring system which anchors the Terminal to the seabed (120 meters depth) was completed - through 6 anchors installed in situ - and the connection to the undersea pipeline for the onshore transport of regasified gas was concluded.

At the beginning of September 2013, the commissioning period started with LNG on board the Terminal. The certification authority RINA validated the correct conclusion of these operations. The commissioning phase of the plant was successfully finalized on December 19th 2013. As a result, on



December 20th 2013, OLT Offshore LNG Toscana started its commercial activities. Following the positive results of the commissioning by the Interministerial Committee as per art. 48 RCN, the Ministry of Infrastructures and Transports issued the final Commissioning Authorization for the operations of the Terminal on March 17th 2015.

From an engineering point of view, the FSRU - the first floating LNG terminal in the world permanently moored offshore - represents a case of excellence in the LNG field, for the structure, the design and the long and complex authorization process and for the certifications obtained in terms of safety and environment.

With the aim to improve the Terminal's flexibility, on May 2015 OLT requested the competent Authorities the possibility to receive LNG ships belonging to the "New Panamax" class, which represent the new standard of the carriers under construction and therefore will cover around 90% of the future LNG carriers available on the market.

The Ministry of Environment issued the Decree prot. 0398 on November 9, 2015 by which he authorized the increase of the capacity limit of carriers that can approach the terminal up to 180,000 m³, keeping unchanged the maximum authorized annual regasification capacity of 3.75 billion m³ of natural gas.

The Terminal will be able to receive LNG carriers belonging to "New Panamax" class as soon as the transposing of the necessary modifications in the Regulation of the Terminal activities will be completed; this procedure is ongoing at Port Authority in Livorno.

Moreover, this would allow to receive in the coming years the LNG carriers from the new liquefaction terminals currently under construction / project in the United States. Eventually, the expansion project of the Panama Canal, which is expected to be concluded in 2016, will allow the transit of LNG carriers with this size and, once the work will be completed, the Canal will become the new mandatory route that will connect the Atlantic with the Pacific basin, making possible connections that at present are not economically feasible.



3. The steps of the regasification cycle

The regasification Terminal “FSRU Toscana” was realized using safe and well-proven technologies. All the subsystems and components are largely used in various sectors of the oil and gas industry.

The steps of the regasification cycle are:

1. Unloading of LNG and storage in the regasification Terminal’s tanks

During operation, the LNG is unloaded by direct transfer, through four unloading arms, from LNG carriers moored to the Terminal (“side-by-side configuration”).

2. Regasification - LNG is brought back to its gaseous state

The stored LNG is then sent to the regasification module, where it undergoes an increase in temperature and it is brought back to the gaseous state.

3. Gas sendout in the national grid

The gas is sent to a depth of 120 metres, through two flexible pipelines, and it is then injected into an undersea pipeline which is part of the national grid.

4. Safety aspects

The **CTR - Regional Technical Tuscany Committee** - concluded the authorization process related to safety aspects of the Terminal with the approval of the Final Safety Report, on December 2012, and with the positive verification of prescription's compliance, obtained by the CTR on 02/04/14.

Moreover, on 02/04/15 OLT sent to CTR, as per regulations, the update of the Safety Report, that represents the accord of all the information and evaluations to the configuration "as built" of the project and includes the



evidence of acknowledgement of all the prescriptions issued by the Competent Authority during the former authorization process.

OLT, with letter on 17/03/15 prot. 132, also presented to CTR the declaration of non risk-increasing according to Italian Legislative Decree 334/99 (today replaced by Legislative Decree 105/15 - Seveso III) equipped with technical documentation to apply for the permission to receive LNG carriers with capacity greater than 155,000 m³. This procedure was successfully completed with response by CTR on 23/06/2015 prot. 0012505, that authorized the increase of the cargo capacity of supply ships up to max 200,000 m³.

Prevention and safety measures adopted by the regasification Terminal "FSRU Toscana" and highlighted in the Safety Report are divided into measures related to the plant and the operational measures.

The standards for the design and the construction of the equipment and the plants were essentially aimed at eliminating the possibility of off-site releases.

As a result tanks, piping, pumps, valves and the operating systems in general have been constructed in accordance to specific standards, considering the materials to be used and the resistance in the hardest operational conditions with particular reference to the coupling and connection systems between pipes and equipments. These systems were realized considering all the precautions aimed at mitigating the evolution of any possible relevant incidents, with the aim to limit the relative damages.

The operative prevention of eventual incidents on the Terminal is mainly based on a Safety and Management System. This system has already been developed by integrating naval aspects (ISM Code: International Safety and Security Management) and procedural aspects (the management system is in accordance with the requirements of the law related to the high risk plants and it is certified ISO 9001 and ISO 14001).

Particular attention (by the application of the system illustrated above) is dedicated to the monitoring of process systems, to the control of the navigation in the area surrounding the Terminal, to the realization of correct inspection procedures and scheduled maintenance (considering also the "risk assessment" of the different equipment), to the behaviours to be followed in case of emergency, in compliance with the internal emergency plan and the relative procedures, in order to mitigate the evolution of any incident both in terms of environmental and safety.

Moreover, in the Safety Report – both in the planning and in the realization of the safety system – all the recommendations and the observations provided by the group of international experts, appointed by Tuscany Region,



have been considered in order to evaluate the project. The incidental analysis and the relative impact both on population and vulnerable sites considered the following aspects:

- The Terminal is located offshore approximately 22 km off the Tuscan coast between Livorno and Pisa, in an area characterized, within a range of about 12 nautical miles, by a population density equal to zero and with no vulnerable territorial elements;
- The Terminal is constantly monitored by a guardian vessel (LNG Guardian), a well-advanced naval vehicle planned and realized as a support unit in case of emergency with specific equipment against fire and pollution and for the monitoring of the area forbidden to navigation;
- A circular area of interdiction to navigation around the Terminal was prescribed by CTR Tuscany, in compliance in the Ordinance no. 137/2013 of the Port Authority of Livorno. In particular: an circular area of interdiction to navigation, with an indicative radius equal to 2 nautical miles (3.7 km); a limited traffic area, contiguous to the previous one and included between 2 and 4 nautical miles, in which a radio contact is foreseen with the naval units in transit, by the control system of the Terminal, and the possible intervention of the guardian vessel in order to guide them towards routes which not interfere with the Terminal; an area of notification, contiguous to the previous and included between 4 and 8 nautical miles, in which the monitoring and the tracing of the routes of ships in transit is considered.

Moreover, in the Safety Report it was highlighted that the effects of relevant incidents considered as possible have no impact on the population and on any vulnerable site. This result guarantees a safety level considerably higher compared to an onshore Terminal.

As a further guarantee in terms of safety, in 2014 was reached an important record for this field: in more than 78,000 trips of LNG carriers all over the world over the last 50 years of activity there were no relevant incidents (SIGTTO Source).

5. The environmental sustainability of the project

The project obtained all the necessary authorizations in terms of environmental sustainability, in particular: EIA - Environmental Impact Assessment, SEA - Strategic Environmental Assessment and IEA - Integrated Environmental Authorization. The results of EIA and IEA highlighted the possibility of a real co-existence of the floating unit with the assets present on the territory.

In particular, the EIA allowed OLT to start the operation phase of the Terminal, considering different environmental aspects related to the regasification activities (such as garbage, noise, etc.), with particular reference to the emissions into water and air. The expected emission values are consistent and, in some cases, fully below the limits imposed by law. The EIA, instead, considered the factors connected to the choice of the site, to the co-existence with the activities present in the area, together with the possible visual impact.

During the authorization process, to protect the territory and the environment, ISPRA and the Ministry of the Environment prescribed a series of monitoring activities for the whole life of the plant, with specific regard to the emissions into water and air. In particular, there is a continuous monitoring system of the emissions into the air (CEMS), that implied the installation of a specific instrumentation in order to measure the multiple emissive parameters, including NO_x (nitrous oxide), on each emissive duct of the two boilers on board the Terminal.

The monitoring of the main drains of the Terminal, specifically of the water's drain necessary for the regasification activity, was prescribed. This kind of monitoring required the installation on board of a series of particular instruments that allow to verify continuously the content of free active chlorine, of the flow of water to the drainage and of the difference between the temperature of the water at the inlet of the Terminal and at the outlet of vaporizers.

Furthermore, the Ministry of the Environment, within the EIA procedure, requested, for the whole operative life of the Terminal (20 years) – including the year previous to the installation of the plant and the year after its disposal – a well structured "Monitoring Plan of the Marine Environment" around the Terminal, in order to keep under control the potential environmental effects of the plant. This plan requires the realization of 4 physical-chemical, biological and eco-toxicological monitoring campaigns per year focused on: the water column, the sediments, the biological environment, the measurement of undersea noise, the morphology of the seabed. The



Interuniversity Centre of Marine Biology and Applied Ecology "G. Bacci" of Livorno won the realization of this monitoring.

MATTM, in accordance with ISPRA, concluded positively the **Control of Compliance with the emission of the Determination protocol DVA-2012-001592 of the 15/05/2012.**

The CIBM reports every year the campaign results – 4 campaigns report – that are published on MATTM website.

First monitoring phase (BIANCO), realized before the OLT Terminal installation, was made between August and September 2012 and then concluded (between 21 and 28 September 2013), with the 2nd survey concerning the fish fauna.

On 21/02/2013 OLT sent a report with the monitoring concerning the phasis 'ante operam' (BIANCO) and with decision prot. DVA – 2013 – 0030107 on 23/12/2013 MATTM acknowledged complied the Prescription n.7 concerning the realization of that monitoring.

On 11/03/15 OLT sent to the competent Authorities the annual report including the environmental surveys carried out during the first operational year of the Terminal; on 19/04/2016 OLT sent the Report concerning the second operational year of the terminal. The results of this analysis demonstrated that, during the first two years, there were no situations of potential risk for marine flora and fauna. The results of the monitoring campaigns are available on the Ministry of Environment website.

Some more details:

- Liquefied Natural Gas

There is no risk of pollution of sea water related to an eventual spill of LNG (which is substantially methane, as the one used for domestic activities). The LNG, in fact, once in contact with the air, would pass immediately to the gaseous state dispersing into the atmosphere.

- Chlorine

Chlorination is the chemical antifouling method more used worldwide for its effectiveness at all levels, both civil (drinking water) and industrial (cooling circuits with sea/water, fresh water or sewage). Within the sea/water circuits, chlorination is carried out by dosing of sodium hypochlorite (NaClO) produced on board by electrolysis of sea water itself. Therefore, this process does not required the external addition of chlorine into the sea water, but transforms the chlorine, already contained in it, in a form useful to perform the function antifouling. The quantities of free active chlorine released into the sea are, in any way, significantly lower than those prescribed by national regulations on discharges to water (Environmental Unique Text).



Moreover, levels of discharge of this parameter were carefully valued by the competent authorities, which proceeded to issue the necessary authorizations. Finally, the concentration of free active chlorine into drainage is subject to a constant control and monitoring during the activity by OLT and by the Authorities. In particular a continuous monitoring of the main drainage is provided.

- Water temperature

The temperature variations of the sea water were analysed by the competent Authorities and are continuously monitored and controlled by OLT and by the Authorities (in particular, a continuous monitoring of the temperature difference between the inlet and the drainage system of vaporization is prescribed).

- Noise

Particular attention was dedicated to sound emissions that are generated by the activity on the regasification plant. In this sense, the noise produced on board the Terminal equipment was verified to be lower than the one produced by similar ships moving through the area, considering that "FSRU Toscana" has no engine, hence there is no propulsion noise released into the water. During the authorization procedures it has been clarified that, given the location of the Terminal, there is no impact on the population or on sensitive targets located in proximity of the plant. Anyway, OLT will carry out a specific monitoring of undersea noise during the whole life of the Terminal, as agreed with competent Authorities. The first year of monitoring shows that the levels of noise produced by the Terminal during the exercise, measured experimentally, are significantly lower than the hypothesis made during the analysis of the project and that how was authorized with the relative measures.

6. The socio-economic benefits for the territory

In line with the policy of the main shareholders, OLT manages its business in a responsible way. This means maximum standards on safety and the environment as well as a particular sensitivity to the socio-economic needs of the territory that hosts the infrastructure.

In terms of business approach, OLT is a company certified by Bureau Veritas, one of the leading players in this field at an international level. The certifications obtained by OLT are related to the quality of the management system (ISO 9001) to the respect for the environment (ISO 14001), to the



safety and the health of the workers (OHSAS 18001) and to the social responsibility (SA 8000). In the next future, the company would obtain also the EMAS certification, as a further guarantee's element from an environmental point of view.

Moreover, ECOS – joint venture between the Consortium Exmar Shipmanagement (international group operating in the LNG transport) and the company F.lli Cosulich (Italian company operating over the last 50 years in the shipping field) responsible of the operative management and of the crewing on board the Terminal – obtained the certifications: ISO 9001:2008, ISO 14001:2004 and OHSAS 18001:2007.

The plant provides a significant contribution to employment in the territory. Overall, 121 persons are permanently employed. In particular, 19 persons are employed in the OLT's office in Livorno. ECOS employed 63 persons and F.lli Neri, a company of Livorno leader in the management of naval vehicles at the service of the Terminal, employed 39 persons.

From an economic point of view, the OLT industrial initiative guarantees important opportunities first of all to the territory of Livorno, where the main investments are concentrated, but also on the other municipalities interested by the plant. In particular, the economic impact at a local level is estimated at around 400 million euro in the next 20 years, which is the Terminal's expected life term. This amount includes a series of specific activities: from the management and the maintenance of the Terminal to the surveillance system, from the direct occupation to all the other services related to the environmental protection.

In particular:

1. OLT collaborates with many local companies, specialized in the fields of repair, maintenance, purchasing, warehousing and transportation, for the organization and the execution of activities related to the ordinary and extraordinary maintenance of the plant. **This activity generates an economical spin-off equal to about 10 million euro a year.**
Overall benefits for 20 years: 200 million euro.
2. OLT signed 3 contracts for the activities of naval support (**overall value: 8 million euro a year**) related to the tug boats service for the mooring of the LNG carriers to the Terminal (4.5 million euro a year for 2 tug boats), to the transport of personnel on board the Terminal (0.6 million euro a year) and to the surveillance service of the Terminal by the Guardian Vessel "LNG

Guardian" (2.6 million euro a year in operation) and for the Marine Base (about 0.3 million euro a year).

Overall benefits for 20 years: 160 million euro.

3. The collaboration with the Consortium of Marine Biology and Applied Ecology (CIBM) of Livorno generates an economic benefit of 950.000 euro a year, due to the provision of a twenty-year programme of monitoring for marine, physical, biological, chemical-physical, bathymetric and eco-toxicological surveys which will be carried out.

Overall benefits for 20 years: 19 million euro.

4. The fee for the occupation of state property amounts to approximately 0.5 million euro a year.

Overall benefits for 20 years: 10 million euro.

Many other economic benefits on the territory will be possible thanks to OLT financial commitment on projects that involve the area as environmental compensation.

1. With reference to the **environmental compensations related to the EIA Decree**, OLT signed 2 specific conventions with the Municipality of Livorno and the Municipality of Collesalveti for a total amount of 1 million euro. Currently the procedure for the approval of the Scheme of the Convention by the Committee of the Municipality of Pisa is on going. It will be signed between OLT and the Municipality for the definition of the details related to the contribution.

In particular:

- The **Municipality of Livorno and the Province of Livorno** proposed two projects:
 - a contribution to the realization of the Visitors Centre of the Marine Protected Area "Secche della Meloria", amounting to 400 thousand euro.
 - a contribution of 80 thousand euro for the realization of an environmental characterization of the sites along the coast of Livorno, aimed at the revision of the Structural Plan and of the Urban Regulations of the Municipality of Livorno.

- The **Municipality of Collesalvetti and the Province of Livorno** requested the financing of a project of environmental requalification of the urban centre of Stagno with a total contribution of 420.000 euro.
- The **Municipality of Pisa and the Province of Pisa** requested the financing for the realization of an equipped park in the public area "La Camilla" at Marina of Pisa for an amount of 100.000 euro. The convention was signed on 21st March 2016, in order to proceed with the supply of this contribution.

2. For the **Municipality of Pisa**, OLT concluded the public procurement tender to award the works concerning the first stage of the **Opening of the Incile Canal**, the link between Arno and Navicelli Canal, in order to make the navigation possible again from the centre of Pisa to the Port of Livorno. The administrative procedure was also finalized. The project is a part of the agreement signed between OLT Offshore LNG Toscana, the Province and the Municipality of Pisa. During the first phase of works, the waters and the sludge of a section of the canal were removed. On May 2013 the company Forti S.p.A. won the tender for the works of the first phase. On June 2013 the tender notice for the realization of the definitive infrastructure was published. On October 2013 the tender for the works of opening of the Canal was concluded. The company Forti S.p.A. provisionally awarded the contract to perform the works. On February 2014 the contract between OLT and Forti S.p.A. for the executive design and for the works of conclusion of the canal was signed. During the month of June 2014 the activities for the dredging of the Canal started and ended in August 2014. As a result, during the month of September 2014 the works for the completion of the Canal started: in the first phase the works for the definitive dismantlement of the structure containing the so-called "ghigliottina", an hydraulic protection of the Canal, begun. Moreover, the works of "palancolatura" (i.e. a metallic wall) of the merger of the Canal in the Arno, considered an hydraulic protection, started and then ended between November and December 2014. Another important step within this project were the works for the extraordinary maintenance of the "rotating bridge" in via XX Settembre, with the aim to make it operating again, that started in February 2015 and concluded in April 2015. During the summer (from June to September), the works at the merger in Arno started, aimed at the dig of the embankment in order to place the gate "porta vinciana" for the embankment defense; this working is ongoing and it will be concluded within November 2015. The next step will be the installation of two vinciana gates more, inside the canal, and eventually the realization of the new bridge on Via Livornese.



The second stage of works is ongoing, for an overall value on an auction awarding system of about **4.8 million euro**. The works are expected to end by the end of 2016, as indicated in the work schedule of the project.

3. Compensation in accordance to the Unilateral Act of Submission signed by OLT on 26/07/05. The Tuscany Region, with the Deliberation n. 151 of 03/03/14 of the Regional Committee, assigned this contribution to the **Municipality of Livorno**: 500.000 euro a year for 5 year for the realization of the service of door-to-door waste collection for a total amount of **2.5 million euro**. The Convention between OLT and the Municipality of Livorno in order to define the modalities for the supply of the contribution was finalized on 15/04/14.

4. Compensation in accordance to the Agreement signed with the Municipality of Collesalvetti on July 12nd 2005: a co-financing of the project for the realization of a Centre for separate waste collection in Stagno for an amount of **100.000 euro**. The project was inaugurated on 28/02/14.

7. The authorization process

The main steps of the authorization process are:

- **5th November 2003 – Preliminary Safety Report**, pursuant to law no. 334/99 of 05/11/2003 (at present D.Lgs. 105/2015), authorization for the construction of the plant for the safety aspects under the responsibility of the CTR, Regional Technical Committee;
- **20th July 2004 – Strategic Environmental Assessment (VAS)** by the Tuscany Region with Regional Council decision no. 28;
- **15th December 2004 – Environmental Impact Assessment Decree (EIA)** of Ministry of the Environment no. 1256 for the whole project, with the favourable opinion of the Tuscany Region and the agreement of the Ministry of Cultural Heritage;
- **23rd February 2006 – Ministerial Decree by Ministry of Economic Development** for the authorization to construct and operate the regasification Terminal and the subsea gas pipeline;
- **20th November 2006 – Authorization Decree by the Ministry of Economic Development** for the authorization to construct and operate the onshore gas pipeline;
- **2nd July 2008 – Purchase of LNG carrier ‘Golar Frost’** by OLT;
- **10th December 2008 – Offshore land concession** no. 469 , issued by the Ministry of Infrastructure and Transport and signed on 10/12/2008 with the Port Authority of Livorno, for the occupation of the offshore area where the unit is located and the area occupied by the subsea pipeline connecting the unit to its arrival point onshore;
- **11th May 2009 – Permit for the movement of the seabed** no. 19/2003 pursuant to Regional Law for the laying of the pipeline in the floodway and of the anchors by the Province of Pisa and following update (2012);
- **21st June 2009 – The ship Golar Frost entered the shipyard Dubai Drydocks World (DDWD)** to start the unit’s conversion works;
- **20th October 2010 - Exclusion of the application for the procedure of Environmental Impact Assessment** for the changes improved on the Terminal during the phase of Executive Engineering (2010) with the measure of 20/10/2010, prot. no. DVA-2010-0025280;
- **14th June 2012 – Request of Offshore land concession variations:** the request for the modification of the Land Concession was requested because of the change of the route of the pipeline into the sea consistent with the compliance to the environmental prescription.

On 28/05/2010 the Land Concession Variations Act no. 469, pursuant to art. 24 of Navigation Laws (Supplementary act) was signed by OLT and Livorno Port Authority, then registered by the Ministry of Infrastructures

and later approved by the Court of Auditors. Moreover, on 14/06/2012, OLT and Snam Rete Gas (SRG) have signed the Supplementary Act no. 472 with which SRG took over from OLT to the Land Concession related to the pipeline. This Supplementary Act has been duly approved by Decree of the Ministry of Infrastructure and Transport and registered by the Court of Auditors.

- **1st October 2012 - Exclusion of the application for the procedure of Environmental Impact Assessment** for the design's update related to the typology of LNG carrier compatible with the Terminal and the related number of ships approaching the Terminal with measure of the Ministry of Environment prot. no. 23515;
- **2nd October 2012 - Exclusion of the application for the procedure of Environmental Impact Assessment** for the changes improved on the mooring system with measure prot. no. 23531;
- **12th December 2012 - Approval of the Final Safety Report pursuant to Legislative Decree 334/99 (at present D.Lgs. 105/2015) for the emission of "Conclusive Technical Opinion"**. The Definitive Safety Report was approved with note no. 21396 on 12/12/12 by CTR Tuscany with the emission of Conclusive Technical Opinion.
On 02/04/2014 CTR acknowledged complied the prescriptions concerning the Final safety Report.
- **15th March 2013 - Integrated Environmental Authorization**. The AIA Decree was issued by the Ministry of Environment with prot. 0000093;
- **19th July 2013 - Ordinance for the safety of the navigation** no. 137/2013 issued by the Port Authority of Livorno in order to define the areas where navigation is forbidden;
- **20th December 2013** - the Ministry of Infrastructure and Transports, on the basis of the Memorandum of the Local Commission, issued the **Authorization for the Provisional Exercise** of the plant;
- **29th January 2014** - Ordinance no. 06/2014 issued by the Port Authority of Livorno that approved and made operative the **Regulation of the Terminal's activities**;
- **29th January 2014** - OLT obtained by CTR the **declaration of no increase of risk** in order to allow also the use of LNG carriers with capacity of 155,000 cm;
- **2nd April 2014** - CTR acknowledged complied the prescriptions concerning the Final Safety Report;
- **17th March 2015** - Following the positive results of the commissioning by the Interministerial Committee as per art. 48 RCN, **the Ministry of Infrastructures and Transports issued the final Commissioning Authorization for the operations of the Terminal**;
- **23rd June 2015** - OLT obtained by CTR **the authorization to receive LNG carriers with a capacity up to 200.000 m³**



- **9th November 2015** - the Ministry of Environment, Land and Sea issued the Decree of exclusion from the EIA procedure with which the increase in the limit of capacity of carriers that can approach the terminal up to 180,000 m³ was authorized as well as the increase of the thermal gradient related to the seawater necessary for the regasification up to a hourly average value equal to -6.0 ° C, while maintaining a same quantity of annual frigories.
- **14th April 2016** - Authorization of the Maritime Authority of Livorno for the mooring to the Terminal of “New Panamax” vessels, with capacity limits authorized by the Ministry of Environment with provision prot. 0398 of 9/11/2015.
- **25th July 2016** - **The Ministry of Economic Development issued the final Commissioning Authorization for the operations of the Terminal.**

8. Commercial aspects

Preliminary remarks

The floating regasification terminal "FSRU Toscana" started its commercial activities on 20th December 2013, by offering the first Delivery Slot. Starting from this date, on equal and not discriminatory terms of access in accordance with the regulation, OLT made the regasification capacity of the terminal available to all the players of the market.

The regasification contracts

Starting from the beginning of commercial activities, in the “Business Area” of the website, OLT makes available all the documents useful to request a Delivery Slot. The documents to request the Delivery Slot for the Gas Year 2016/2017 are now online.

In line with the deadline provided for by law and with the allocation procedures of the other Italian terminals, OLT starts the allocation processes of regasification capacity on multi-year / annual and monthly terms, according to the timing provided for by the Access Code. The interest of the operators will be formalized as part of the allocation procedure above.



The market scenario and the supply contracts

The LNG market has dramatically changed in recent years. Long-term regasification contracts have become the so-called 'SPOT' contracts.

Currently, long-term contracts – the ones available on the market until a few years ago – are not economically viable; in fact the operators who subscribed long-term contracts in the past are gradually trying to renegotiate them and to replace them with SPOT contracts, following the evolution of the European markets. Gas Stock Market was born in a lot of countries, especially in Northern Europe where this process is now at an advanced stage. In fact short-term prices were more profitable than long-term contracts, also considering the risk decrease as well as the obligations related to the extension of the contracts. The OLT Terminal is the first regasification plant that had to face this new reality.

Our goal is to make the terminal as much as possible usable by national and international operators and adapt to the new market logics. To date, therefore, we are authorized to receive approximately 90% of the fleet of LNG carriers currently in service, with a cargo capacity between 65,000 m³ and up to 180,000 m³ (class "New Panamax"), subject to the the maximum authorized regasification capacity of 3.75 billion m³ of natural gas.

This flexibility allows the terminal user to take advantage of market opportunities that will affect the Mediterranean area in the coming years.

Each LNG carrier is subjected to a detailed process of technical compatibility and once approved, the ship is listed in the commercial area of our web site, to which all potential users may have free access.

Thanks to this increase of flexibility the OLT Terminal is able to take the opportunities offered by the LNG changing market, in view of the entrance in the market of new operators that actually can not be connected to Italy by pipeline. This opportunity also represents a guarantee in order to reduce the risks that occur again and again on imports (from Africa due to political events and Russia due to the known issues related to transits in Ukraine).



9. Regulatory aspects

With the Decree of 03/09/2014 the Ministry of Economic Development, considering the Resolution 4/2014/I/GAS issued on 16/01/2014 by the Authority for Electricity and Gas on the favourable opinion on the renounce to the exemption, approved the request for the renounce to the exemption with effect from 20/12/13, the date of the start of the commercial activities of the LNG Terminal.

The Decree was notified by the Ministry of Economic Development to the European Commission on 17/09/14.

With the Decision of the Commission of 09/01/15, in compliance to the art. 22 of the Directive 2003/55/CE, the Commission issued favourable opinion on the renounce to the exemption.

Following to the issuing of the Decree, that provided for the “guarantee factor” to the plant in case of non subscription of commercial contracts, the company launched the tender for the Peak Shaving service for the second consecutive year (please see below).

Thanks to this service, that makes available – in case of peak request – an immediate insertion of 15 million cubic meters of gas a day, OLT allows not to burden on the system the cost of gas’ interruptible – about 70 millions euro a year – and the cost of the maintenance on stand-by of the fuel oil plants – about other 90 million euro a year. Overall, it represents a saving in the bill of 160 million euro, about twice the cost of the maximum guarantee factor recognized to the company.

10.Environmental and economic sustainability of the OLT Terminal

The decision of the Ministry of Economic Development to include the OLT Terminal in the regulated system has to be interpreted with the maximum attention to some issues often underestimated.

It’s necessary to clarify that the system did not legislated for this infrastructure. Since 2005 the regulation provides a contribution of the system for the



terminals in case of insufficient use of the “regulated” infrastructure, in order to guarantee a minimum financial return also without the subscription of long-term contracts. It’s a principle established to facilitate the competition and incentivize the construction of plants – as other infrastructures of the system – which have to operate for 20 years. The topic of the discussion should be focused on three aspects:

1. The plant represents an opportunity for the safety of our gas supply system and was defined by the Ministry for Economic Development as an essential and indispensable infrastructure for the safety of the National Gas System;
2. The integration of the Terminal in the regulated system allows a cost rationalization for the whole Country, that permitted a saving in the bill of 160 million euro, about twice the cost of the maximum guarantee factor recognized to the company;
3. The plant is consistent with the strategic directives carried on by the European Union in terms of reduction of polluting emissions.

Another important theme is related to the use of LNG as a clean fuel for marine and land transport in our Country and to the related centrality of OLT Terminal within this project. As required, in fact, by the Directive 2012/33/UE, transposed in our legislation with D.Lgs. no. 112 of 16/07/14, it will be necessary to use cleaner fuels in order to drastically reduce polluting emissions in the transport sector.

In particular, with reference to marine transport, from 2015 the IMO Regulation considers the inclusion of the North Sea and Baltic Sea in the areas so called SECA (Sulphur Emission Control Areas), where ships won’t be able to use marine fuels containing high levels of NO_x and SO_x. The European Commission identified LNG as the perfect fuel considering the environmental performance that it can guarantee. This means that it must be realized a well-structured chain, ruled by a specific regulation. However the starting point is to count on the easy supply of LNG.

The OLT Terminal can play a decisive role in Italy, being the only Terminal with this feature, as shown by the working group created by the Ministry of Economic Development about the potential development of this new sector. In this perspective, a specific feasibility study, co-financed by the European Commission “Sea Terminals” funding program, showed that, with minor modifications, the OLT Terminal will be able to become a LNG “bunkering station” due to its capability to perform the transfer of the LNG on a range of possible LNG Shuttle Carriers approaching our Terminal through



the bunkering operation of mini LNG carriers, for the supply to the major ports located in the north of the Mediterranean Sea. A sort of "service stations" could be realized in the ports at which both ships and land vehicles that use LNG could refuel.

The conclusion of the works of the working group is expected by the end of summer, with the consequent emission of the National Plan for LNG utilization.

In general terms, the National Energy Strategy evidenced the necessity to realize – in addition to the OLT Terminal – also another plant with a twice capacity compared to the one of Livorno, in case TAP project will effectively realized. Otherwise, other infrastructures have to be constructed in order to guarantee an additional 16 billion cubic meters a year for the Italian market. Every country, in fact, outlines its economic development strategies based on a long-term analysis, not with reference to market trends.

11. The "Peak Shaving" service

The Peak Shaving service is one of the emergency measures established by the Decree of the Ministry of the Economic Development within the "Emergency Plan" to face unfavourable events for the national gas system, which may happen during the winter period and to guarantee the security of the Italian Gas System. In case of emergency this service would allow to insert gas in the network - previously unloaded and stocked into the tanks of the Terminal - at short notice, with the aim to face peak requests of the gas system for a limited period of time.

On 19th October 2015 the company OLT Offshore LNG Toscana launched the tender for the Peak Shaving service for the third consecutive year. Starting from October 19th 2015 to November 18th 2015 it was possible to view and download from the website of the company (www.oltoffshore.it) all the documents necessary to participate in the public tender procedure. On December 13th 2015 the operations of discharge of liquefied natural gas (LNG) were concluded. The LNG was unloaded by the LNG carrier Gaslog Saratoga, vessel with a capacity of 155,000 cubic meters, one of the largest LNG carriers so far discharged in Italy.

For further information and more details on the service please visit the dedicated area on the website:



<http://www.oltoffshore.it/en/business-area/regasification-services/regasification-services-peak-shaving/procedure-peak-shaving-2015-2016/>

1. The Regasification and Storage Bundled Service

Pursuant to a specific Decree of the Italian Ministry of Economic Development and to a defined provision of the AEEGSI, both issued in the first quarter of 2016, from May to August 2016 OLT, as all the other Italian terminals, offers capacities for the regasification and storage bundle service. The service foresees that a quantity of regasified natural gas equivalent to the LNG delivered, will be stored by the Italian storage company Stogit and made available to the User starting from the end of the following month. The LNG terminals and Stogit will coordinate the physical management of gas flows from the LNG carrier to the storage sites.

On April 20th 2016 the procedure for the allocation of capacity of the regasification and storage bundled service referred to the Storage Gas Year 2016/2017 was successfully completed. Upon 1 billion cubic metres of storage capacity auctioned, 500 million cubic metres have been successfully allocated. Taking into account the operational limits of the Italian Storage, it was possible to allocate to OLT a total of 440 million cubic metres of natural gas that will be injected into the Stogit storage system.

This represents a very good result for the Italian LNG market both in terms of Mediterranean LNG market recovery and in particular for FSRU Toscana, confirmed to be an important Italian infrastructure capable to incorporate the international LNG business needs.

This measure is part of the Italian strategy to guarantee the security of energy supplies and FSRU Toscana Terminal is therefore playing an important role.

For further information and more details on the service please visit the dedicated area on the website:

<http://www.oltoffshore.it/en/business-area/regasification-services/regasification-services-bundled-service/regasification-services-storage-gas-year-2016-2017/>



13. Numbers and timing of the project

- "FSRU Toscana" main features: length overall 306.49 meters, breadth 48 meters, moulded depth 26.5 meters
- 12 miles (about 22 km): Terminal's distance from the coast
- 3.75: billion of LNG cubic meters per year regasified by the plant
- 4%: the national gas requirement that the plant could satisfy
- 36,5 km: total pipeline length (29,5 km at sea and 7 km on land)
- 6 meter: pipeline onshore depth
- 4 billion of LNG cubic meters: annual gas consumption of Tuscany Region
- 78,000: trips of LNG carriers in 50 years with no relevant incident
- About 850 million euro: project's total investment
- 05/02/13: launch of the Terminal "FSRU Toscana" in Dubai
- 02/06/13: sail away of the Terminal "FSRU Toscana" from Dubai
- 31/07/13: arrival of the plant at the installation site off the coast between Livorno and Pisa, after an activity of towing of about 40 days
- 19/12/13: conclusion of the commissioning phase of the plant
- 20/12/13: starting of commercial activities
- 17/03/15: the Ministry of Infrastructures and Transports issued the final Commissioning Authorization for the operations of the Terminal
- 25/07/16 - The Ministry of Economic Development issued the final Commissioning Authorization for the operations of the Terminal.



For further information: www.oltoffshore.it

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