



OLT Offshore LNG Toscana Press Kit 2020



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1. OLT Offshore LNG Toscana

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 infrastructures of national interest for gas supply in Italy. At full capacity, the Plant has a regasification capacity of 3.75 billion Standard cubic metres per year, which corresponds approximately to 5% of the annual national gas requirement.

The partners that hold shareholdings in OLT are:

Snam, holding the **49.07%**, is one of the world’s leading energy infrastructure operators and one of the largest Italian listed companies in terms of market capitalization. The company’s sustainable and technologically advanced network guarantees security of supply and promotes development in the areas in which it operates. It operates in Italy and through its international subsidiaries, Snam operates in Albania, Austria, China, France, Greece and the UK. It is also one of the main shareholders of TAP (Trans Adriatic Pipeline). The company has the most extensive transmission network among European peers and greatest natural gas storage capacity. It is also one of the main regasification operators in Europe.

First Sentier Investors, holding the **48.24%**, is an experienced global asset manager with over 8 billion euros of unlisted infrastructure capital under management, having been actively investing in long life infrastructure businesses since 1994. First State is an experienced owner of utility businesses across Europe and its current portfolio includes utilities in Estonia, Finland, France, Germany, Portugal, Sweden and the United Kingdom. FSI’s European Diversified Infrastructure Fund II (EDIF II) is a European domiciled, euro-denominated fund with a long-term buy and hold investment strategy.

Golar LNG, holding the **2.69%**, is an LNG shipping company specialized in the acquisition, operation and chartering of LNG carriers and FSRUs.

Overall Snam and First Sentier Investors hold about 97.31% of the shares. The governance remains equal between the two main shareholders.



2. The history of OLT

The regasification terminal "FSRU Toscana" is one of the main infrastructures of national interest for the import of LNG (Liquefied Natural Gas), in the service of the development and independence of the Italian energy system.

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

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, due to the modifications requested by the competent national institutions.

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. The connection pipeline was constructed and is currently managed by Snam Rete Gas (works from December 2009 till August 2012).

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 of RCN (Rule of the Code of Navigation), the Ministry of Infrastructures and Transports issued the final Commissioning Authorization for the operations of the Terminal on March 17th, 2015. On 25th July 2016 the Ministry of Economic Development issued the



final Commissioning Authorization for the operations of the Terminal and of the related connection pipeline.

From an engineering point of view, FSRU Toscana represents a case of excellence in the LNG field, for its structure, its design and the long and complex authorization process, as well as for the certifications obtained in terms of safety and environment.

Following the authorization obtained by the Ministry for the Environment and Protection of the Territory and the Sea (MATTM), by CTR for what concerns safety and by the Harbour Master of Livorno, at present the Terminal is authorized to receive around the 90% of the worldwide LNGc fleet, with a maximum cargo capacity between 65,000 and 180,000 cubic meters (New Panamax class), allowing the Terminal to maximize its receiving flexibility, keeping unchanged the maximum authorized annual regasification capacity of 3.75 billion Sm³ of natural gas.

In addition, the expansion project of the Panama Canal, concluded in June 2016, allows the transit of LNG carriers with this size and the creation of a new route between the Atlantic and the Pacific, making possible to create connections which were not economically feasible so far.

3. Plant

The Terminal, permanently moored about 22 km off the Italian coast between Livorno and Pisa, in the Region of Tuscany, transforms the liquefied natural gas, received by LNG carriers, back to its normal gaseous state.

“FSRU Toscana” is permanently anchored to the seabed through an advanced mooring system, with a single point of rotation at the bow in order to allow the ship to move around the mooring turret, therefore being able to adapt to different 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 buried and directly connected to the Italian National Grid.



The Terminal (out of water) has the following features: length 306.49 meters, width 48 meters, max height of the vessel 26.5 meters.

The plant has a maximum authorized regasification capacity of 3.75 billion Sm³ per year (covering roughly 5% of the national requirement), a maximum regasification capacity of 15 million Sm³ per day and a gross storage capacity of about 137,100 m³ of LNG.

The Terminal is equipped with a Wobbe Index correction system installed onboard, that enables to receive almost all the LNG produced in the world and to correct the LNG characteristics to meet the limits required by the Italian gas grid operator.

3.1 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. Receipt and storage of LNG in the regasification Terminal’s tanks

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

2. Regasification - LNG is reconverted into natural gas

The LNG stored in the tanks is then sent to the regasification module, where it is brought back to the gaseous state through heat exchange with sea water using propane as intermediate fluid.

3. Gas sendout in the national grid

Gas is sent to a depth of 120 meters, through two risers, and it is then injected into an undersea pipeline which is part of the national grid.



4. The LNG

The LNG (Liquified Natural Gas) is natural gas (mixture of hydrocarbons consisting mainly of methane and in lower percentages of ethane, propane and heavier hydrocarbons) that has been cooled down to liquid form for ease and safety of non-pressurized storage or transport. It takes up about 1/600th the volume of natural gas in the gaseous state (at standard conditions for temperature and pressure). It is odorless, colorless, non-toxic and non-corrosive.

LNG properties and reliability:

✚ IF LNG SPILLS INTO THE WATER

LNG does not dissolve in water and, in contact with the latter, it evaporates without mixing and without leaving any residue.

✚ LNG IS NOT TOXIC

If you pour LNG into a glass of water, once the gas has evaporated, the water can be safely drunk. It cannot pollute the sea or the groundwater.

✚ IN CASE OF AN LNG SPILL?

LNG is stored inside the plant in tanks at atmospheric pressure and at low temperatures (cryogenic): even in the remote event of spills, it would be dispersed in the air evaporating without leaving a trace. If the LNG spills onto the ground, it evaporates and leaves no residue to clean.

✚ CAN LNG BURN?

LNG is not flammable except in very particular conditions that cannot occur inside the regasification terminal or the LNG carriers (it should be in a closed and saturated environment, mix with an oxygen percentage between 10% and 15% and being simultaneously in contact with a source of ignition, for example open flames or sparks).

✚ CAN LNG EXPLODE?

Even when it comes into contact with fire, LNG does not explode or create flames, but creates a lazy flame that evaporates without creating any shock wave. In confirmation of this, it is known that in 1984, during the war between Iran and Iraq, the Gaz Fountain, an LPG (liquefied petroleum gas) which transported butane and propane, was hit by 3 missiles and caught



fire. The crew managed to put out the fire and subsequently to recover 93% of the gas load without further accidents.

5. 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, OLT sent to CTR, as per regulations (Leg. Decree 105/15), the update of the Safety Report, which represents the alignment of all information and assessments to the "as built" configuration of the project and includes evidence of the implementation of all the prescriptions issued by the Competent Authority during the previous authorization process.

The 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 operational measures.

The design and construction criteria of the equipment and the systems are 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, being used worldwide in similar plants, 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 equipment. These systems were realized considering all the preventive measures aimed at mitigating the evolution of major accidents and the limitation of their consequences.

The prevention of major accidents on board the Terminal is mainly based on a Safety and Management System. This system has been developed by integrating marine aspects (ISM Code: International Safety and Security Management) and the process ones (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 (through the application of the abovementioned system) 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 preventive 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 accident both in environmental and safety terms.

The incidental analysis and the relative impact both on population and vulnerable sites, which has been elaborated by the Safety Report and updated at any potential modification, considers the following aspects:

- The Terminal is located offshore approximately 22 km off the Tuscany 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 by the absence of territorial elements;
- The Terminal is constantly monitored by a guardian vessel (LNG Guardian), a state-of-the-art naval vessel designed and built ad hoc as a support unit in the event of emergencies with specific fire and pollution prevention equipment, and for monitoring the area closed to navigation;
- In order to guarantee the appropriate control and monitoring of the area around the Terminal, 3 different areas have been defined, in compliance with the Ordinance no. 137/2013 of the Harbour Master of Livorno:
 - *Area 1* "**Exclusion Zone**": a circular area with a radius of 2 nautical miles (3.7 km) in which navigation or any activity (fishing, stop, etc.) are prohibited;
 - *Area 2* "**Monitoring Zone**" contiguous to the previous one and included between 2 and 4 nautical miles, in which any activity is forbidden, except for the transit at a speed lower than 10 knots; this area is monitored by the FSRU (also using the onboard radar): any vessels passing through said area will be contacted by radio by the FSRU's control system and, if necessary, the guardian vessel may be used to guide them towards safer routes that will not interfere with the FSRU itself;



- **Area 3 “Observation Zone”**, contiguous to the previous one and included between 4 and 8 nautical miles, in which the stop is allowed only for necessity/emergency reasons, and only after having communicated the motivations to the Harbour Master of Livorno. The routes are also monitored and plotted by the Terminal (also using the onboard radar).

Moreover, in the Safety Report it was highlighted that the effects of possible major accidents do not affect the population or any vulnerable site. This result guarantees a significantly higher level of safety than an onshore terminal. As a further guarantee in terms of safety: in more than 40 years of activity no relevant accidents occurred on a regasification plant and in more than 78,000 trips of LNG carriers all over the world over the last 50 years of activity there were no major accidents (SIGTTO Source 2018).

6. Environmental Sustainability

The company obtained all the necessary authorizations in terms of environmental sustainability, in particular:

- **EIA** - Environmental Impact Assessment
- **SEA** - Strategic Environmental Assessment
- **IEA** - Integrated Environmental Authorization

The results of EIA and IEA highlighted the possibility of a real coexistence 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.

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. 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, in-



cluding 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 quantity of free active chlorine, of the discharge flow rate and the difference in temperature between the water entering the Terminal and that leaving the Terminal, after use in the vaporizers in the regasification phase.

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 is in charge of the realization of this monitoring.

The results of this analysis carried out every year allow to state that to date there have been no risk situations for marine fauna due to the presence of the Terminal.

Some more environmental details:

- Liquefied Natural Gas

There is no risk of pollution of sea water related to an eventual spill of LNG. The LNG, in fact, once in contact with the air, would pass immediately to the gaseous state dispersing into the atmosphere.

- Chlorine

Chlorination is one of 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 require the external addition of chlorine in-



to the sea water, but it transforms the chlorine, already contained in it, in a form useful to perform the antifouling function.

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 drain is provided.

- Water temperature

The temperature variations of the sea water were analyzed by the competent Authorities and they are continuously monitored and controlled by OLT and by the Authorities (in particular, a continuous monitoring of the difference in temperature between the water entering the Terminal and that leaving the Terminal, after use in the vaporizers in the regasification phase is provided).

- Undersea 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 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, as agreed with competent Authorities. The monitoring shows that the levels of noise produced by the Terminal in operation, measured experimentally, are significantly lower than the hypothesis made during the analysis of the project and lower than the quantity authorized with the relative measures.



7. Certifications and Registrations

OLT has voluntarily decided to report on and certify its performance in terms of safety, environment, quality and corporate social responsibility. This decision is delineated in the Code of Ethics, the HSEQ Policy and the MAPP (Major Accident Prevention Policy), implemented in the 231 Organisational Model and in the Integrated Management System adopted by OLT in accordance with standards UNI EN ISO 9001 (Quality), UNI EN ISO 14001 (Environment), ISO 45001 (Health and Safety), SA 8000 (Social Accountability) and in the EMAS Declaration (Eco-Management and Audit Scheme).

Moreover, ECOS – joint venture between the Consortium Exmar Ship Management (a group that operates in LNG transportation throughout the world) and the company Fratelli Cosulich (Italian company that has been operative in the shipping sector for more than 150 years) - responsible for the operative management and fitting-out of the Terminal – obtained the following certifications: ISO 9001:2015, ISO 14001:2015, ISO 45001:2018 and ISO 29001:2020.

8. The socio-economic benefits for the territory

OLT is fully aware of the impact its activities have on the economic-social development and standard of living in the Territory. The development and growth of the Company do not depend solely on operating performance but go hand-in-hand with the Company's capacity to maintain and implement social-economic synergies with the local community. Coherently with this concept, OLT constantly consults the Community and Territory that host the infrastructure.

Specifically, these benefits are concentrated on three areas of intervention:



1. OCCUPATION

The Plant provides a significant contribution to the employment in the territory. Overall, OLT guarantees employment to 132 people (data at 31 December 2019). Specifically, 24 people are employed directly by OLT, the remaining workers are employed by the two main outsourcers of the Company and, respectively: 69 by ECOS, involved in the management of the Terminal, and 39 by the company Fratelli Neri, involved in the management of the support vessels.

2. SOCIO-ECONOMIC OPPORTUNITIES

From an economic point of view, the OLT industrial initiative guarantees important opportunities first of all for the Livorno area, on which the main investments are concentrated, but also for the other Municipalities that are involved. In particular, the economic impact at a local level is estimated at around **400 million euro in 20 years starting from 2013**, which is the Terminal's expected life term. This amount includes a series of specific activities: from management to maintenance of the Terminal to the surveillance system of same, from direct employment to accessory services related to environmental protection.

Specifically:

- OLT collaborates with many local companies, specialised in the repair, maintenance, procurement, storage and transport sectors, for the organization and the execution of activities related to the ordinary and extraordinary maintenance of the plant - besides creating employment for the personnel needed for the Terminal's management. This activity will generate new business of around Euro 10 million a year.

Overall benefits for 20 years: Euro 200 million.

- OLT signed 3 contracts for naval support activities of (overall value: Euro 8 million 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 means of 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: Euro 160 million.

- The collaboration with the Consortium of Marine Biology and Applied Ecology (CIBM) of Livorno generates an economic benefit of 0.95 million euro per year, due to the provision of a twenty-year Marine Environment Monitoring Plan for the area around the Terminal that sets forth the performance of marine, physical, biological, chemical-physical, bathymetric and eco-toxicological analyses.

Overall benefits for 20 years: Euro 19 million.

- The rental for the occupation of the stateowned area amounts to approximately 0.5 million euro a year.

Overall benefits for 20 years: Euro 10 million.

3. ENVIRONMENTAL COMPENSATIONS

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

1. With reference to the **environmental compensations related to the EIA Decree, for a total amount of Euro 1 million**, OLT signed with the Municipality of Livorno, the Municipality of Collesalveti and the Municipality of Pisa 3 specific agreements, aimed at defining the procedures related to the supply of the contribution.

In particular:

- **Municipality of Livorno and the Province of Livorno:**



- contribution to the construction of the “Secche della Meloria” Protected Marine Area Visitor Centre for a value of Euro 400,000;
 - contribution to the performance of the environmental characterisation of sites along the coast of Livorno, carried out in 2015 and used during the revision of the Structural Plan and Town-Planning Regulation of the town of Livorno, for a value of Euro 80,000.
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- The **Municipality of Collesalveti 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 Euro 420,000.
 - 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" in Marina of Pisa for a value of Euro 100,000. The agreement was signed on 21st March 2016 and the park was inaugurated on April 2017.
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2. For the **Municipality and the Province of Pisa**, public procurement worth approx. Euro 5 million for the **Re-Opening of the Incile Canal**, the link between the Arno River and the Navicelli Canal, in order to make the navigation possible again from the centre of Pisa to the port of Livorno. The works, started in 2014, mainly concerned the removal of the waters and the sludge of a section of the canal and the works of civil and hydraulic engineering to complete the ship canal Pisa-Livorno. Among the most important works, we found the realization of the principal hydraulic gate on Arno riverbank and the two shipping basins inside the canal. To complete the project, other important infrastructures have been realized, which are linked to Pisa urban viability. The project is concluded, the opening ceremony took place on May 11th, 2019.
 3. **Compensations in accordance to the Unilateral Act of Submission signed by OLT on 26th July 2005.** The Tuscany Region, with the Deliberation n. 151 of 3rd March 2014 of the Regional Committee, assigned this contribution to the **Municipality of Livorno**: Euro 500,000 per year



for 5 years for the realization of the service of door-to-door waste collection for a total amount of **Euro 2.5 million**. The agreement between OLT and the Municipality of Livorno was finalized on 15th April 2014. The contribution was paid and the project was concluded in December 2018.

- 4. Compensation in accordance to the Agreement signed with the Municipality of Collesalvetti on July 12, 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 contribution was paid and the center was inaugurated in February 2014.

5. SUSTAINABILITY

OLT's mission is based on two principles: responsible management of its activities and full disclosure in reporting them.

The only way of doing business on the territory is the one based on Sustainability, that means realizing and maintaining a plant with the best available technologies, ensuring the highest management standards in terms of safety and environment and creating socioeconomic synergies between the Company and the Territory which hosts the Terminal.

For this reason, OLT decided to report its activity through the "Report Safety, Environment, Territory" and the "EMAS Declaration". These two documents not only represent OLT's way of doing business, but they are also a means for dialogue and confrontation with the company's stakeholders in order to get inputs for improvement.

In 2020 the "**Integrated Report Safety, Environment, Territory**" was published. It describes the work of OLT bearing in mind environmental and social questions relating to the personnel, respect for human rights and the fight against corruption. The document was drawn up following the GRI Standards ("referenced" approach) and it also takes into consideration – by means of specific references – the provisions of the United Nations 2030 Agenda for Sustainable Development with the related 17 SDGs (Sustainable Development Goals), broken down in turn into 169 specific Targets.

Indeed, the Company implemented a consultation project in 2019 involving internal and external stakeholders (an activity already set up by OLT the moment it arrived in the territory) which was completed in 2020 and this



path taken by OLT will lead to its first Sustainability Balance Sheet, which will be published in 2021.

OLT decided to report its own activities not only by the “Report Safety, Environment, Territory”, but also through the **EMAS Declaration**. The EU Eco-Management and Audit Scheme (EMAS) is a management instrument developed by the European Commission for companies and other organizations to evaluate, report and improve their environmental performances, on a voluntary basis. The document, which has been updated every year, shows the will to set up a transparent dialogue with citizens, stakeholders, Authorities and, above all, with suppliers and outsourcers regarding the environmental topics. Both documents are available on the Company’s website in the Sustainability area <https://www.oltoffshore.it/en/sustainability/rapporto-sicurezza-ambiente-territorio-2/>

With a view to change and to create a renewed synergy with the local Community, to give rise to shared projects and, at the same time, consistent with its corporate mission, at the end of 2019 OLT presented a **Corporate Social Responsibility (CSR) project entitled “L’Energia del Mare – Fare con e per il Territorio”** (The Energy of the Sea - Acting with and for the Territory), started in 2020 and that will continue in the following years. The project is divided into 5 areas of action, that refer to 5 areas of interest for the Territory and for OLT: Green&Blue (responsible and targeted policies for the environment/sustainability); Open Lab Talent (research and innovation for new generations); Gioco di Squadra (sport, culture and social), Curiamo il futuro (infancy and health) and Codice Bianco (workers’ health and safety).

6. LOCAL INITIATIVES

OLT supports a series of initiatives to increase the value of local community. Company’s intent is to integrate itself with the territory and the community that host the infrastructure.

OLT cooperates with organizations in favor of childhood by supporting them economically. From 2009, for example, the company gives every year a contribution to the Pediatrics unit of the Hospital of Livorno. Since 2013, OLT has supported the “Il Porto dei Piccoli” Association, a NPO that creates awareness in hospitalized children and their families about the culture



of the sea. From 2018 OLT has decided to support the VIP Italia Onlus Association that promotes volunteer clown therapy in private and public structures as well as in all those places where there is a situation of physical or mental distress. The Association is active also at the Hospital of Livorno.

Always sensitive to the sea as a resource and the world that revolves around it, over the years since 2013 the Company has made donations to Assonautica Livorno, specifically to support the Sailing School of the association devoted to young, disabled people who love sailing.

In 2019, for the second consecutive year, on the occasion of the flood that struck the town of Livorno in 2017, a donation was made to support a symphonic concert whose takings were devolved in full to the Caritas of Livorno, coordinator of the aid given to flood victims. In 2019 OLT also contributed to the sponsorship of the “Modigliani e l’avventura di Montparnasse” exhibition organised by the Municipal Authorities of Livorno on the occasion of the centenary of the death of Amedeo Modigliani.

Other initiatives for the Municipality of Livorno supported annually by OLT are: the Half Marathon, the rowing races of the town of Livorno, including the Palio Marinaro and the Settimana Velica Internazionale Città di Livorno.

Thanks to the contribution of OLT, the Town of Collesalveti was able to fit out the town’s theatre with technical plants and systems, giving life to numerous initiatives for the community, among which the “Open Opera”, the first talent show for operatic music. Moreover, the town organises music courses in the primary schools, both during and outside school hours. Since 2017 OLT has supported this project with the purchase of musical instruments to loan to the primary school pupils.

In 2017 OLT also supported an awareness campaign promoted by the Municipality of Pisa on the issue of safety in the workplace.



9. 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 Leg. Decree 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 (SEA)** 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 Harbour Master 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 demanded 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 Harbour Master, 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) signed the Supplementary Act no. 472 through 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.
- **15th March 2013** - **Integrated Environmental Authorization**. The IEA 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 Harbour Master 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 Harbour Master 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, **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**.
- **21st March 2019** – Seveso "No increase risk Declaration" art.18 and annex d of Leg. Decree 105/15, submitted to CTR on 21st March 2019,



aimed at realizing the SSLNG service. Procedure closed on 17th May 2019, with note n. U.0011767.

8th October 2020: The Ministry of Economic Development, in agreement with the Ministry of Infrastructures and Transport and the Tuscany Region, issued the decree concluding the “Procedimento di autorizzazione unica” for the modifications to the Terminal “FSRU Toscana” necessary to provide the Small Scale service.

10. Regulatory aspects

The “FSRU Toscana” Terminal has been defined as an essential infrastructure for the National Gas System with Decree of the Ministry of Economic Development (MISE). Therefore, the plant is at the disposal of the Country to guarantee the supply security and the diversification of gas supply. The rules for access to and use of the regasification service offered by the Terminal as well as the service quality standards are defined by the Regasification Code published on the OLT website.

The Italian Regulatory Authority for Energy, Networks and Environment (ARERA) regulates the tariff criteria for the regasification service for each regulatory period. In particular, the Resolution ARG/gas438/13 defines the tariff criteria for the regulatory period which goes from 1st January 2014 to 30th December 2017.

With Resolution 653/2017/R/gas, the Authority decided to postpone the beginning of the new regulatory period to 2020, and to extend the current regulatory criteria to the transitional period 2018-2019.

The resolution 474/2019/R/Gas establishes the criteria of tariffs regulation for the fifth regulation period, in force since January 1st, 2020 to December 31st, 2023.

The tariff system is designed to promote efficiency, to guarantee transparency and to support the development of investments in a logic of regulatory long-term stability.

The Company is also subject to the Unbundling regulations, both functional and accounting, and complies with the REMIT Regulation (Regulation on the Integrity and Transparency of the Energetic Market). This regulation entered into force in 2011 and it is valid for all the EU Member States. In particular, the aim of the Regulation is to establish shared rules at the Europe-



an level for the integrity and the transparency of wholesale energy market, in order to prevent illegal practices.

11. Commercial aspects

Preliminary remarks

The 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 interested parties.

The Terminal contributes to improve the country's energy security, since it diversifies the sources of natural gas supply. Such contribution is relevant especially in the light of the National Energy Strategy (SEN) - approved with Interministerial Decree of MISE and MATTM in November 2017 - through the optimization of the use of existing infrastructures, such as the regasification terminals. The Integrated National Plan for Energy and Climate issued in January 2020, reiterated the fundamental role of LNG and Italian terminals for the security of the energy supply of the Country until 2050 with an estimated gas need of 49Mtoe that will give impulse to a more transparent and liquid market of LNG. In particular, the Plan aims to favour the spreading of LNG to support the diversification of less-pollutive fuels strategy for naval use to establish a "SECA" area in the Mediterranean.

The economic scenario

The LNG market has significantly changed in recent years. From the demand side the number of importing countries has substantially increased while on the supply side the number of new liquefaction infrastructures brought to the market a large volume of additional capacity. In the next years this trend will continue steady as a result of many projects coming online in North America (USA and Canada) and in Australia.



This increase in volume should meet the increasing demand of the Asian Countries, in particular the one of China, that in 2017 reached the second place among the LNG importers and in 2018 and 2019 has further confirmed its position. This context of oversupplied market allowed also the alignment of the Asian and European LNG prices which in the past were in favour of the Asian market.

In this framework, OLT focused its efforts in providing the widest flexibility of the Terminal, in terms of carriers compatibility, allowing to receive up to the New Panamax Class, as well as the quality of LNG thanks to the Wobbe Index corrector installed onboard that allows to receive almost all the LNG produced worldwide. The Terminal is guaranteeing at the same time the maximum levels of security and environmental sustainability.

Giving its flexibility, the Terminal can benefit from the constantly change of the market conditions. This fact allows the Terminal to receive LNG cargoes from countries which cannot be linked to Italy by pipelines, mitigating the risks arising from few suppliers connected by pipelines (such as Africa's for politic events and Russia's for the well-known issues linked to Ukraine).

The contribution of "FSRU Toscana" to the diversification of supplies is confirmed by the receipt of LNG loads arriving from the main exporting countries such as: Algeria, Cameroon, Egypt, Equatorial Guinea, Nigeria, Norway, Peru, Qatar, Trinidad and Tobago and the United States, and from other European terminals (Spain, Belgium and the Netherlands).

Firm regasification services

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 allocation processes of regasification capacity take place on multi-year/annual and infra-annual terms, according to the timing and conditions set forth in the Regasification Code and in line with the deadline provided for by law and with the allocation procedures of the other Italian terminals.

In 2018, in order to implement the auction-based mechanisms introduced by ARERA with resolution 660/2017/R/gas, OLT changed its Regasification Code, approved with the resolution 110/2018/R/gas of March 1st 2018. Dur-



ing 2019 the Regasification Code was amended to meet new market needs. The proposals were put into consultation by the Company and approved by ARERA with the resolution 85/2020/R/gas of March 24th, 2020.

The allocation of capacity by auction takes place through the following mechanisms:

- 1) Ascending clock logic auction for pluri-annual and annual capacity;
- 2) Pay as bid for infra-annual, monthly, spot and FCFS capacity.

The auctions are carried out through the PAR (Platform for the Allocation of Regasification Capacity) managed by the GME (Gestore dei Mercati Energetici). The Code currently in force provides the following allocation procedures:

- 1) Annual and Multi-year capacity allocation with the expression of interest:

for the available capacity from the 2nd to the 15th gas year following the years of the allocation published by OLT every year by March 15th, the User can send one or multiple expressions of interest by the 1st of April of each year. By April 15th, following verifications with the Authority, OLT publishes the available capacity in accordance to the expression of interest received, and on May 7th every User will be able to present its offer through the PAR Platform. The capacity will be allocated through an open ascending auction;

- 2) Annual and multi-year capacity allocation without expression of interest:

by June 15th of each year OLT publishes the continuous capacity still available for the allocation since 1st to the 15th gas year subsequent to the allocation. On July 1st every User will be able to present its offer through the PAR Platform. The capacity will be allocated through an open ascending auction;

- 3) Infra-annual capacity allocation: one monthly auction (which offers the regasification capacity from the month which follows the auction till the end of the gas year); one spot auction (which offers the capacity remained available after the monthly auction) and one allocation on a First Come First Served basis (FCFS) to allocate the capacity remained available after the spot auction. For further information, refer to the Commercial area in OLT's website.



The emergency services established by the Ministry of Economic Development: the “Peak Shaving Service” and the “Regasification and Storage Bundled service”

Among OLT offered services there are two of the emergency measures established by the Ministry of the Economic Development to face unfavourable situations 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 the Peak Shaving 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. The Regasification and Storage Bundled service provides that a quantity of gas equal to the LNG delivered, less consumption and losses, is made available by the major storage company STOGIT to the User by the end of the month following the discharge, giving priority in the assignment of the service to the gas coming from states from which importations of a duration equal or superior to one year are not ongoing.

Since 2013, the Terminal has contributed to the security and the diversification of energy supply of the Italian Gas system, by providing its storage and its flexibility in case of emergency.

Future Perspectives

The LNG is increasing its importance inside the EU debate on green fuels, since it is considered the fossil fuel with the lowest environmental impact, that can at the same time assure high-level performances in terms of energetic efficiency and environmental benefits.

The objectives defined by the EU for the next years in this context are particularly challenging.



The Directive 2014/94/EU on the deployment of alternative fuels infrastructures stated that all the EU Member States should provide, by 2016, plans for the development of different fuels for the transportations' sector, included the LNG. The Directive 2014/94/EU (DAFI) has been adopted with the Legislative Decree n. 257, approved on 16th December 2016. This latter includes the National Plan for the use of LNG in Italy, providing the guidelines for the development of sector regulations.

The Green Deal approved by EU Commission in 2019 that is setting the new policy framework for the economic development of the next years of the Member States is going to review the targets set by the DAFI reducing the pollution emissions caused by sea and land transport. "FSRU Toscana" Terminal can have a decisive role for Italy opening the Small Scale LNG (hereinafter SSLNG) market, due to the versatility and strategic position of the Terminal. The SSLNG service means that small LNG carriers can load LNG directly from the regasification and storage terminal and then deliver it to coastal storages that will be developed inside the main Mediterranean ports. Indeed, the construction of LNG storages and satellite distributors are already under construction in some ports; Vessels and LNG powered vehicles will refuel or load LNG by these storages. OLT performed a specific preliminary study, co-financed by the European Union, called "Sea Terminals" project in collaboration with the Valenciaport Foundation and the Port Authority of Livorno, under the supervision of MIT and in line with the "Strategic National Plan on the use of LNG in Italy" proposed by MiSE. The feasibility study provided positive answers, confirming the possibility for the Terminal to load LNG into small LNG carriers. OCIMF (Oil Companies International Marine Forum) guidelines and SIGTTO (Society of International Gas Tanker and Terminal Operators), standards will be applied to guarantee the maximum level of safety during offloading operations. The study also highlighted that the modifications necessary at the terminal to provide this new service are marginal and could be carried out in a short period of time. They regard the left side of the terminal where there are already the main components for the lightening and offloading operations. The Terminal has therefore proved that it has all the technical characteristics needed to operate as an LNG hub in the upper Tyrrhenian Sea, providing the quantities of LNG needed to supply the main ports in the area. Following the positive results of the preliminary study, OLT carried out a detailed engineering project to be ready to start the modification as soon as will obtain the necessary permits. The studies needed to request the permitting were partially financed by "Connecting Europe Facilities (CEF)" funds.



In March 2019 OLT began the authorization process to offer the SSLNG service and in October 2020 the Ministry of Economic Development, in agreement with the Ministry of Infrastructure and Transport and with the Tuscany Region, issued the Decree authorizing OLT to implement the modifications to the Terminal that are necessary to provide the SSLNG service. FSRU Toscana could likely become the first Italian terminal able to provide this service, which is currently not available in Italy. The necessary modifications to the Terminal must be made by 2021 with the consequent start of commercial activities related to the SSLNG at the end of the works. This new service will allow to offer slots for the loading of small LNG carriers that will be able to deliver the LNG to the storages under construction and to ports, confirming the role of the OLT Terminal as a fundamental element within the supply chain and the distribution of LNG.

12. Numbers and timing

- "FSRU Toscana" main features: length overall 306.49 meters, width 48 meters, max height of the vessel 26.5 meters
- 12 nautical miles (about 22 km): Terminal's distance from the coast
- 3.75 billion Sm³: maximum authorized capacity per year
- 5%: the national gas requirement that the plant could satisfy
- 36.5 km: total pipeline length (29.5 km at the sea, 5 km in the floodway, the remaining 2 km on dry land, completely buried and directly connected to the Italian National Grid)
- 6 meters: onshore pipeline depth
- 4 billion of LNG cubic meters: annual gas consumption of Tuscany Region
- LNG cargoes coming from the main exporting countries such as: Algeria, Cameroon, Egypt, Equatorial Guinea, Nigeria, Norway, Peru, Qatar, Trinidad and Tobago and the United States, and from other European terminals (Spain, Belgium and the Netherlands).
- About 850 million euro: total investment of the project, excluding financial charges
- 400 million euro: economic benefits in 20 years, starting from 2013



- 05/02/13: launch of the Terminal "FSRU Toscana" in Dubai
- 02/06/13: sail away of the Terminal "FSRU Toscana" from Dubai
- 30/07/13: 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.
- 8/10/2020: The Ministry of Economic Development, in agreement with the Ministry of Infrastructures and Transport and the Tuscany Region, issued the decree concluding the "Procedimento di autorizzazione unica" for the modifications to the Terminal FSRU Toscana necessary to provide the Small Scale service.

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