



# OLT Offshore LNG Toscana Press Kit



## Index

1. OLT Offshore LNG Toscana .....	3
2. The history of OLT .....	4
3. Plant .....	5
3.1 The steps of the regasification cycle .....	6
4. The LNG .....	6
5. The services offered by OLT .....	8
5.1 The Small Scale LNG service .....	8
6. Safety aspects .....	9
7. Sustainability.....	10
8. The socio-economic benefits for the territory.....	11
8.1 Local communities .....	12
9. Numbers and timing.....	14



## 1. OLT Offshore LNG Toscana

OLT Offshore LNG Toscana S.p.A. (hereinafter OLT) is the company that developed and now owns and manages the floating regasification Terminal FSRU Toscana, permanently moored about 22 km (12 nautical miles) off the coast between Livorno and Pisa, in the Tuscany region.

The OLT Terminal represents one of the main infrastructures of national interest for the import of LNG (Liquefied National Gas) serving the development and autonomy of the Italian energy system.

The industrial businesses holding shares in the company are active in the energy sector at a national and international level:

**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.

**Igneo Infrastructure Partners**, holding the **48.24%**, is an experienced global asset manager with over 12 billion euros of unlisted infrastructure capital under management, having been actively investing in long life infrastructure businesses since 1994. Igneo Infrastructure Partners is an experienced owner of utility businesses across Europe and its current portfolio includes utilities in Estonia, Finland, France, Germany, Italy, Netherlands, Portugal, Sweden and the United Kingdom. Igneo'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, with over 30 years of experience.



Overall Snam and Igneo Infrastructure Partners 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), serving the development and autonomy of the Italian energy system.

The project consisted in the conversion of an existing LNG carrier - the "Golar Frost" - into a floating storage and regasification terminal, which brings the LNG back to its normal gaseous state. The LNG carrier "Golar Frost" was purchased by the company Golar LNG and the conversion works were carried out at the dry dock of the Drydocks World Dubai (DDWD) shipyard.

The bow of the LNG carrier was removed and a new front part was built which includes the anchor turret. The regasification module was then installed on board the FSRU Toscana terminal. The conversion of the LNG carrier also involved the installation of 3 vaporizers for the regasification of LNG, the installation of a "Wobbe Index" module to allow the Terminal to regasify the LNG coming from almost all producing countries through the nitrogen injection, as well as the installation of loading arms on the starboard side and all the equipment necessary for the discharge of LNG from the LNG carriers.

The project started in 2002 and it underwent a long and complex authorization process.

FSRU Toscana arrived in Livorno on July 30<sup>th</sup>, 2013. Following the commissioning phase, OLT started commercial activities in December 2013.

The Ministry of Infrastructures and Transports (now MIMS) issued the final Commissioning Authorization for the operations of the Terminal on March 17<sup>th</sup>, 2015. On 25<sup>th</sup> July 2016 the Ministry of Economic Development (now MiTE) 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 sector, for its structure, design and for the long and



complex authorization process, as well as for the certifications obtained in terms of safety and environment.

### 3. Plant

The Terminal, permanently moored about 22 km off the Italian coast between Livorno and Pisa, in the Tuscany region, 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, to allow the Terminal to move around the mooring turret, adapting to sea weather conditions.

The Terminal is connected to the Snam national gas pipeline network 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.

The plant has a maximum authorized regasification capacity of 3.75 billion  $\text{Sm}^3$  per year - covering about 5% of the national requirement – (increase up to approximately 5 billion  $\text{Sm}^3$ /year under authorization), with a maximum regasification capacity of 15 million  $\text{Sm}^3$  per day and a gross storage capacity of about 137,100  $\text{m}^3$  of LNG.

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 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.

At present the Terminal is authorized to receive around the 90% of the worldwide LNGc fleet, with a cargo capacity between 65,000  $\text{m}^3$  and 180,000  $\text{m}^3$  (New Panamax class), allowing the Terminal to maximize its receiving flexibility, keeping unchanged the maximum authorized annual regasification capacity.

Thanks to its flexibility in receiving cargoes with a wide range of capacity and LNG quality, guaranteeing at the same time very high levels of safety and environmental sustainability, the Terminal is an important guarantee for



the security and diversification of the country's energy supply. FSRU Toscana can, in fact, receive LNG cargoes from countries which cannot today be connected to Italy by gas pipeline, thus reducing the geopolitical risks.

The contribution of FSRU Toscana to the diversification of supply is confirmed by the receipt of LNG cargoes arriving from the main exporting countries such as: Algeria, Cameroon, Egypt, Equatorial Guinea, Nigeria, Norway, Peru, Qatar, Trinidad and Tobago and the United States.

### 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 1/600<sup>th</sup> the volume of natural gas in the gaseous state (at standard conditions for temperature and pressure). It is odourless, colourless, 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. The services offered by OLT

OLT Offshore LNG Toscana offers, through its Terminal FSRU Toscana, the following services:

- The Regasification Service of Liquefied Natural Gas (LNG)
- The Flexibility Services (i.e. Nomination and Renomination Service, Virtual Liquefaction and Extended Storage Service)
- The Small Scale LNG Service
- The services related to the country's energy security possibly requested by the Ministry for Ecological Transition (MiTE).

OLT yearly provides a regasification capacity equal to 6,356,250 liquid m<sup>3</sup> which is offered, on an auction basis, in the multi-year, annual and infra-annual allocation processes, as described and set out in the Regasification Code.

Every year the Ministry for Ecological Transition (MiTE) establishes – in the context of the Emergency Plan – the most suitable measures to be adopted to tackle unfavourable situations for the national gas system.

The Peak Shaving Service is one of the emergency measures possibly requested to the regasification terminals that, during the winter period, can regasify and send into the grid, at short notice, the LNG previously unloaded and stored in the terminals' tanks, tackling the peak demand for a limited period of time.

OLT made available part of its regasification capacity for the national gas system for six consecutive gas years, from 2013/2014 to 2018/2019, continuing, at the same time, to offer the regasification service on a multiyear, annual and infra-annual basis, in accordance with the provisions of current regulations.

For further information: <https://www.oltoffshore.it/en/terminal/services/>

### 5.1 The Small Scale LNG service





LNG is playing an increasingly central and strategic role especially in heavy road and maritime transport sector.

In this scenario, FSRU Toscana can have a key role for Italy opening the Small Scale LNG market, due to the flexibility and strategic position of the plant, and will be the first terminal in Italy to offer this service.

The SSLNG provides that small LNG carriers can load LNG directly at a re-gasification and storage terminal, to refuel LNG ships or to deliver it to coastal deposits, within Mediterranean ports, completing the Italian supply chain of LNG, an essential source for the energy transition.

In order to be able to provide the service, OLT made a specific preliminary feasibility study - co-financed by the European Union – in 2015, which supplied positive results, confirming the possibility for the Terminal, after marginal plant engineering modifications, to discharge the LNG onto small LNG carriers. OLT went ahead with the verification path, giving the go ahead for several detailed engineering studies preparatory to obtaining the necessary authorisation. Some of these studies were partially financed by participating in the Connecting Europe Facilities (CEF) Tender: a tender called by the European Commission with the aim of developing the trans-European networks and infrastructures in the transport, telecommunications and energy sectors. Finally, the company started the authorisation procedure to offer the new SSLNG service in 2019 and in October 2020, with a decree issued by the Ministry of Economic Development, in liaison with the Ministry of Infrastructures and Transport and the Tuscany Region, it was authorised to make the necessary modifications to the Terminal to offer the Small Scale LNG service. Furthermore, OLT has decided to increase the flexibility and efficiency of the Terminal by undertaking a new authorisation path, in progress at the moment, to allow the berthing of up to 122 small LNG carriers a year. The plant engineering modifications concerning the port side of the Terminal, where the main elements for Ship-to-Ship operations and discharge are already present, are in the process of being made, with conclusion expected no later than 2022 and consequent start-up of the commercial activities linked to SSLNG. FSRU Toscana will be the first Italian regasification to offer this service.

## 6. Safety aspects



The prevention and safety measures adopted by the FSRU Toscana regasification terminal are highlighted in the Final Safety Report approved by CTR, the Regional Technical Tuscany Committee.

The design and construction criteria of the equipment and the systems are essentially aimed at eliminating the possibility of off-site releases.

The prevention of major accidents on board the Terminal is mainly based on a Safety and Management System, which has been developed by integrating marine aspects and the process ones.

Particular attention is dedicated to the monitoring of process systems, to the control of the navigation in the area surrounding the Terminal, to the implementation of the adequate inspection and maintenance policy envisaged, to the behaviour to be followed in the event of an emergency – in compliance with the internal emergency plan and the related procedures, to mitigate the evolution of any accident, both in environmental and safety terms.

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.

For further information, please refer to the Safety section of the OLT website: [www.oltoffshore.it](http://www.oltoffshore.it).

## 7. 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, the Company is constantly listening and exchanging with the community and the territory that host the infrastructure.

From the beginning OLT started a path of reporting on its performance which, over the years, has led to the achievement of an important goal: the preparation of the **Sustainability Report** according to the GRI Standards



("Core" approach). The tool also takes into account, through specific references, the provisions of the 2030 Agenda for Sustainable Development of the United Nations, with the related 17 Sustainable Development Goals (SDGs), structured into 169 specific Targets.

Another key instrument of the dialogue and transparency relationship with the territory is the **Environmental Declaration**, drawn up on the basis of the EMAS Regulation; it has a three-year validity, however it is revised and checked annually.

All the aforementioned tools can be consulted in the Sustainability section of the OLT website: [www.oltoffshore.it](http://www.oltoffshore.it).

## 8. The socio-economic benefits for the territory

OLT is fully aware of the influence of its business on the economic and social development and quality of life in the territory. The development and growth of the Company do not depend solely on operational performance but go hand-in-hand with the Company's capacity to maintain and implement socio-economic synergies with the local community. In line with this assumption, OLT is in constant dialogue with the territory and the community hosting the infrastructure.

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

### **1. OCCUPATION**

The Terminal provides a significant contribution to the employment in the area. Overall, 139 people are permanently employed (data as of 31 December 2021). Specifically, the workers employed directly by OLT are 22. The remaining workers are employed by the company's two main out-sourcers, respectively: 78 in ECOS, for the management of the Terminal, and 39 by the company Fratelli Neri, for 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, from direct employment to additional services related to environmental protection.

### **3. ENVIRONMENTAL COMPENSATIONS**

Alongside the activities related to the operation of the Terminal, a further demonstration of the effective socio-economic cooperation between OLT and the territory lies in a series of initiatives in favour of local communities. Most of these initiatives, planned during the plant's authorization process and partly already completed, have an environmental purpose.

As agreed with the Tuscany Region in the authorization phase, with the Municipalities of Livorno, Collesalveti and Pisa, OLT has agreed on the implementation of a series of initiatives, among which the main ones are:

- Municipality of Livorno: contribution for the implementation of the door-to-door waste collection service
- Municipality of Collesalveti: contribution for the environmental redevelopment project of the urban center of Stagno
- Municipality of Pisa: contribution for the construction of an equipped park in the public area "La Camilla" in Marina di Pisa
- Tuscany Region, Province and Municipality of Pisa: reopening of the Incile Canal

## **8.1 Local communities**



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

With aim of giving coherence to its social and economic operations on the territory, consolidating the relationship with the local communities to develop shared social projects, of interest for the territory of Livorno and Pisa and, at the same time, consistent with its company 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 intervention, 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).

Given the emergency situation that the community has had to face in 2020 and 2021, OLT decided to concentrate all its resources to support the social and school sector and the weakest brackets of the local population.

As an example:

- Livorno and Pisa Hospitals: purchase of health goods and equipment for the intensive care unit;
- Misericordia di Livorno: donation, together with the companies ECOS and Fratelli Neri, of equipment for an ambulance for the transfer of patients suffering from Covid-19, who need intensive care;
- Fondazione Caritas Livorno: in support of 'Villaggio della Carità', which helps the most disadvantaged people through various services with the aim of combating poverty and the health emergency;
- Donation of tablets in favour of the educational services 0/6 of the Municipality of Livorno.

OLT also supports various health, sporting and cultural initiatives, such as: the Pediatric Department of the Livorno Hospital, VIP Italia Onlus Association, Il Porto dei Piccoli Onlus Association, the Sailing School of Assonautica Livorno dedicated to young people with disabilities who love sports.



### **Initiatives for environmental sustainability**

In 2020 OLT signed an agreement with the Tuscany Region and the Community of Bosco dei Monti Pisani Onlus for the reforestation of the areas seriously damaged by fires in 2018 and 2019 in the municipalities of Calci and Vicopisano. The aim of the project is to favour the restoration and improvement of the forest area, enhancing the eco-systemic services of the areas destroyed by fire, helping to implement the actions to protect the forest area and guaranteeing functional interventions also to the activities of use and tourist enhancement. Other projects on the theme of reforestation are underway, with interventions aimed at the creation of green areas in the municipalities of Pisa and Livorno.

For an in-depth analysis of OLT's socio-economic performance, please refer to the 2021 Sustainability Report available on the company's website: [www.oltoffshore.it](http://www.oltoffshore.it).

## **9. 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 Sm<sup>3</sup>: maximum authorized capacity per year (increase up to about 5 million Sm<sup>3</sup> under authorization)
- 5%: the national gas requirement that the plant could satisfy
- 36.5 km: total pipeline length part of the Italian National Grid (29.5 km at the sea, 5 km in the floodway, the remaining 2 km on dry land)
- 6 meters: onshore pipeline depth
- 4 billion 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
- About 850 million euro: total investment of the project, excluding financial charges



- 400 million euro: economic impact on the local area 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 FSRU Toscana at the installation site off the coast between Livorno and Pisa, after a towing activity lasting about 40 days
- 19/12/13: conclusion of the commissioning phase of the plant
- 20/12/13: start 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 LNG service
- 2022: expected launch of the Small Scale LNG service

For further information: [www.oltoffshore.it](http://www.oltoffshore.it)

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