Naturgy

September 25th, 2018

Puerto Rico Electric Power Authority
RFP 81412

Re: Request for Proposals for Fuel Supply in the North and Conversion of San Juan Units 5 and 6 issued by Puerto Rico Power Authority (PREPA) on July 30, 2018 (RFP 81412)

Dear Sirs,

We refer to RFP 81412 process. In accordance with your invitation, we are pleased to submit on behalf of Naturgy Group our proposal in accordance with the terms of such RFP.

In submitting our proposal, we confirm that the information submitted in such document is true and accurate and that the person signing this cover letter is authorized to submit it on behalf of Naturgy.

Additionally, as required, we identify this designated contact person for the purpose of this RFP process and include a table of contents of our proposal.

**Gregorio Morales Schmid**
Global Head of LNG Origination and Business Development
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Spain
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Phone +34 91 589 2993

Yours sincerely,

Gregorio Morales Schmid

## Contents

25/09/2018

# PROPOSAL FOR A FUEL SUPPLY

## Puerto Rico Electric Power Authority (RFP 81412)

## **Fuel Supply in the North and Conversion of San Juan Units 5 and 6**

San Juan, Puerto Rico

Naturgy

## Contents

# 1. Executive Summary

In reply to the *Request for Proposal for the Fuel Supply in the North and Conversion of San Juan Units 5 and 6 issued by Puerto Rico Electric Power Authority (PREPA) on July 30, 2018 (RFP) 81412*, Naturgy is pleased to submit this non-binding proposal confirming our interest in the contract to provide natural gas supply and the fuel conversion works required of San Juan Units 5 and 6.

Naturgy proposes a technical solution based on the use of a Floating Storage and Regasification Barge with a short gas pipeline connection to the combined cycle units 5 & 6 of the San Juan power plant ("Units").

The basic configuration of the aforementioned technical solution consists of the following elements:

- The 75,000 m3 Floating Storage and Regasification Barge (FSRB).
- The mooring and berthing system for the FSRB and LNG carrier.
- The unloading platform and pipe rack connection for the gas pipeline from the FSRB to the San Juan power plant.
- The gas metering station.
- The conversion of San Juan Units 5 and 6

In order to speed up the delivery of natural gas to the San Juan power plant, Naturgy offers a readily available 170,000 $m^3$ Floating Storage and Regasification Unit (FSRU) from its fleet while the FSRB is being built. This system will provide a cost effective gas solution to Puerto Rico while reducing the total investment cost and optimizing the time to market.

Included with the proposal is Naturgy's letter to the Puerto Rico Ports Authority (PRPA) communicating this solution as part of the process of obtaining its support. The final implementation will be conditioned upon the approval of the PRPA.

The FSRB (and temporally the FSRU) will be moored in the vicinity of the power plant at Puerto Nuevo to shorten as much as possible the gas pipeline route. This site should gather the necessary conditions to enable the mooring of the FSRB, the safe arrival and berthing of standard size LNG carriers (up to 176,000 $m^3$) and allow for the associated LNG shipping logistics.

In summary, the solution presented by Naturgy offers several advantages:

- Since only a small piece of land is required, there will be fewer land property agreements.
- Reduced overall area impact.
- Natural gas is competitive in price compared with diesel and other fossil fuels for the intended power project.
- It provides a cost effective regasification alternative.
- The project enables an unbeatable early deployment of natural gas solution in Puerto Rico.

In addition to the installation and operation of this solution, Naturgy offers the LNG supply and logistics to enable the gas supply to the San Juan power plant.

As further detailed, Naturgy has a great deal of expertise and capabilities in the LNG industry, operating in entire integrated value chain (supply, logistics, regasification and delivery). Furthermore, Naturgy is a reliable LNG supply partner, with a current portfolio of more than 30 bcma, and has been serving several clients around the world.

In complying with the RFP requirements, Naturgy is in conversation with the Units' conversion subcontractor Mitsubishi with the intention to include in Naturgy's offer the Unit conversion works required by PREPA. Since Naturgy received Mitsubishi proposal recently, unfortunately it has not yet defined the details of such services and their associated costs with Mitsubishi and therefore cannot include them in this offer. However, Naturgy is committed to continuing its discussion with Mitsubishi to offer to PREPA a definitive proposal.

Finally Naturgy would like to state, that this proposal is not a binding offer. The terms set forth herein are intended to provide a basis for a proposal of a natural gas supply and may allow the parties to enter into a negotiation, and possible conclusion of a definitive agreement, in which terms shall at all times be subject to review, discussion, revision and agreement to the mutual satisfaction of PREPA and Naturgy. As previously described, Naturgy confirms that there are some issues still pending. As such, Naturgy reserves the right to update or modify this proposal with the intention to provide a complete proposal to PREPA.

# 2. Experience and Capacity

## 2.1. Introduction to Naturgy

Naturgy is one of the leading multinational companies in the energy sector and a pioneer in integrating the gas and electricity sector we head in Latin America and Spain. It is present in 30 countries, operating in both regulated and deregulated gas and electricity markets, with almost 23 million customers and an installed capacity of 15.4 GW.

It is the largest integrated gas and electricity company in Spain and Latin America, the leader in the natural gas sales market in the Iberian Peninsula, and it is the biggest distributor of natural gas in Latin America. With a fleet of 11 LNG tankers and 2 FSRU, it is a company of reference for LNG/NG in the Atlantic and Mediterranean basins, where it operates around 30 bcma.

## 2.2. Naturgy's experience in LNG services

Naturgy has extensive experience in design, construction and operation of all types of LNG infrastructures in the LNG value chain, as well as supplying LNG for various types of clients. Naturgy's services include:

- LNG procurement and supply
- LNG liquefaction terminals
- LNG delivery
- LNG shipping and logistics
- LNG Ship-to-Ship (STS) transfers
- LNG regasification terminals
- FSRU
- Gas transmission and distribution

The result of this robust position combined with its long-term LNG portfolio gives Naturgy an extraordinary position to secure the LNG deliveries to Puerto Rico.

### 2.2.1. Experience in LNG procurement and supply

Naturgy has a flexible, diversified and competitive gas supply portfolio of 30 bcma. Naturgy's gas procurement is broken down into 36% natural gas and 64% LNG, which provides a great flexibility in terms of the end use of the gas.

Naturgy has procurement contracts with Algeria, Qatar, Egypt, Oman, Nigeria, Norway, Trinidad & Tobago, United States (Cheniere: Sabine Pass and Corpus Christi) and Russia (Yamal LNG).

This diverse portfolio of sources gives Naturgy the possibility of having LNG with different price indexations, flexibility and qualities, as well as offering its clients an enhanced security of supply and avoiding the problems of a single "unique" source of LNG.

The following is an illustration of Naturgy's main LNG supply origins.

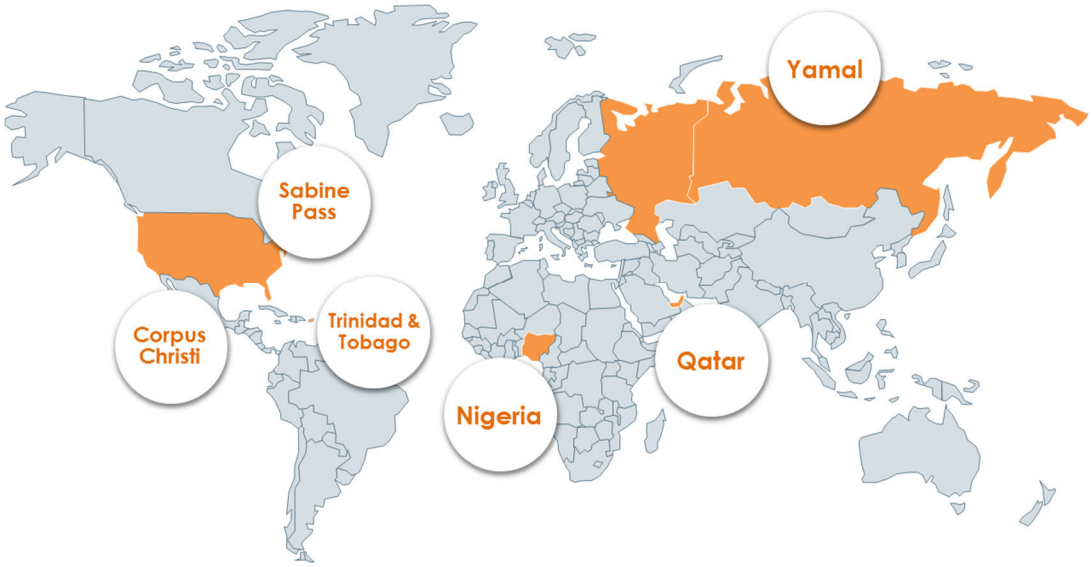



**Exhibit 1: Naturgy's main LNG origins**

The experience that Naturgy has gained over its 170 years in the global market allows it to fully understand the unique needs of individual end users and adapt to them accordingly. Naturgy places personalized service to its customers at the forefront of its efforts, providing a secure and diversified supply to effectively fulfil its commitments.

### 2.2.2. Experience in LNG liquefaction terminals

Naturgy participated in the construction and operation of a liquefaction export terminal in Egypt. The processing capacity of the plant is 7.56 bcma, equivalent to 6.8 bcma of marketable natural gas with approximately 90% energy efficiency (input-output).

Below are some pictures of this liquefaction terminal.

**Exhibit 2: Liquefaction plant in Damietta, Egypt**

Naturgy also holds a stake in the Qalhat Liquefaction Plant in the Sultanate of Oman. Both the time period for the construction of the Qalhat plant and the start-up and first LNG production period marked a world record in the development of this type of facility.

The Qalhat Plant complements and significantly strengthens the business structure of Naturgy. Below is a picture of the plant:

**Exhibit 3: Qalhat Liquefaction plant in the Sultanate of Oman**

### 2.2.3. Experience in LNG delivery

Naturgy has been active in the LNG market for over 40 years, with 6.5 Mtpa currently marketed throughout the globe with large scale clients such as Gail India (India), KOGAS (Republic of Korea) and Minera Escondida (Chile). We also deliver to multiple mid-scale and small scale clients, both industrial and commercial, 74 of them being in Spain.

In fact, since 2012, Naturgy supplies LNG on a spot basis to EcoElectrica and natural gas to PREPA for its Costa Sur power plant in Puerto Rico.

### 2.2.4. Experience in LNG shipping & logistics

Naturgy has extensive experience in LNG shipping: starting in the early 70s, the company was one of the first to transport and deliver LNG by ship for commercial purposes. The initial routes were from ports in Libya and Algeria to the re-gasification port facilities in Spain.

With a current fleet of 11 LNG tankers and 2 FSRUs, Naturgy is one of the largest LNG operators in the world and leaders in the Atlantic basin and the Mediterranean. Naturgy's fleet consists of a variety of ships covering the majority of technologies in the market. The vessels range in size from 138,000 $m^3$ to 176,000 $m^3$, with most of the available cargo containment systems. The following table summarizes Naturgy's fleet and its capacity:

**Castillo de Villalba**
**Capacity (100%) in m³:** 136,089

**Catalunya Spirit**
**Capacity (100%) in m³:** 136,048

**Torben Spirit**
**Capacity (100%) in m³:** 173,560

**Iberica Knutsen**
**Capacity (100%) in m³:** 136,048

**Ribera del Duero Knutsen**
**Capacity (100%) in m³:** 170,809

**Golar Kelvin**
**Capacity (100%) in m³:** 159,462

**Rioja Knutsen**
**Capacity (100%) in m³:** 173,656

**La Mancha Knutsen**
**Capacity (100%) in m³:** 173,656

**Hoegh Giant (FSRU)**
**Capacity (100%) in m³:** 170,108

**Castillo de Mérida**
**Capacity (100%) in m³:** 178,818

**Castillo de Caldelas**
**Capacity (100%) in m³:** 178,804

**Golar Ice**
**Capacity (100%) in m³:** 160,000

**Exhibit 4: Naturgy's fleet (excluding the FSRU to be delivered by the end of 2018)**

Naturgy's fleet, along with the geographical diversification of our gas business, offers a combined capacity of 1.8 million cubic meters and places the Naturgy Group in an excellent position to serve our customers. The map below illustrates some of these routes:

**Exhibit 5: Example of current LNG supply routes to Naturgy's clients**

Naturgy's Maritime Division counts with a vast experience in the following activities:

**Technical, Operations, New Projects**

- Managing Time Charter Party contracts, managing all inspections, Dry Docks.
- Experience in all type of propulsion technologies and containment systems
- Monitoring bunker supplies, fuel optimization, consignment services, Heel management for ballast travel with 24/7 response capacity. Monitoring emissions of the fleet.
- Management of building new ships (experiences in the construction of 19 LNG carriers in five international tenders).
- Development of FSRU projects with more than 25 countries analyzed for the implementation of this solution.
- Floating LNG (FLNG) know how through the analysis of three international FEEDs.
- Optimization studies to obtain the optimal size and number of vessels needed, definition of operational thresholds for meteorological operation (waves, wind, currents, etc.) as well as requirements for tugs, practical, maneuvering strategies, optimization of mooring…
- Naturgy is present in most international organizations such as: OCIMF, SIGTTO, GIIGNL, SMGF, etc.

Naturgy is closely involved in the activity of its methane tankers, being responsible for insuring safe harbor to its owners. With this philosophy these are the activities developed by the Maritime Transport Division:

- Analyze the compatibility and mooring for all terminals visited by Naturgy's ships to obtain the optimal configuration for a safe berth for new and existing terminals
- Auditing terminal based on OCIMF recommendations
- Performing startups and cooling down of different terminals
- Develop and approve the measurement and quality in LNG contracts
- Checking the parameters affecting the energy delivered according to the quality/measurement contractual procedures and the gas specifications for each LNG delivery

- Approve the quantities of LNG delivered by solving any quality/measurement issues with the parties involved
- Inform commercial areas of any requests for gas compatibility

**Chartering**

- Logistics studies to carry out the necessary fleet planning as well as optimization measures to improve the entire transport chain.
- Negotiate and contract the spot and short-term vessels required to ensure fleet capacity in Naturgy.
- Constant monitoring of the market and its variables

**Quality and Measurement**

- Participate in European research projects on LNG measurement and collaborate in numerous international working groups for the drafting of industry standards

### 2.2.5. Experience in LNG Ship-to-Ship (STS) transfers

Naturgy was the first company in the world to perform a commercial Ship-to-Ship (STS) transfer operation. Naturgy currently conducts STS transfers at FSRU conventional terminals and in open waters.

Naturgy is one of the main suppliers of LNG to Argentina since 2009 with deliveries to both existing FSRUs, Bahia Blanca and Escobar, by STS transfers.

Naturgy has also handled STS transfer operations in Petrobras FSRUs in Brazil and in Mediterranean waters.

In early 2017 the participation of Naturgy in the STS transfer in Jamaica was crucial. In particular, Naturgy was the responsible of the development of all the operational manuals for allowing the STS transfer. Naturgy has also successfully discharged regularly in Jamaica in open waters, being the sole supplier of the terminal.

The Naturgy's experience of developing these projects, our diversified portfolio and our flexible logistics of vessels were essential for achieving success.

Below there is a picture of one of these STS open water transfers:

**Exhibit 6: Open water STS transfer in Jamaica in June 2017**

Thanks to this extensive background, Naturgy is prepared to develop a very detailed and efficient LNG trans-shipment plan that meets the requirements of the project.

### 2.2.6. Experience in Regasification terminals

Naturgy has been involved in the design, construction and operation of several regasification terminals and is involved in the operation of three of them, one being the EcoElectrica LNG terminal in Puerto Rico. The following is a summary of the characteristics of these plants:

| Project | Characteristics | Tasks developed by Naturgy |
|---|---|---|
| **Guayanilla Bay, Puerto Rico** | **Max hourly capacity**: 328,987 $Nm^3/h$<br>**Vaporization**: 4 x 93,000,000 Scf/day<br>**LNG storage capacity**: 160,000 $m^3$ (1 tank) | Investment, Engineering, Construction, Operation |
| **Sagunto, Spain** | **Max hourly capacity:** 1,000,000 $Nm^3/h$<br>**LNG storage capacity**: 600,000 $m^3$ (4 tanks) | Investment, Engineering, Construction, Operation |
| **Mugardos, Spain** | **Max hourly capacity:** 412,800 $Nm^3/h$<br>**LNG storage capacity:** 300,000 $m^3$ (2 tanks) | Investment, Engineering, Construction, Operation |

**Table 1: Summary of Naturgy's Regasification terminals**

### 2.2.7. Experience in Floating Storage and Regasification Units (FSRU)

Naturgy has a combined experience of 13 years working with FSRUs, from concept to operation. Naturgy's experience in FSRU terminals involves not only supplying natural gas but doing so in situations where time to market was a key requirement. In the Bahia Blanca FSRU project (Argentina), which is further described in Section 2.4.2 Naturgy successfully developed a FSRU solution from concept to commissioning in nine months, without compromising its LNG industry safety track record.

### 2.2.8. Experience in gas transmission and distribution

Naturgy has also extensive experience in gas transmission and distribution projects in many countries. Naturgy is a leading company in natural gas transport and distribution, where gas pipelines play a fundamental role in its activity performance. In countries where Naturgy participates in the

distribution of natural gas, Naturgy has also participated in the design and construction of most of the gas and gas pipeline infrastructure. The following table summarizes Naturgy's gas sales and network

| | Argentina | Brazil | Chile | Colombia | Spain | Italy | Mexico | Total |
|---|---|---|---|---|---|---|---|---|
| **Gas activity sales (GWh)** | 68,699 | 103,408 | 44,083 | 26,832 | 177,391 | 3,821 | 49,597 | **473,831** |
| **Distribution Network (km)** | 24,656 | 7,147 | 6,850 | 21,469 | 51,016 | 7,167 | 19,914 | **138,220** |

**Table 2: Naturgy's gas sales and distribution network (Source: Naturgy website)**

Naturgy also supplies by truck LNG to more than 70 LNG satellite regasification plants for industrial customers in Spain.

## 2.3. Naturgy's presence in Puerto Rico

In 2003, Naturgy acquired a 47.5% interest in EcoElectrica, located at Peñuelas. Its infrastructure consists of:

- LNG import terminal and regasification plant.
- 540 MW Combined Cycle Power Plant.

EcoElectrica supplies approximately 15% of Puerto Rico's demand for electric power.

**Supply of natural gas to PREPA**

Naturgy also supplies natural gas to PREPA. Since 2012, Naturgy supplies natural gas to the Costa Sur power plant.

The additional vaporization capacity belonging to Naturgy and installed at the EcoElectrica terminal has been expanded to supply 100% of the needs of Costa Sur.

Naturgy is actively coordinating with PREPA to maximize the use of these facilities.

**Natural gas distribution project**

Since 2014, Naturgy has been developing a natural gas distribution project in the island which includes the construction of a Truck Loading Facility for LNG alongside the EcoElectrica terminal.

This project is an opportunity to promote the development of more eco-friendly energy supplies for Puerto Rico, apart from the opportunities it offers to improve competitiveness and security for the Puerto Rican industry.

## 2.4. Samples of similar engagements

In addition to the experience described previously, Naturgy has work on similar engagements to PREPA's current project. These projects are:

1. EcoElectrica Regasification Expansion (EPC, LNG supply, regasification, natural gas conversion)
2. Sagunto LNG Import Terminal (EPC, operation, LNG supply, regasification)
3. Bahia Blanca & Escobar (Engineering, LNG supply, FSRU)

Contact details are provided for each as references for the projects.

### 2.4.1. Similar engagement 1 – EcoElectrica Regasification Expansion (Puerto Rico)

Client name: EcoElectrica L.P.
Contact person: Carlos A. Reyes, General Manager of Operations
Contact details: +1 787 487 6002

**Description of engagement or experience and objectives of the project including beginning and ending dates:**

In 2010 PREPA was interested in analyzing the possibility of increasing the natural gas power in Puerto Rico and consequently:

- Reduce energy cost
- Promote smart energy consumption
- Protect the environment

The Costa Sur Power Plant was selected for the conversion since it was located near EcoElectrica's LNG facility which simplified the delivery of regasified natural gas to the plant.

**Examples of recommendations offered to the client and the results of the implementation of those recommendations:**

Considering that the Costa Sur Power Plant is close to EcoElectrica's LNG facility and Naturgy owns the 47.5% of interest in EcoElectrica, both parties worked together to increase the LNG plant regasification capacity and install the gas metering equipment at Costa Sur. In this regard it was necessary to convert Costa Sur Power Plant, which burned FO#6 at that time.

As a result, Costa Sur has reduced its operating costs, increasing the efficiency and economic savings.

**Information regarding the project that would demonstrate successfully experiences by the client, as a result of the recommendations. This may include performance metrics and improvements:**

Currently 820 MW out of a total of 1,090 MW uses natural gas. It is one of the bases of the generation on the island and provides flexibility by allowing the control of energy production. Costa Sur reassures power service to the Puerto Rico and provides more affordable energy.

**Description of key infrastructure programs or projects advanced as part of the engagement, if any:** EcoElectrica duplicated its LNG vaporization capacity up to 4 vaporizers of 93 MMscfd each (3 in operation and 1 in stand-by).

**Exhibit 7: Aerial view of PREPA's Costa Sur power plant in Guayanilla, Puerto Rico**

### 2.4.2. Similar engagement 2 – Sagunto LNG Regasification and Storage Terminal (Spain)

Client name: SAGGAS
Contact person: Santiago Alvarez Fernández, General Manager
Contact details: salvarez@saggas.com, +34 961014220

**Description of engagement or experience and objectives of the project including beginning and ending dates:**

As part of its 2002-2011 Gas & Electricity Energy Plan, the Spanish Government found it necessary to build a new LNG regasification terminal and power generation plant in Sagunto, Spain in order to guarantee a supply of gas and electricity. This project was then modified to a LNG regasification facility.

**Examples of recommendations offered to the client and the results of the implementation of those recommendations:**

Naturgy provided 100% of the project management services and supervision for engineering, construction, commissioning and start-up of the facilities.

**Information regarding the project that would demonstrate successfully experiences by the client, as a result of the recommendations. This may include performance metrics and improvements:**

Currently the regasification plant and power generation are in operation providing gas and electricity in daily basis.

**Description of key infrastructure programs or projects advanced as part of the engagement, if any:**

The Sagunto Regasification Plant was designed and built with the following characteristics:

- Minimum: 40,000 $Nm^3/h$ (0.35 bcma)
- Nominal:750,000 $Nm^3/h$ (6.57 bcma)
- Installed: 950,000 $Nm^3/h$ (8.32 bcma)
- LNG storage capacity 2 tanks 150,000 $m^3$.

As a result of the expansion, two more 150,000 $m^3$ LNG tanks were installed and vaporization capacity till 1,150,000 $Nm^3/h$.

**Exhibit 8: Aerial view of the Sagunto LNG Regasification and Storage Terminal in Spain**



### 2.4.3. Similar engagement 3 – Bahia Blanca and Escobar FSRU Terminals (Argentina)

Client name: ENARSA/YPF
Contact person: Francisco Alonso Gallego
Contact details: falonsog@naturgy.com +34 915896119

**Description of engagement or experience and objectives of the project including beginning and ending dates:**

Naturgy participated alongside ENARSA/YPF in analyzing the viability of setting up a fast track solution to import LNG to meet ENARSA/YPF's timeline, which meant a developing a solution from concept to commissioning in nine months.

**Examples of recommendations offered to the client and the results of the implementation of those recommendations:**

After developing very detailed and sophisticated studies, and taking into account that Argentina had no LNG regasification terminals, the team concluded that the most reliable, efficient, and quickest solution was the use the of FSRU technology.

As a result, two FSRUs were installed, allowing the supply of LNG and covering the natural gas demand of the country. The team managed the installation and operation of the FRSUs and put in place a complex logistic program with partial deliveries.

Bahia Blanca was the first commercial FSRU. The project is now on its tenth year of successful operation.

**Information regarding the project that would demonstrate successfully experiences by the client, as a result of the recommendations. This may include performance metrics and improvements:**

The facilities allowed an average delivery of 6 bcma, avoiding the import of oil products and generating important savings.

**Description of key infrastructure programs or projects advanced as part of the engagement, if any:**

The solution consisted in the modification of an existing LPG jetty suitable to berth a FSRU during the winter season and capable of double banking a FSRU with a supply LNGC (which would periodically refill the FSRU's tanks).

**Exhibit 9: Aerial view of the Bahia Blanca FSRU in Argentina**

## 2.5. Naturgy's staff and their technical expertise

Naturgy has inside its main personnel the capabilities required for the development of every aspect of the LNG value chain, from design to construction and operation to maintenance of the facilities. The team has extensive experience in the management and execution of large-scale energy projects.

Naturgy has also provided consultancy services for successfully conducting from preliminary/feasibility studies to turnkey projects for the development of regasification plants, liquefaction plants, compressor stations, gas pipelines, supply branches and distribution networks.

## 2.6. Key staff for this project

The following key positions will form part of the Project Management Team:

1. Project Manager
2. Construction Manager
3. Engineering and Design Manager
4. Cost Control and Contract Manager
5. Environmental and Permitting Manager
6. Maritime and Logistics Manager

The person playing the key role for the project will be the Project Manager, who will be fully dedicated to the project's on-site construction activities and future operation and maintenance of the facilities.

Staff from Naturgy's engineering, procurement, and economic control departments will work closely with the Project Manager in the development of the main tasks of engineering, procurement, construction and commissioning.

All procurement, billing and other administrative tasks will be carried out by the Project Management team. They will work in close collaboration with the Group's intermediate and management teams.

The maintenance will be executed mainly by a team of external contractors who will report to the Project Manager after the commissioning phase. This team will do regular maintenance in the installation and supervise all reparation work when needed.

The following is the list of people who will cover the key positions for this project and who are available to start immediately on this project.

| NAME & LOCATION | PROPOSED POSITION | EDUCATION | EXPERIENCE | EXPERTISE |
|---|---|---|---|---|
| **Juan Romero Blanco** | Project Manager | Electrical Engineer | 25 Years | Project Management, Feed and Detailed Engineering in LNG Terminals |
| **Jose Miguel Rullan Caparros*** | Construction Manager | Electrical Engineer | 25 Years | Construction Management in LNG Plants, Gas Infrastructures and CC Plants |
| **Mauricio Rojas Quintian** | Engineering and Design Manager | Mechanical Engineer | 13 Years | Engineering and design of mechanical works in LNG projects |
| **David Power** | Cost control and Contract Manager | Civil Engineer | 8 Years | Cost control, scheduling, project claims, contract terms |
| **Ceferino Aponte Rivera*** | Environmental Manager & Permitting | M.E in Chemical Engineering, P.E. | 40 Years | Environmental, health and safety (EHS), process and environmental engineering |
| **Gema Lopez Garrido** | Maritime & Logistics Manager | Naval Architect | 12 Years | Shipping project development, maritime infrastructures |

*(*) Puerto Rican citizen currently residing in Puerto Rico*

**Table 3: List of key staff and expertise**

## 2.7. Local subcontractors and parties

As previously indicated in Section **Error! Reference source not found.**, Naturgy has extensive experience working in Puerto Rico thanks to the projects it has developed there, some of which are currently in operation.

In all cases, Naturgy has executed these projects under direct supervision, which has enabled it to establish strong bonds with local subcontractors and parties. Examples of some of Naturgy's current Puerto Rican subcontractors and agencies are:

- Aireko (civil, electrical, and mechanical contractor)
- Mar-Land Industrial Contractors Inc. (civil, electrical, and mechanical contractor)
- Frank Electric Services Inc. (electrical, and I&C contractor)
- TEC Caribbean Inc. (civil works contractor)
- Environmental Resources Management (EHS and permitting contractor)

These companies have the sufficient experience to assist Naturgy in the development of our proposal.

## 2.8. Financial Capacity & Resources

In this section we will summarize our financial capacity and resources, which show Naturgy's ability to handle large scale supply and infrastructure projects. Also explained is our plan for financing this project.

Audited financial statements for the last 3 fiscal years (2015-2017), as requested in section 4.2 of the RFP as evidence that Naturgy can perform and manage this project, can be downloaded publicly from the Shareholders and Investors section of our website: https://www.naturgy.com/en/shareholders_and_investors/financial_information.

### 2.8.1. Financial Statistics

The Naturgy Energy Group reported, as per its financial statements, net sales of over 20 billion euros per year over the last five years (2013-2017). Additionally, Naturgy reported an EBITDA of 3.915 billion euros in 2017 with total attributable net profit of 1.697 billion euros. The following table is a summary of the main aggregates:

| INCOME STATEMENT KEY FIGURES (millions of euros) | 2013 | 2014 | 2015 | 2016 | 2017 |
|---|---|---|---|---|---|
| **Net sales (Revenue)** | **24,322** | **24,742** | **26,015** | **21,908** | **23,306** |
| **Gross operating profit (EBITDA)** | **4,849** | **4,853** | **5,264** | **4,664** | **3,915** |
| Net operating profit | 3,022 | 3,190 | 3,261 | 2,764 | 2,112 |
| Financial profit/loss | -803 | -801 | -894 | -815 | -699 |
| Profit before tax | 2,157 | 1,915 | 2,363 | 1,851 | 1,427 |
| **Consolidated profit for the financial year** | **1,658** | **1,658** | **1,824** | **1,711** | **1,697** |

**Table 4: Income statement key figures**

### 2.8.2. Ratings

The Naturgy Energy Group S.A. obtained its first rating in February 1999. Naturgy's current investment rating in force are:

| Agency | Long term | Short term | Forecast |
|---|---|---|---|
| S&P | BBB+ | A-2 | Stable |
| Moody's | Baa2 | P-2 | Stable |
| Fitch | BBB | F2 | Stable |

**Table 5: Credit ratings from largest ratings agencies**

### 2.8.3. Risk

Naturgy's comprehensive risk management model aims to guarantee the predictability of the company's performance in every aspect relevant to its stakeholders. This requires establishing the risk tolerance by means of setting limits for the most relevant risk categories. With this, the company can anticipate the consequences of the materialization of certain risks, thus being perceived in the markets as a solid and stable company, with the benefits this entails.

Naturgy has a framework which incorporates the company's government vision, risks and compliance, allowing for an integrated vision of the group's processes, existing controls of these processes and the associated risk.

### 2.8.4. Financial planning for this project

Both the FSRB and FSRU will be a Time Charter Party contract.

The onshore facilities (high pressure loading arms, metering station, natural gas pipeline, and generation units 5 & 6 conversion) will not require any financing.

Therefore, the entire solution is covered by our financial capabilities.

### 2.8.5. Insurance letter

The letter from the insurance company that will provide the required insurance on behalf of Naturgy if it is awarded the contract for this project is included in Annex I.

# 3. Technical proposal

According to the RFP, PREPA is developing a project that would reduce the cost of generation and improve the compliance with environmental requirements of the Units. This project would involve the following main requirements:

- Deliver and supply of natural gas.
- Convert Units to this alternate fuel.
- Supply, construct, commission, operate, and maintain the fuel terminal and all the equipment, installations, and interconnections necessary to deliver the alternate fuel from the fuel terminal to the turbine combustor inlets of Units.
- Meet a minimum demand of 25 TBtu/y.
- Have the Units fully operational as soon as possible.

Taking this into account, Naturgy has developed a solution to this project that would address the key objectives of this project:

- Reduce energy cost
- Reduce operating expenses
- Increase efficiency
- Diversify energy sources
- Maximize use of advanced technology
- Increase access to cleaner sources of energy
- Protect the environment

In addition to achieving these objectives, Naturgy's approach also took into account providing the alternate fuel in the shortest time possible while minimizing the impact to the San Juan port and generating station area.

## 3.1. Naturgy's proposed solution to this project

As indicated in the Executive Summary, Naturgy's proposal to PREPA's requirements involves the use of a FSRB with a short gas pipeline connection to the Units.

The FSRB, which will be regularly supplied with LNG from an LNG carrier, will be moored to the wharf in front of the San Juan power plant. From here, the natural gas reception facilities as defined below will deliver the natural gas from the FSRB to the gas pipeline, through which it will flow to the metering station and then to the delivery points of the Units. Below is a superimposed diagram showing the layout of our approach on a satellite picture of area:

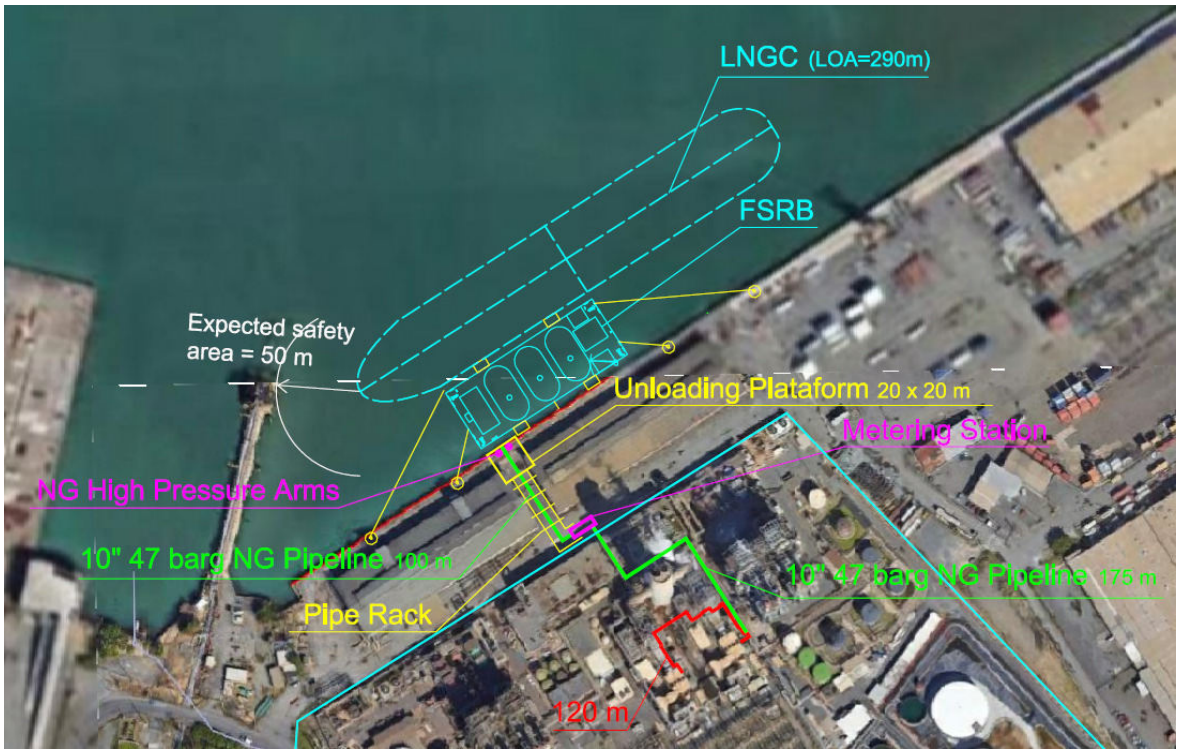



**Exhibit 10: Layout of the proposed solution (with LNG carrier during LNG unloadings and natrual gas delivery)**

As indicated in the Executive Summary, Naturgy's proposal includes the use of a readily available 170,000 $m^3$ FSRU from its fleet that will supply the gas to the Units while the FSRB is being built.

## 3.2. Technical description of the solution

Following the flow of natural gas from the LNG carrier to the delivery points at the Units, Naturgy's proposed solution can be divided into the following functioning areas:

1. San Juan harbor & infrastructures.
2. Supply and logistics.
3. FSRB.
4. Mooring system and Marine Facilities.

### 3.2.1. San Juan harbor & infrastructures

The Port of San Juan is a seaport facility located in the metropolitan area of San Juan, Puerto Rico. This port is the leading commercial port of Puerto Rico. San Juan Bay extends 2.6 nautical miles to the main container terminal at Puerto Nuevo. It is the only harbor on the North coast of Puerto Rico which offers protection in all types of weather conditions.


**Exhibit 11: Satellite view of Puerto Rico and location of San Juan Harbor**

Our proposal is based on USACE's Integrated Feasibility Report & Environmental Assessment for San Juan Harbor (June 2018). USACE's project defines current depth and width of navigation channels and the return basin. Further studies will be carried out in the next phase of the process.

**Environmental Conditions:**

Easterly trade winds predominate throughout the entire year, primarily from the ENE direction. Wind speeds in the area are moderate.

- The mean annual wind speed is 7.7 knots,
- Maximum wind speeds occur in July, mean monthly velocity is 8.7 knots
- Minimum wind speeds generally occur in October with an estimated value of 6.1 knots.
- Infrequent tropical storms and hurricanes are sometimes severe, occur any time from August to October.

Regarding waves in San Juan Harbor, coastal areas are subject to constantly changing erosion and accretion trends. Additionally, the natural variability of wind speed and direction combined with wave addition and cancelling effects make it difficult to reliably predict whether vessel- and wind-generated waves will cause erosion or accretion at specific locations.

The tidal range throughout San Juan Harbor is uniform and microtidal. The astronomically-generated high and low tides within the Federal channel range from about 1 to 2 feet over the year.

Currents at San Juan Harbor are greatly influenced by the direction and strength of the trade winds. The trades blow primarily from the northeast, which in conjunction with the east-west alignment of the coastline results in a westerly, alongshore current. Surface currents show general westward drift (mean speed 0.6 knots) with a significant tidal component (EPA 2011).


**Exhibit 12: San Juan Harbor Plan View**

In summary: thanks to the benign meteorological conditions (excluding harsh weather conditions such as hurricanes), the sheltered infrastructures of the port, and the information previously described, it can be concluded that the San Juan Harbor allows the installing a floating regasification terminal and ship to ship operations.

### 3.2.2. Supply and logistics

Different logistics configurations have been considered to supply the Units and Naturgy's preferred option is to supply the FSRB by combining the logistics with other customers in Puerto Rico. The proposed solution implies that the LNG carrier currently discharging at EcoElectrica will also discharge at the San Juan FSRB terminal. This is the best logistics plan as it takes advantage of the economics of transporting the LNG via large-scale vessel while reducing the cost in transportation.

Once the vessel has discharged at the first customer, a conventional LNG carrier (LNGC) will arrive regularly to supply LNG to the FSRB via a Ship To Ship operation in Port of San Juan.

The LNGCs will enter the Puerto Nuevo Terminal through the Anegado Channel and the Army Terminal Channel. Currently the depth in these channels and turning area is 40 feet, which means the LNGC will enter with partial LNG load to avoid or minimize dredging works.

This solution is based on using standard LNG carriers, which is another advantage for the supply as it can be performed immediately with any of the vessels already contracted in the fleet, and could be replaced in case of necessity. This provides extra strength to the supply chain.

**In order to comply with Jones Act regulation, Naturgy's LNG will be sourced in non-USA countries and be shipped to the FSRB.**

So as to ensure that the Units may operate at a full load in the event of port restrictions, which requires a supply of 25 TBtu/y and 7 days of storage, around 20 discharges of 50.000 m3 will be carried out.

In conclusion, this supply chain has the following advantages:

- Minimum impact in dredging by utilizing partially load vessels
- Robust logistics by utilizing conventional LNG ships already available in the fleet
- Jones Act fulfillment

Barge mooring: Due to the lower dimensions of the barge when compared with a conventional FSRU, the impact in the nearby berths is reduced or even avoided.

### 3.2.3. Floating Storage and Regasification Barge (FSRB)

After analyzing the market possibilities in floating regasification units and due to the characteristics of the proposed berth, Naturgy proposes the use of a mid-scale 75,000 $m^3$ FSRB in order to have the maximum efficiency of electricity generation and regasification.

The construction duration of this new FSRB is 26-30 months so Naturgy advises to start the project with one of the readily available FSRUs of its current fleet (170,000 $m^3$) as short term solution until the new FSRB is delivered.

Both the long and short-term solutions can fulfill the RFP requirements. Naturgy will ensure that the vessels will be managed by ship-owners of reputed prestige and experience in LNG. These selected ship-owners have extensive experience in carrying out Ship-To-Ship maneuvers and will provide the project with trained and experienced crews.

The FSRB and FSRU will not be performing cabotage as both vessels will be moored in the San Juan harbor, with the understanding that as the vessels are not trading between two points in United States, the vessels would also be exempted from complying with this regulation.

The FSRB and FSRU will be designed, constructed, and delivered as a FSRB with 20-year design life and capable of LNG storage, loading/offloading and export of the natural gas to a shore pipeline.

These units will comply with the following criteria:

- to receive LNG carriers in the range of 138,000 $m^3$ – to 178,000 $m^3$ LNG
- to be sized within a range of [75,000-170,000] $m^3$ of storage

| | FSRU (Short term solution) | FSRB (Long term solution) |
|---|---|---|
| **LOA ( m)** | 295 | 125 |
| **B ( m)** | 46 | 46 |
| **T (m)** | 11.6 | 9.20 |
| **Storage Capacity ($m^3$)** | 170,000 | 75,000 |
| **Pressure outlet range** | 40 to 80 b | 40 to 80 b |
| **Nominal pressure outlet** | 45bar g | 45bar g |

| | | |
|---|---|---|
| **Normal regas capacity** | 500 MMScfd N+1 | 120MMScf N+1 |
| **Max regas capacity** | 750 MMScfd N+0. | 180 MMScfd N+0. |
| **Propulsion** | DFDE | N/A |

**Table 6: Summary of the characteristics of the FSRU and the FSRB**

Below are the general arrangements of both vessels:

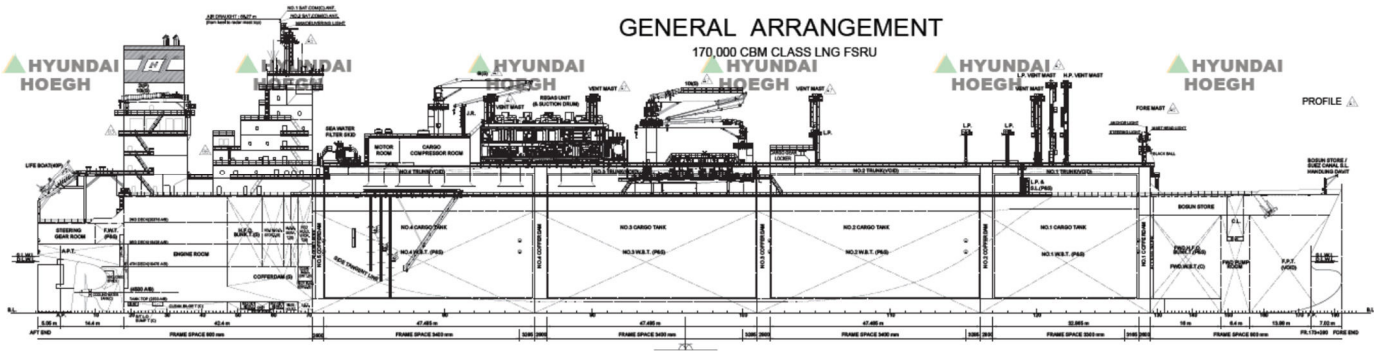



**Exhibit 13: FSRU General Arrangement – Short Term Solution**

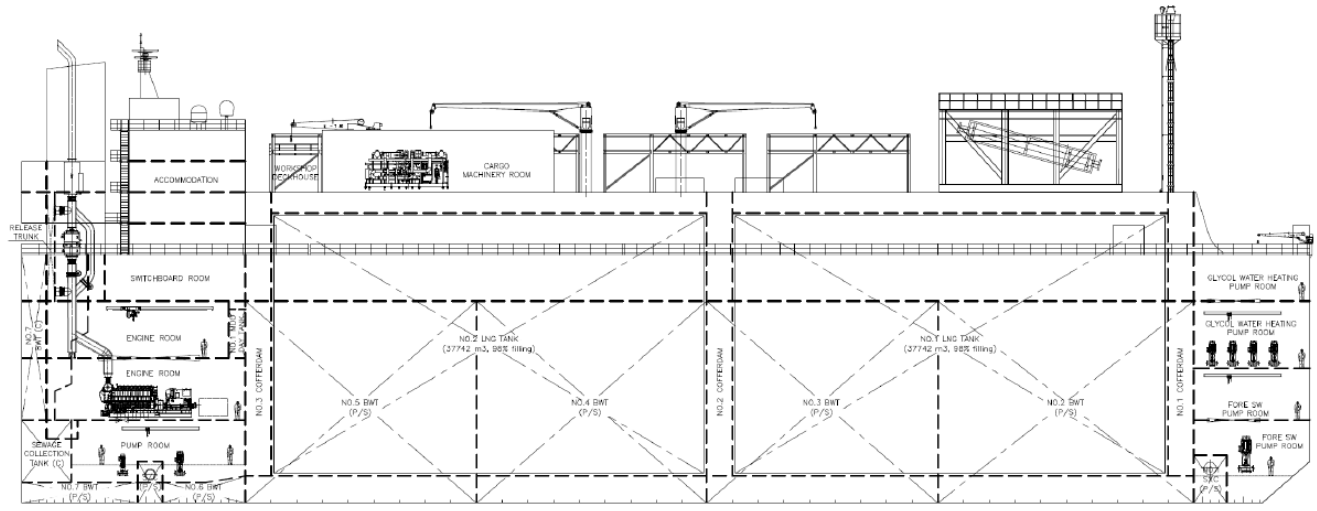



**Exhibit 14: FSRB General Arrangement – Long Term Solution**

The objective pursued with the FSRB is to minimize the occupancy of the nearby berths. Due to its reduced dimensions the impact to the consecutive wharfs is minimized by reducing the impact exclusively to the phase in which the discharge operation is done.

### 3.2.3.1. Common Characteristics of the floating regasification units:

From an operational point of view, Naturgy's solution guarantees maximum flexibility and redundancy with enough capacity in the regasification system to guarantee the maximum availability for regasification. For this purpose, Naturgy has optimized its design with the following features:

- ***Maximum regasification flexibility****:* to provide expansion possibilities and maximum operating flexibility, guaranteeing a working solution from a technical minimum of 120/500

MMscfd (depending on solution) to a technical maximum of 180/750 MMscfd (depending on the solution).

- ***Variable pressure range:*** Since the project must cover different scenarios, Naturgy has included the option of regulating the outlet pressure from 40 to 80 bar, to ensure that it can be sent to other locations without the need for an additional compression station.
- ***Redundancy in regasification:*** with three interchangeable regasification modules that guarantee n+1 redundancy during the maximum demand of the power plants of each location.
- ***Quality measurement:*** The regasification unit will include the capability to measure the quality while suppling continuous information to shore.

#### 3.2.3.2. Environmental design features

The maximum sea water temperature difference will comply with the Federal/State environmental regulations.

#### 3.2.3.3. Availability of Regasification

The design characteristics of the regasification system as well as those of the systems on board the FSRB/U ensure the maximum reliability of the equipment. To this end, a redundant design has been chosen for all the systems, which can be summarized as follows:

- **Redundancy in regasification:** with three interchangeable regasification modules, each one with the maximum demand of the combined cycle, redundancy over 1.2 bcma.
- **Redundancy in electricity production (FSRU option):** there are three dual motors that will consume gas or fuel depending on demand, each with a capacity of 4,150 kW. A single motor covers the demand for FSRU to supply the nominal flow of 90,000 $Nm^3/h$.
- **Redundancy in measurement:** a double measurement system will be available at the discharge.
- **Redundancy in the LNG pumps:** there is a supply LNG pump in each of the tanks with redundant capacity with the three regasification modules in operation.

The FSRB/U will have an experienced crew trained to perform maintenance on DF engines. Maintenance of regasification equipment will be incorporated into the vessel maintenance system following the recommendations of the regasification manufacturers.

The cargo tanks will be prepared for inspection/maintenance in a tank while the vessel is in continuous operation as a regasification vessel.

In conclusion the FSRU will be designed to operate in all situations with 100% redundancy.

#### 3.2.3.4. Maintenance Strategy

Naturgy together with the owner of the ship, will have a FSRB to be able to extend the dry dock interval. They will work together with the Classification Society to obtain acceptance from local/state port authorities for a 20 year berthing period, provided the barge operates as a regasification ship. This solution is already commonly used on offshore vessels and is accepted by the Classification Society.

If the extension of the term is not feasible, the FSRU will be replaced by a market unit with similar characteristics during the maintenance period.

#### 3.2.3.5. LNG Transfer System

Ship to Ship transfers from the LNGC into the Regasification Units will be made using cryogenic hoses, saddles and ERC (Emergency Release Coupling) as shown in the following figure. The system will be designed to discharge at a flow rate of approx. 5,000m3/h.

1. Feeder Vessel
2. Receiving Vessel
3. Liquid Line Hose
4. Vapour Line Hose
5. Y-Piece Reducer
6. Saddle and Hose Break System
7. ERC
8. V23
9. HPU/EHPU/SILSIS
10. ESD1
11. EDS2

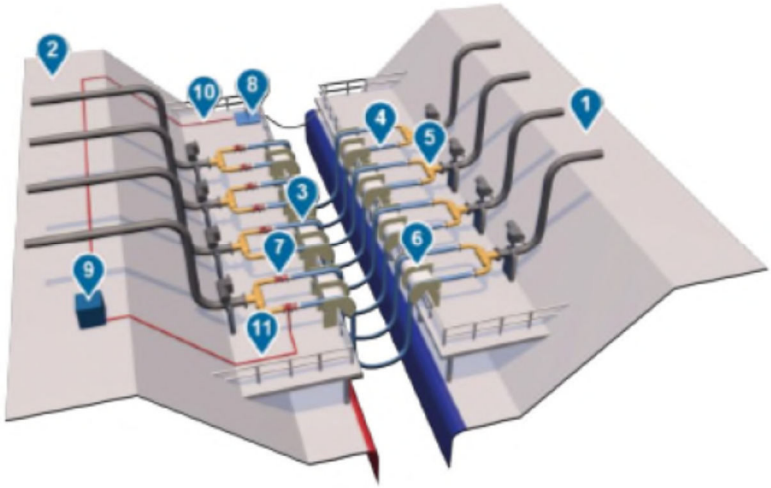



**Exhibit 15: The LNG transfer system**

LNG receiving manifold arrangement will be based in accordance with OCIMF manifold recommendations.

### 3.2.3.6. Vessel shore communications

The system will comply with the relevant rules and regulations applicable to regasification vessels with the necessary "ship to shore" connections and links, including ESD. It will be supplied with all necessary cables and cable reels for voice and signal communication as required by the relevant shore terminals.

### 3.2.3.7. Hurricane operation Strategy

Studies will have to be done to find the most suitable location to protect the FSRB in case of hurricane warning. The FSRB will disconnect from its mooring and will be moved to the appointed location whereas the FSRU will be able to sail away in the event of hurricanes.

### 3.2.4. Mooring system

As was explained before, our proposal is based on USACE's Integrated Feasibility Report & Environmental Assessment for San Juan Harbor (June 2018). USACE's project defines current depth and width of navigation channels and the return basin. Further studies will be carried out in the next phase of the process in order to confirm the necessity of dredging to accommodate either the FSRU or FSRB and for the approach and entrance of the LNGCs.

To define the right mooring arrangement, the following studies will have be carried out:

- Dynamic mooring studies of the regasification vessels at the quay with and without the LNG supply vessel.
- Verification of the permitted movements of the vessels as established by the industry standards PIANC / OCIMF and according to the restrictions of ship-to-ship equipment.
- Definition of operational limits.

Other studies which will have to be carried out to grant the access to the berth are:

- Maneuvering studies (simulations of the passage, approach, docking…).
- Local traffic interference studies.
- Analysis of emergency maneuvers.
- Study of the required port services: (tugboats, provisions).
- Development of operational manuals.
- HAZID analysis.

With the information available at this moment, a preliminary analysis has been done to define a tentative mooring arrangement for both regasification vessels:

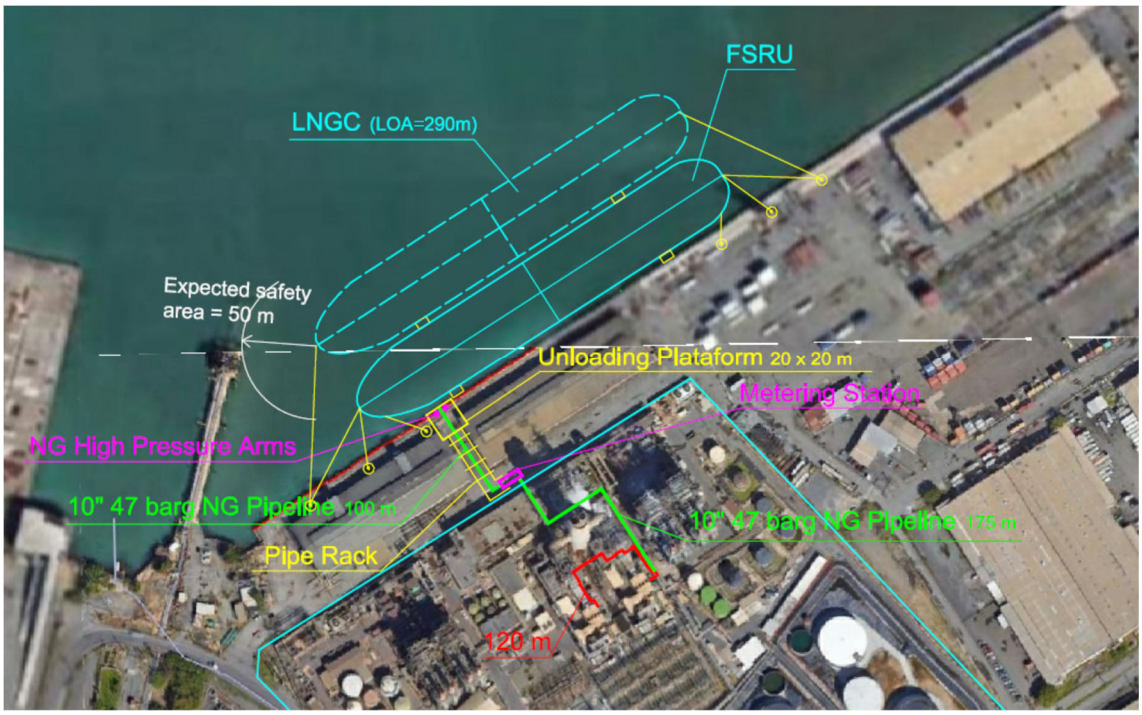



**Exhibit 16: Mooring arrangement of FSRU**

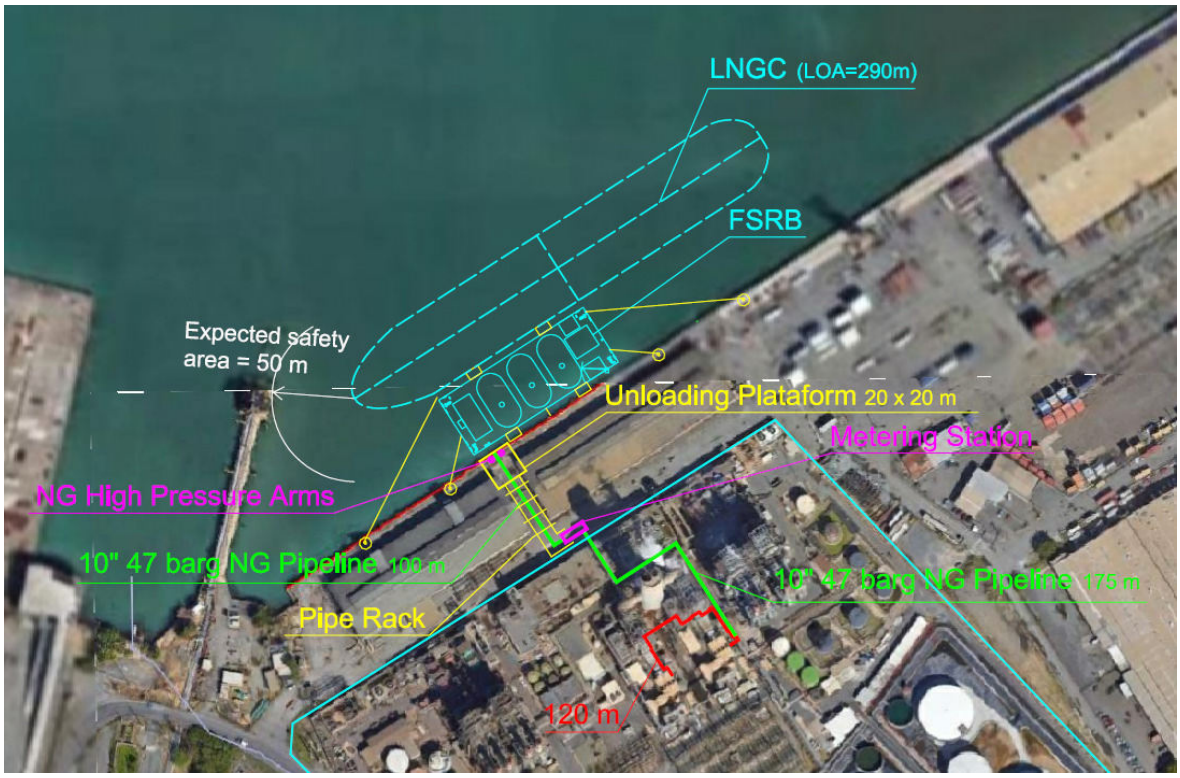



**Exhibit 17: Mooring arrangement of FSRB**

The mooring system will have quick release hooks and Yokohama fenders to be able to moor a vessel of up to 176,000 $m^3$ next door and will count with a rapid-fire system to operate from the regasification vessels as it is established by the industry.

### 3.2.5. Natural gas unloading system

#### 3.2.5.1. Natural gas reception facilities

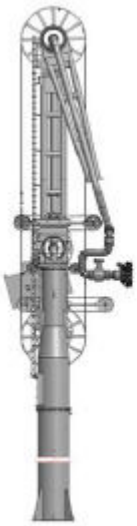
NG Reception Facilities (NG-RF) consisting of 2 x 100% 10 inches high pressure unloading arms will be installed on top of the dock area nearby the unloading platform, along with utilities, ancillary services and all the required topsides for operation and maintenance activities.

#### 3.2.5.2. Compressed Natural Gas Transfer Arms (CNG arms)

Marine loading arms for compressed natural gas unloading meet the requirements of OCIMF and they are supplied with the Position Monitoring System (PMS) in order to make sure that the marine arm works within its operating limits.

Furthermore, the CNG arms are provided with High-Pressure Hydraulic QC/DC Couplers. The hydraulic High Pressure QC/DC is fitted to the loading arm at the end of the Triple Swivel Assembly (TSA) and its features include:

- Simultaneous operation clamping claws
- Coupler remains fastened to tanker manifold in case of hydraulic power failure
- QC/DC that can be opened manually using a manual hand-pump
- Two energized seals that provide for sealing between coupler and manifold flange
- Leak detection port between coupler seals
- Can be used as an emergency shutdown device



This advanced hydraulic HP CNG marine arm has been designed to withstand the full rigours and long reach capability normally required on an HP CNG berth.

The arm design takes into account the requirements for Emergency Release Systems (ERS).

Source: SVT

**Exhibit 18: Illustration of the hydraulic high pressure unloading arm**

### 3.2.5.3. High Pressure NG flexible hoses

As an alternative to CNG arms Naturgy is considering the possibility of using high pressure flexible hoses. This will be determined during the detail engineering phase. Below is a technical specification for this type of hose.

PRODUCTION HOSES

## Topside Jumpers

for gas service

Production, gas injection, gas lift, gas export, FLNG high pressure import, FSRU high pressure export

Standard

API Spec. 17K

Construction

| | |
|---|---|
| **Bore type** | full flow, rough bore |
| **Liner type** | $H_2S$ resistant HNBR or PA |
| **Operating temperature** | -30°C to +90°C (-22°F to 194°F) |
| **Max. available length** | 60m (200ft) up to 8"<br>30m (100ft) up to 16" |

Features & Comments

- Cathodic protection is available upon request
- Lengths over 60m (200ft) are available in some sizes with splicing technology
- Coupling materials meet NACE MR 01-75 / ISO 15156 latest edition
- Material of the end fittings is either carbon steel or duplex
- Material of the internal carcass is either 316L or 254 SMO
- Handling instructions: ContiTech TKO ASO and AS4 latest edition

Technical Data

| Inside Diameter | | Type | Rated Working Pressure | | Test Pressure | | Safety Factor | Outer Diameter | | MBR (static) | | MBR (dynamic) | | Weight | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| mm | in | | bar | psi | bar | psi | (WP) | mm | in | m | ft | m | ft | kg/m | lb/ft |
| 255 | 10.0 | Fire rated | 155 | 2.250 | 233 | 3.375 | 2.25 | 383 | 15.1 | 2.6 | 8.5 | 3.5 | 11.5 | 168 | 113 |
| | | Fire rated c/w st. st. wrap | | | | | | 394 | 15.5 | 2.6 | 8.5 | 3.5 | 11.5 | 184 | 124 |

**Exhibit 19: Technical specifications of the High Pressure NG flexible hoses (Source: Contitech)**

### 3.2.6. Send-out Gas Pipeline and aerial pipe rack

The purpose of this section is to provide a preliminary pipeline route and overview of gas pipeline and location, in order to give a main equipment list and a first cost estimation.

#### 3.2.6.1. Gas Pipeline Sizing

The following basic references and design basis has been taken into consideration for natural gas pipeline sizing and definition;

- ASME B31.8, Standard: Gas Transmission and Distribution. Piping Systems.
- Pipeline Design & Construction: A Practical Approach, M. Mohitpour, H. Golshan, A. Marruy, 2nd Edition 2003, ASME Press.
- ES.0025-GN-DG Naturgy Standard: Tubo de Acero DN 50 Hasta DN 750. (Internal Improved Standard)
- NT-0202-E Naturgy Standard: Criterios de Diseño y Regulación de estaciones de Regulación y/o medida con presiones de entrada superiores a 16 bar. (Internal Improved Standard)

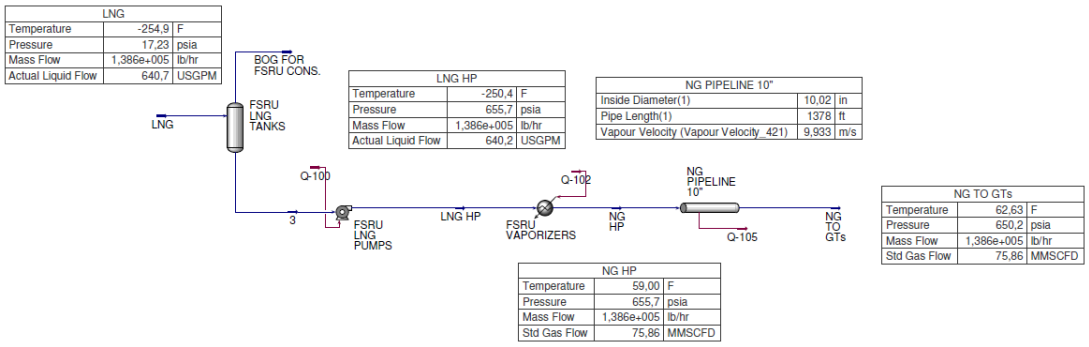



**Exhibit 20: Process simulation**

Other considerations and assumptions taken for the study:

- Minimum pressure loss at RMS 2 barg.
- Algorithm for pressure drop calculations: Panhandle A with an efficiency factor of 0.92 (bad conditions).
- Gas flow speeds around 4 - 10 m/s, never to exceed 15 m/s.

Therefore from above simulation it is decided the send-out gas pipeline to be sized 10 inches.

#### 3.2.6.2. Aerial pipe rack

The send-out gas pipeline connecting the Unloading Platform to the Metering Station will be running on an aerial pipe rack.


**Exhibit 21: Detail of the aerial pipe rack**

The pipe rack will also support the utilities lines, electrical and instrument cables.

### 3.2.7. Metering station

Naturgy will provide a metering station similar to the one that was installed for PREPA in the Souco Dual Fuel Conversion Pilot Project at Costa Sur.

The metering station for this project will consist of two measurement and filtering lines, using ultrasonic gas flow meters for the measurement process, and high efficiency filters for the filtering process. A scrubber has been planned to be installed upstream from the lines. During systems operations under normal conditions, only one of the measurement lines shall be in operation.


**Exhibit 22: Detail of the metering station**

Each measurement line will have a capacity of 100% of the total measurement capacity; therefore one of the two measurement lines will be left for swapping. Both will immediately enter into operation in the event of failure of any element of the other line, or simply to guarantee supply operations during maintenance activities.

The measurement system of the lines will include ball type valves for blocking and an automatic close valve in the entry header to protect the entire system.

As described above, the measurement system will comprise two lines, which in turn can be considered divided into the following functional modules:

- Filter module
- Flow metering
- Chromatograph

The measurement module system will be designed using pipes with a diameter of 10” and will be used as a reference diameter for the rest of components (valves, volume meters, etc.)

#### 3.2.7.1. Filter module

The filter module will consist of:

- Coalescent filter (1x100%)
- Differential pressure transmitter associated to the filter
- Safety valve associated to the filter

Filters will be cartridge type and vertically placed; the diameter of primary connections will be of the same size as the diameter of the high pressure line (10").

Filters will be equipped with a quick opening system for inspection and/or replacement.

The design details for the purpose of mechanical resistance are:

- Design pressure: 740 psig
- Design temperature: -20 to 100°F

An entry pressure of 650 psia at 60°F has been considered for the purpose of maximum volume and pressure drop (clean and dirty).

### 3.2.7.2. Flow metering

Ultrasonic Gas Flow Meter applications have expanded considerably since their introduction over two decades ago. Applications demand technically advanced solutions and Elster-Instromet continues to meet the challenge. The 4th generation ultrasonic meters produced by Elster-Instromet today are the most sophisticated in the market. The Q.Sonic line of ultrasonic flow meters is the only one featuring extended diagnostics with the possibility of detecting fouling and ultrasonic flow pattern recognition with dynamic k-factor calculation.

In this project the system consists of two metering streams for high flow and one metering stream for low flow with a Turbine meter. Each High flow metering stream consists of a single Q-Sonic4 meter. The meter output will be connected to a flow computer.

In addition, a permanent contrast line will be installed, with a full bore ball valve, which will be connected between the two streams, allowing for verification.

The manual valves involved in putting the ultrasonic flow meters in line for verification will include limit switches that through their combination with a logic system (PLC) will prevent the flow of gas from being computed twice.

Each measurement line will include all necessary elements, i.e.:

- Ultrasonic or turbine flow meters
- Absolute Pressure transmitter (PT)
- Temperature transmitter (TT)

It will include the following common elements:

- Sampling for the chromatograph
- Flow computer with the calculation algorithms being used. (AGA 8).

In all cases, measurement will be made under the most stable conditions to achieve the best accuracy possible (pressure stability, temperature and volume)

In general, all instrumentation will be designed and installed in accordance with API RP 500 recommendations, and will be duly calibrated, prior to assembly in the field.

The ultrasonic body will be made by carbon steel and flanges ANSI 600 RF.

### 3.2.7.3. Chromatograph

The Chandler Model 2920 Gas Analyzer System is a stand-alone gas chromatograph designed to measure the heating value of up to six natural gas streams. Its modular design makes it easy to install, operate, and maintain in the field, and an optional software package is available for remote communications, diagnostics and control. Built to withstand harsh environmental conditions, the Model 2920 delivers the repeatability and accuracy of a laboratory gas chromatograph. It uses field-proven technologies and industry-standard gas chromatographic techniques.

### 3.2.8. Rest of components:

- Ball valves for line isolation
- Monoblock insulating gasket in the intake collector of the measurement module
- Local temperature indicator (to be located in the exit collector)
- Two local pressure indicators (one at the intake collector and another on exit)
- Any other mechanical element necessary for conditioning of gas and perfect operations of the station
- Automatic close valve through pressure variation
- Natural gas leak detection, firefighting and explosion systems
- Screws, pipes, valves, wheels, bolts and gaskets necessary for the adaptation of the various components to pipes supplied by others to secure them and obtain suitable air tightness during normal operations
- Non-check or similar anti-return valve

### 3.2.9. Natural gas supply line to the Units

#### 3.2.9.1. Main manifold

Once the natural gas is measured in the Metering Station it will be sent to a common manifold for distribution to both Units.


**Exhibit 23: Gas line from Metering Station to turbines**

The access to the power plant will be at the north area, parallel to the existing piping routing (to be studied during detailed engineering phase).

#### 3.2.9.2. NG supply to the Combustion Turbine's Gas Control Skid

Once the natural gas manifold is in the vicinity of turbine-6 it will follow the routing defined by the Socoin project to inject gas to both units.

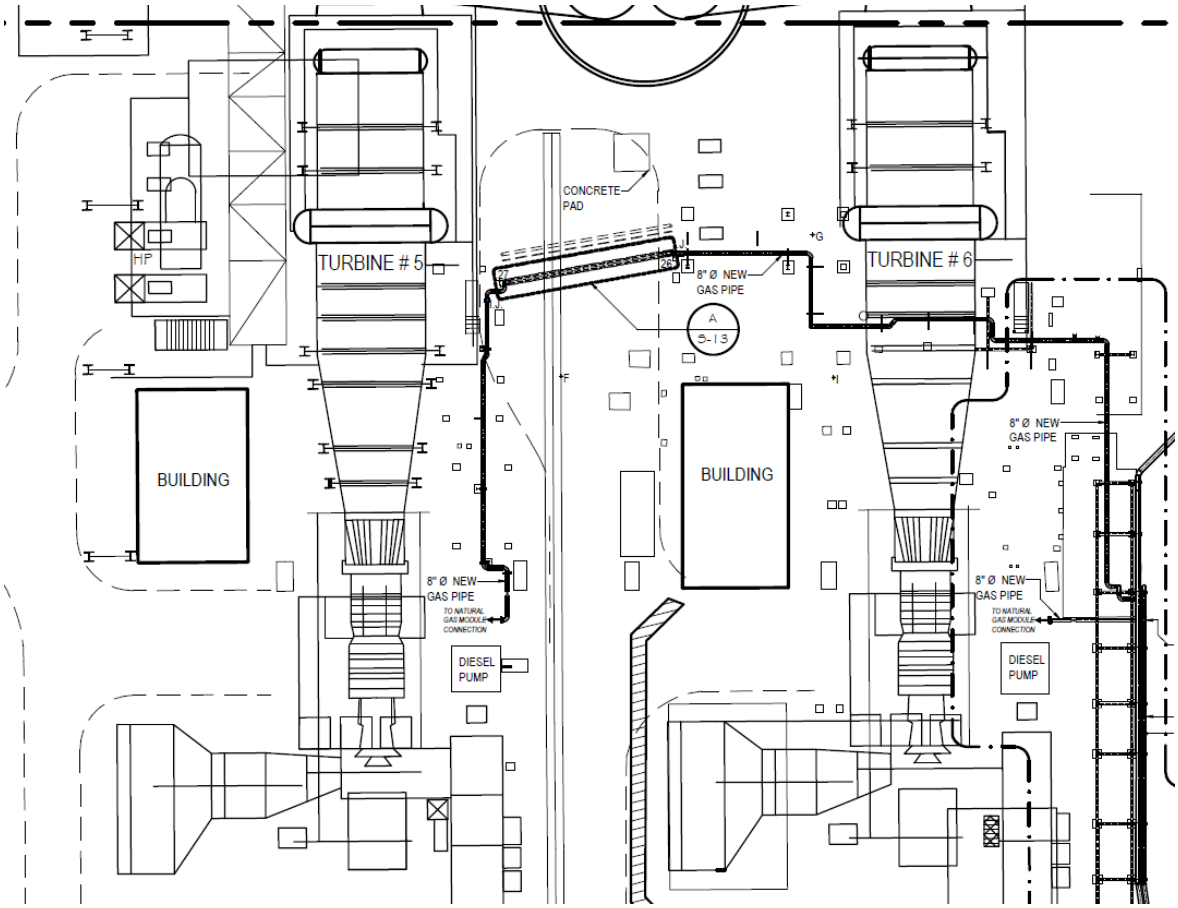



**Exhibit 24: Detail of gas line to the turbines'' gas control skid**

## 3.3. Naturgy alternative for a regasification plant onshore

As an alternative to the technical proposal previously described, Naturgy could study the installation of an onshore regasification plant nearby San Juan power plant if PREPA has interest in this possible solution.

An onshore regasification plant would require a more exhaustive permitting process. Moreover, the onshore tank construction is longer than the current offshore technical solution Naturgy proposes.

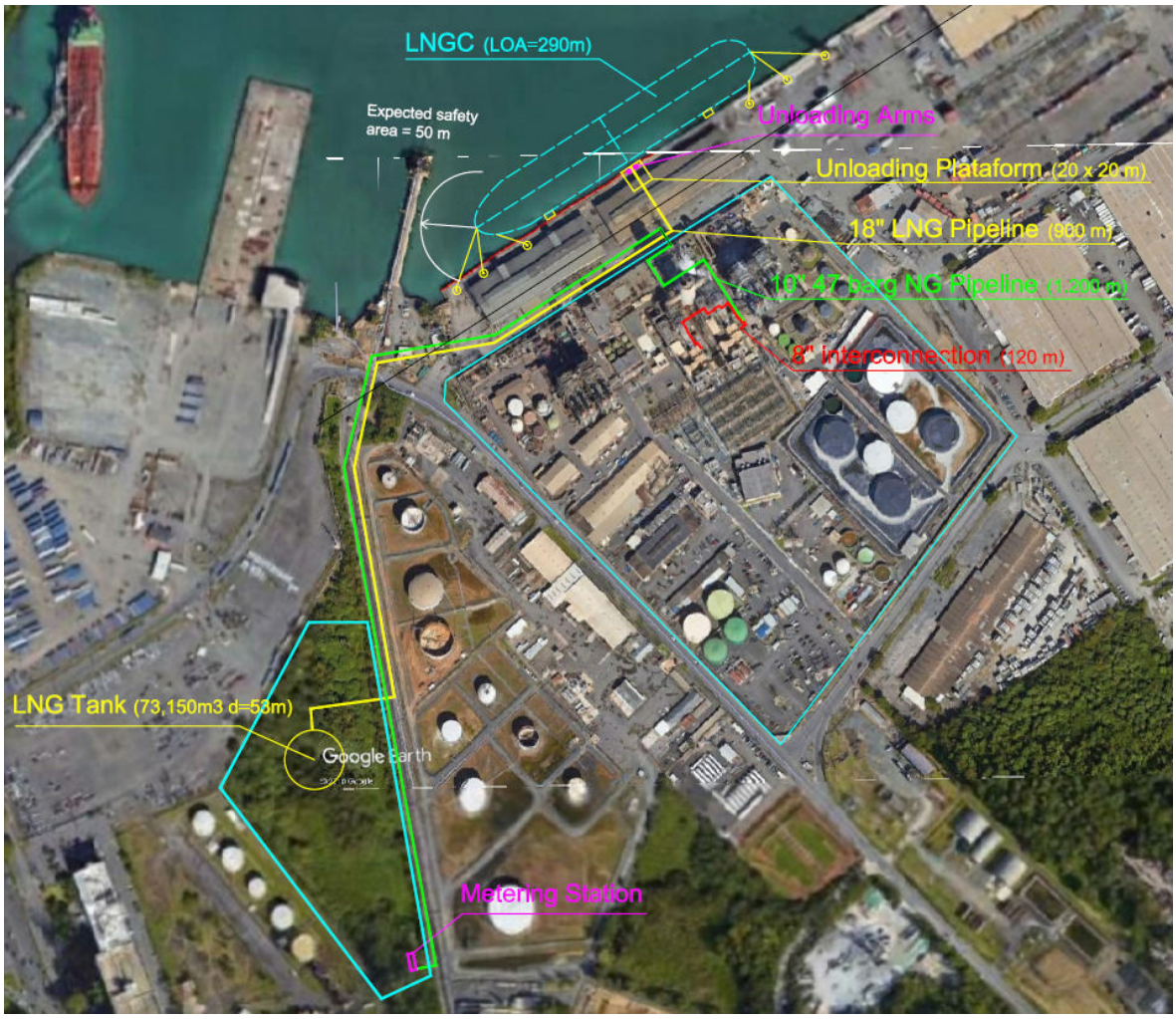



**Exhibit 25: Layout of an onshore regasification solution.**

## 3.4. Natural gas supply

As part of Naturgy's proposal, the supply of natural gas to the Units, through the solution previously described, is based on the following:

- Naturgy will act as Seller and PREPA as Buyer.
- The supply period under the agreement for the supply of natural gas shall begin on the date of commercial operation date and shall end ten (10) years later. PREPA may have the option to extend the term five (5) years by written notice 180 days before the end of the initial period.

For this purpose, the commercial operation date means regarding the solution (FSRU/FSRB and pipeline facilities) contained in this proposal is ready to receive and berth the LNG tankers and to transport the natural gas to the Units, and the Units are ready to receive the natural gas. In this sense the following options may apply.

**Option #1. Only FSRB**

**Option #2. FSRU + FSRB**

### 3.4.1. Annual Contract Quantity (ACQ)

The ACQ shall be approximately twenty-five (25) TBtu.

The deliveries during each Contract Year shall be made on a ratable basis.

### 3.4.2. Term

The supply period shall begin on the date of commercial operation date and shall end ten (10) years later ("Termination Date"). A Contract Year shall mean a period of time from and including 1st of January of one calendar year through and including 31st of December of the same calendar year; provided that the first Contract Year shall commence on the Commercial Operation Date and the last Contract Year shall end on the Termination Date.

For this purpose, the commercial operation date means when the facilities are ready to receive and berth the LNG Tankers and to transport the natural gas, and the Units are ready to receive the natural gas.

**Option #1. Only FSRB**

Naturgy estimates that after the twenty-six (26) months period after necessary approvals the Commercial Operation date may take place.

**Option #2. FSRU + FSRB**

Naturgy estimates that after the ten (10) months period after necessary approvals the Commercial Operation date may take place.

The above terms are subject to Mitsubishi finalizing their conversion works.

### 3.4.3. Delivery Point

The delivery point means the inlet of the gas turbines at the Buyer's power facility located at San Juan ("San Juan Power Plant").

### 3.4.4. Title and Risk

Title and Risk shall transfer at the Delivery Point.

### 3.4.5. Nomination

The Parties will define the "Annual Delivery Program" ("ADP") and "Ninety Day Schedule" ("NDS") in compliance with the international standards.

Final ADP will be issued by Seller ninety (90) days prior to the start of the applicable Contract Year taking into account as far as practicable the Buyer's requirements. A "window" system will be agreed between parties within the Contract Year to schedule such deliveries of natural gas.

### 3.4.6. Quality

Natural gas delivered under the NGSPA shall comply with the following specifications at the Delivery Point:

| Item | Unit | Min | Max |
|---|---|---|---|
| CH4 | mol % | 85 | 99 |
| H2S | $mg/Nm^3$ | N/A | 5 |
| Total Sulfur | $mg/Nm^3$ | N/A | 30 |
| Nitrogen | mol % | 0.0 | 1.0 |
| Molecular weight | mol % | 16.2 | 19.0 |

| | | | |
|---|---|---|---|
| HHV | Btu/scf | 1000 | 1150 |

Natural gas shall contain no water, active bacteria or bacterial agents (including sulfate-reducing bacteria or acid producing bacteria) or other contaminants or extraneous material.

## 3.5. Mitsubishi conversion of San Juan Units 5 and 6

Pursuant to the terms and conditions of the RFP, Naturgy's proposal will include the conversion works of the Units. Naturgy has entered into a Non-Disclosure Agreement with Mitsubishi, the operator proposed by PREPA, and is discussing the terms and conditions under which Mitsubishi will perform the services. In this discussion framework, Naturgy recently received Mitsubishi's proposal, which is still pending some clarifications and discussions. Naturgy can confirm its commitment to continue working with Mitsubishi with the clear intention of defining in detail their services and the economic impact to Naturgy's proposal. The conversion works will be included in Naturgy's offer once this cost has been finally agreed with Mitsubishi.

## 3.6. Assumptions, Clarifications and Exclusions

The following is not included in Naturgy's proposal:

- Dredging of San Juan port channels, turning basin area and LNGC & FSRU berthing area
- Electrical power supply and emergency power supply to be provided by PREPA San Juan Power Plant
- Nitrogen and instrument air to be provided by PREPA San Juan Power Plant

# 4. Price Proposal

Following the instructions given in PREPA's RFP, our price proposal is split into four components.

## 4.1. Price Proposal Component 1 – Fixed annual capacity payment

### 4.1.1. Option #1. Only FSRB

The Capacity Payment (CP) will reflect the fixed costs of the supply natural gas facilities:

CP (USD/Month) = 3,599,930+ 979,456 $CPI_n/CPI_0$

### 4.1.2. Option #2. FSRU + FSRB

The Capacity Payment (CP) will reflect the fixed costs of the supply natural gas facilities:

CP (USD/Month) = 4,786,180 + 513,169 $CPI_n/CPI_0$

### 4.1.3. Conversion Units Cost

Naturgy recently received the Mitsubishi proposal, which is still pending some clarifications and discussions to define more in detail their services and the economic impact to be included in Naturgy's final proposal.

## 4.2. Price Proposal Component 2 – Unit cost

For both, Option #1 and Option #2, the Unit Cost (UC) will reflect the commodity and the variable LNG shipping costs:

$UC_m$ (USD/MMBtu) = 50% (115% HH + 5.95) + 50% (11.54% $FO\#2_{603}$ + 1.125)

Naturgy is open to discuss the price condition herein detailed in case the LNG from USA can be delivered.

## 4.3. Price Proposal Component 3 – Applicable indices

$CPI_n$ refers to the arithmetic average of the US Department of Labor Bureau of Labor Statistics CPI for the twelve (12) months preceding the relevant Contract Year.

$CPI_0$ refers to the arithmetic average of the US Department of Labor Bureau of Labor Statistics CPI for the twelve (12) month period between January 1st and December 31st of the year of the first delivery of natural gas.

HH = The final settlement price (in United States dollars per MMBtu) for the New York Mercantile Exchange's Henry Hub natural gas futures contracts for the month 'M' in which the NG is scheduled to be delivered.

$FO\#2_{603}$ = the unweighted average for the 6-month period prior to the calendar quarter of the USLD fuel.

USLD fuel: Is the average of USLD quotations under the heading "New York/Boston" (Barge) and USLD quotations under the heading "US Gulf Coast (Waterborne)", "Mean" column, as published each month by the Platt's Oilgram Price Report, rounded to four (4) decimal places.

## 4.4. Payment Terms

Fifteen (15) days after the receipt of the Invoice.

# 5. Approach and Methodology

## 5.1. Introduction to Naturgy's approach

Naturgy's approach is defined and guided by our principles and our experience as part of a leading gas group. We are determined to:

- Build up from the existing knowledge base of the client without imposing our views, but rather sharing all information
- Work on principle of open communication
- Professionally focus on the delivery of objectives and results on time and with quality standards
- Work on early identification of problems, conflicts, and misunderstandings and ways of solving them for the benefit of the achievement of expected outputs

This approach compliments other methodologies Naturgy has developed over several years of experience and know-how, providing a coherent response to the activities and services required for this project.

## 5.2. Methodologies to be used for the project execution

The methodologies to be used in order to achieve a successful project can be grouped into the different functional phases of this project. These phases are:

- Engineering
- Environmental assessment and mitigation measures
- Quality assurance and control
- Procurement
- Construction, transportation and assembly
- Commissioning and start-up
- Operational & maintenance activities

### 5.2.1. Engineering

Our approach to providing a solution that works begins with ensuring that all the studies necessary to engineer a solid design are performed. For this project, these studies will likely include:

- Geological and geotechnical studies
- Maritime Studies (Bathymetric Study, Wave Study, Mooring Maneuver Studies, etc.).
- Environmental Assessment and Environmental Studies
- Risk Studies on the control of major-accident hazards involving dangerous substances.
- Fire protection studies
- Seismic studies

At the end of the project all the documentation generated, including the results from these studies, will be collected together in a final dossier. These include:

- Plan showing the general layout and auxiliary facilities
- Civil works including details and sections
- Piping and instrument diagrams
- Data sheets for main equipment
- Electrical and control diagrams
- List of signals (physical and communication port)
- Operating & Maintenance Manuals for the plant and auxiliary installations

- Equipment manuals
- Control and communication architecture
- Document for protection against explosions
- Low voltage electricity project
- Evacuation and Emergency Plan
- Certificates for materials
- Welding procedures and approving welders
- Inspection, test and trial reports, and certificates
- Certificates of Conformity for the Equipment
- Defect reports
- List of alarms
- List of instruments and valves
- List of set-points
- Logical diagrams for the PLC software
- Etc.

### 5.2.2. Environmental assessment and mitigation measures

Due to the minor civil works offshore (dredging is not needed) and the location of the project in the port area, most of the potential environmental impacts of the project are not significant. In addition, both the FSRU and FSRB will be moored close by the power plant at the Puerto Nuevo area. This will minimize the gas pipeline route and the land property/easements agreements and, therefore, reducing the area of potential impact.

Regarding the location of Naturgy's solution, it should be pointed out that the industrial port of San Juan is already a modified area itself, where there are no protected areas or ecosystems to preserve. In this regard, the USACE "San Juan Harbor Integrated Feasibility Report and Environmental Assessment" (June 2018) concludes:

- *"In the study area, only the proposed USCG Anchorage F expansion contains quality habitat"* (Note: this Anchorage F expansion is far away from Naturgy proposed project location).
- *"Benthic macrofauna populations in the navigation channel are assumed to be not as stable and numerically abundant as nearby wetlands and mudflats due to the frequent disturbance by maintenance dredging"*
- *"Extension (widening and deepening) of the San Juan port may affect but is not likely to adversely affect manatees and listed corals or result in adverse modification to Acroporid designated critical habitat (DCH). Additionally, it would not be likely to jeopardize the continued existence of sea turtles. In conclusion, no long-term impacts from the Recommended Plan are expected to listed species or Acroporid DCH"*
- *"The Recommended Plan poses no effect to historic properties listed or eligible for listing in the National Register of Historic Places (NRHP)."*
- *"Hazardous and toxic materials are not present in the sediments at levels of concern"*

Compared to the San Juan port extension, the onshore construction of Naturgy's project will be limited to the mooring and berthing system for the FSRU/FSRB and LNG carrier which will be placed in low environmental value areas. Because of this, no long-term impacts to listed species or Acroporid DCH are expected. Furthermore, no historic properties (as they have not been identified) will be affected.

In fact, once the LNG conversion is completed and operational, the San Juan Power Plant will be using a more efficient and cleaner burning fuel source than the bunker and diesel fuel combination currently being used. The future conversion will improve the air quality of the harbor and also offset any additional emissions from

the future commerce therein. The burning of LNG is a clean combustion process, due to the fact that the gas burns completely forming CO2 and water as emission. The advantage of LNG is abundant: it has a lower cost, and does not have the undesirable by-product emissions. In this project, the avoided emissions due to the fuel conversion of units 5 and 6 would be: 3800 t SO2, 18200 t NOx and 4000 t PM10 per year.

Regarding the environmental mitigation measures to consider, Naturgy's project will be designed, constructed, operated, and maintained in accordance with national regulations, international conventions, corporate policies and procedures and recognized international best practices, all of which have different applications, remits, requirements and implications.

Naturgy will abide by the environmental studies and recommendations outlined in the agencies implied and will commit to coordinating adaptive management and corrective actions related to project impacts and monitoring results with resource agencies.

### 5.2.3. Quality Assurance and Control

Naturgy implemented, certified and currently maintains a Quality Management Systems (QMS) in accordance to:

- ISO 9001
- ISO 14001
- OHSAS 18001

The Naturgy's QMS include the following procedures:

- PE.03520.ES-TI: Project Planning and Control
- PE.03522.ES-TI : Project Document Management
- PE.03533.ES-TI: Identification of Environment Requirements
- PE.03534.ES-TI: Environmental Management in Construction
- PE.03536.ES-TI: Health and Safety Project Management
- PE.04388.GN-OE.SI: Purchasing Management
- PE.03528.ES-TI: Control of Design
- PE.03530.ES-TI: Erection and Assembly Supervision
- PE.03531.ES-TI: Commissioning

As per its QMS, Naturgy will develop and execute a specific Quality Plan to ensure its successful execution and completion. The Quality Plan is based on the aforementioned methodologies and it will include:

- Description of the nature of the project
- Definition of the project team member responsibilities
- Identification of the necessary activities and resources to execute the project on time and on budget
- Methodology to apply the QMS procedures
- Methodology to guarantee that all project systems will be designed, fabricated, erected, inspected, examined and tested according to the applicable design codes and standards
- Definition of the communication policies and procedures with client, suppliers, contractors, and authorities having jurisdiction

### 5.2.4. Procurement

The procurement process includes all activities required to perform purchasing, material control, internal and external expediting, inspection, payment, shipping and other related activities in connection with the purchase and delivery of equipment and materials required for project. Equipment and materials will be purchased from approved worldwide sources from our approved vendor list. Consideration shall be given to quality, delivery, reliability and service.

The Procurement Progress will be measured against selected requisitions for equipment and direct material. The selected requisitions are those which are of high value and/or contains the key items which control the completion of the project.

The Procurement progress is established using the following:

1. Equipment Items and their allocated weight points.
2. Engineered Bulk Items and their allocated weight.
3. Project Management Schedule for Issue Date of Requisitions, Blanket Orders
4. (Bulk), Commitments, Vendor Drawings and Deliveries.
5. Direct Bulk Material weightings.
6. Progress Milestones

### 5.2.5. Construction, transportation, and assembly

The entire transportation of the equipment and materials to the work site, including any Customs duties, will be studied in detail.

Basic planning for each solution will be defined and will contain the engineering, procurement, construction, commissioning and startup tasks.

At the start of the project, the engineering, construction, transportation and assembly work will be planned in detail. The monitoring reports that show how the work is actually progressing will be submitted as basis for a project follow up.

The design will be done in such a way that all the equipment, whenever possible, will be tested at the manufacturing plant and are pre-assembled to the extent that this most practical and preferable.

The integration will be such that transporting is made as easy as possible and reduces to a minimum the amount of mechanical and electrical assembly work at the site, especially where *in situ* welding activity is concerned. Activities which could be developed on Puerto Rico by reliable suppliers will be taken into account.

Special consideration will be made for all the spare parts and consumables required for construction, commissioning and normal operation of the project.

Local content will be studied in detail so that the project complies with the requirements and laws of the local administration.

### 5.2.6. Commissioning and start-up

Naturgy will include all the spare parts and consumables required for assembling, commissioning and start-up.

Any equipment will only leave the manufacturing plant after all the tests and trials have been conducted. However, tests required by the regulations prior to commissioning, such as airtightness/sealing tests on the assembly and operating tests on the safety/security systems shall be performed.

Other inspections and tests to be carried out will be:

- Radiographic testing on a determined percentage of the welds as customary.
- Compressed air network test (if applicable).
- Tests conducted *in situ* on the pressure tanks and vessels by an Authorized Control Body.
- Inspection Certificate for the electrical installations issued by an Authorized Control Body.
- Hydraulic sealing and resistance tests. Whenever possible, pneumatic tests shall always be conducted on cryogenic systems instead of hydraulic tests.
- Cleanliness and dryness of the systems.

### 5.2.7. Operation & Maintenance Activities

The operation and maintenance activities will also be included and handled during the design phase, trying to minimize scope of works and costs. Operational and maintenance guides will be developed so as to include: operation management, management of emergencies, predictive maintenance, preventive maintenance, corrective maintenance and the stock of spare parts and consumables.

## 5.3. Permitting

The permitting will include the basic considerations, preparations and arrangements for all the project items to be approved by the Authorities until all the installations and facilities that form part of the project have been completely commissioned.

In order to expedite the permitting process and begin construction as soon as possible, Naturgy has contracted the services of Environmental Resources Management (ERM) in Puerto Rico, who is a leading global provider of environmental, health, safety, risk, social consulting services and permitting. ERM Puerto Rico, in collaboration with Naturgy, has developed the permitting plan and schedule that follows a clear path for achieving approval of all necessary permits required to construct and operate the project.

### 5.3.1. Permitting Process

The proposed actions in the project scope require review and approval at the different stages of development of the project from several federal and commonwealth regulatory agencies. The following are the agencies of most relevance for the permitting process.

**Federal Regulatory Agencies:**

- Federal Energy Regulatory Commission (FERC)
- Pipeline and Hazardous Materials Safety Administration (PHMSA), from the U.S. Department of Transportation (DOT)
- U.S. Army Corps of Engineers (USACE)
- U.S. Coast Guard (USCG)
- U.S. Environmental Protection Agency (USEPA)
- U.S. Fish and Wildlife Service (USFWS)
- National Marine Fisheries (NMFS)

**Commonwealth Regulatory Agencies:**

- Puerto Rico Ports Authority (PRPA)
- Puerto Rico Planning Board (PRPB)
- Puerto Rico Office of Permits Management (OGPe)
- Puerto Rico Department of Natural and Environmental Resources (DNER)
- Puerto Rico Environmental Quality Board (EQB)
- State Historic Preservation Office (SHPO)

DOT/PHMSA and FERC are the federal agencies primarily responsible for the regulation of onshore LNG facilities. The following is a brief description of specific authority and requirements of each of the agencies relevant to the project.

#### 5.3.1.1. Federal Regulatory Agencies

**FERC**

Has jurisdiction under the Natural Gas Act over the siting, construction and operation of facilities used to transport natural gas in interstate commerce and of facilities used for the export or import of

natural gas. This includes LNG projects onshore and in state waters. FERC manages the development of a single environmental impact statement (EIS) for compliance with the National Environmental Policy Act of 1969 (NEPA) for LNG facilities applications and the associated federal permits.

**PHMSA**

Agency under the U.S. Department of Transportation (DOT) that sets safety standards for onshore LNG facilities. The siting provisions incorporate by reference standard 59A from the National Fire Protection Association (NFPA). NFPA 59A requires thermal exclusion zones and flammable vapor-gas dispersion zones around LNG terminals. The DOT/PHMSA regulations also adopt many of NFPA's design and construction guidelines including requirements for LNG facilities to withstand fire, wind, hydraulic forces, and erosion from LNG spills. Other provisions address operations, maintenance, employee qualification, and security.

**USACE**

Regulates project activities for the protection and use of water resources of the United States including construction of dams, structures or works affecting navigable waters, the discharge of dredged or fill material into waters, and the transportation of dredged material for the purpose of disposal in the ocean. Also coordinates compliance with related federal laws including NEPA, Fish and Wildlife Coordination Act, Endangered Species Act, National Historic Preservation Act, Deepwater Port Act, and Federal Power Act among others.

**USCG**

Has authority over and regulates the marine transfer areas at waterfront facilities to handle LNG including new construction. The USCG conducts waterway suitability assessments to address navigation safety and port security issues associated with LNG ship traffic.

**USEPA**

Is responsible for the National Environmental Policy Act (NEPA) review process and subsequent environmental permitting when a federal agency develops a proposal to take a major federal action, including approval of specific projects, such as construction located in a defined geographic area. The USEPA coordinates with and supports FERC in the development of a single environmental impact statement (EIS) for compliance with NEPA on LNG related projects.

**USFWS**

Agency under the U.S. Department of the Interior (DOI) responsible to enforce federal wildlife laws, protecting endangered species, managing migratory birds, restoring nationally significant fisheries, and conserving and restoring wildlife habitat such as wetlands among others.

**NMFS**

A division of the National Oceanic and Atmospheric Administration (NOAA) responsible for the stewardship and management of living marine resources and their habitat. The agency is responsible with recovering protected marine species under the Marine Mammal Protection Act and the Endangered Species Act.

#### 5.3.1.2. Commonwealth Regulatory Agencies

**PRPA**

A government-owned corporation, ascribed to the Department of Transportation and Public Works, charged with developing, operating, and overseeing all seaports and airports in Puerto Rico.

**PRPB**

Agency in charge of centralized planning including economic planning and land use zoning.

**OGPe**

In charge of issuing final determinations and permits, licenses, inspections, certifications and any other authorization or procedure. Created in 2009 with the objective of simplifying and consolidating permits previously administered by a number of government agencies including use permits, fire prevention certificates, environmental health certificates, pruning and transplant of trees, and incidental soil extraction permits from construction projects among others.

**DNER**

Responsible for protection, conservation, development, and management of the natural and environmental resources of Puerto Rico.

**EQB**

The principal environmental protection regulator in Puerto Rico.

**SHPO**

Responsible for listing important historic resources or neighborhoods on the National Register of Historic Places, and for evaluating the impact of projects on historic landscapes or archeological sites.

### 5.3.2. Project Development and Permitting Phases

The activities in the Project Scope fall into three phases for regulatory review, approval and permitting purposes. These phases are:

- Phase I – Environmental Impact Assessment
- Phase II – Construction, and
- Phase III – Operation.

#### 5.3.2.1. Phase I – Environmental Impact Assessment

**Federal NEPA and Commonwealth EPPA Review**

Both statutes are to facilitate informed decision-making and environmental review. The proposed project triggers both Federal and Puerto Rico environmental review requirements. The NEPA process begins when a federal agency develops a proposal to take a major federal action. The federal agency prepares an Environmental Assessment (EA) to determine whether the federal action has the potential to cause significant environmental effects. Each federal agency has adopted its own NEPA procedures for the preparation of EAs.

A critical step in this process is initial compliance with environmental impact reviews requirements under NEPA and Puerto Rico's Environmental Public Policy Act (EPPA) to be able to complete the rest of the review and permitting activities.

EPPA requires that Commonwealth agencies study the environmental consequences of their actions, including permitting and requires them to take all feasible measures to avoid, minimize, and mitigate damage to the environment.

**FERC Pre-Filing Procedure and NEPA Process**

EPPA permits the use of NEPA documents in lieu of a Commonwealth EA document. Since FERC has the exclusive authority to approve or deny an application for the siting, construction, expansion, or operation of an LNG terminal per the Natural Gas Act, it is recommended to first present the application to FERC with the request that they act as the lead NEPA review agency.

The FERC NEPA process for LNG project starts with FERC's pre-filing procedure. The pre-filing procedure requires a Resource Report that at a minimum provides the following information:

- General project description
- Water use and quality
- Fish, wildlife, and vegetation
- Cultural resources
- Socioeconomics
- Geological resources
- Soils
- Land use, recreation, and aesthetics
- Air and noise quality
- Alternatives
- Reliability and safety

This pre-filing process involves agencies working together in coordination with FERC to develop a single NEPA document that will address each agency's requirements.

To save time in the preparation of the draft NEPA document, FERC allows applicants to prepare their own Draft Environmental Assessment; the "Applicant Prepared Draft EA" (APDEA). The intent to prepare a draft EA indicated in the pre-filing request letter and discussed during the initial pre-filing meeting. This option needs to be approved by the Commission.

When following this option the applicant submits the draft EA along with the Environmental Report as part of the application.

At the conclusion of the NEPA review process, the following approvals should have been obtained or be in process.

- Federal Energy Regulatory Commission (FERC) – Approve the EA/EIS as final and issue the Final Order granting authorization
- Pipeline and Hazardous Materials Safety Administration (PHMSA) – approve the safety aspects of the proposed design and installations.
- U.S. Coast Guard (USCG) – issue the Letter of Recommendation
- U.S. Environmental Protection Agency (USEPA) – Approve NEPA process as complete
- U.S. Fish and Wildlife Service (USFWS) – issue a Biological Opinion
- National Marine Fisheries (NMFS) – issue a Biological Opinion
- Puerto Rico Ports Authority (PRPA) – issue letter endorsing the project
- Puerto Rico Planning Board (PRPB) – issue a letter of approval
- Puerto Rico Office of Permits Management (OGPe) – Issue a location approval
- Puerto Rico Department of Natural and Environmental Resources (DNER) – issue a Coastal Zone Management Consistency and Water Quality Certificate
- Puerto Rico Environmental Quality Board (EQB) – issue a letter approving the EPPA process as completed and start processing the Construction Permit Application
- State Historic Preservation Office (SHPO) – issue a letter of approval

An aspect with great potential impact during the NEPA review, the permitting process and subsequent operations, relates to citizen and NGO's participation and community concerns related to safety.

#### 5.3.2.2. Phase II and III – Construction and Operation Permits

**PMO Construction permit**

The PMO (Project Management Office) requires approving project budget, technical specifications and construction drawings. This approval is needed for the Tax Department customs duties, establishment fee, etc. This permit is required for the air emissions, wastewater discharges and other permits.

**Location approval (if needed)**

The Puerto Rico Planning Board is consulted if the use of the land is in consonance with the Land Use Plan for Puerto Rico, Engineers corps, terrestrial maritime zone, etc.

**Air Emissions**

It is anticipated that the project will not be considered a Major Source, since there is no potential emission from the standpoint of the degasification unit other than an emergency generator and insignificant fugitive emission associated with the storage and handling of the LNG operations. The only requirement will be to comply with Rule 203 and 204 of the Puerto Rico EQB Air regulatory framework Regulations will apply. To this respect, a construction permit followed by the operations permit is assumed to be required.

It is assumed also that any specifics need related to the fuel conversion impacting the power generation units will be manage by PREPA.

**Wastewater Discharges**

A National Pollutant Discharge Elimination System (NPDES) permit from the USEPA is required if wastewaters from the operation are to be discharged into navigable waters. This will not be necessary if process wastewaters are disposed along with the existing PREPA system and managed as a PREPA permit modification.

**Other Permits**

There are several permits required for the construction and operation phases of the project. It is anticipated that these permits will be obtained simultaneously with the air emissions and water discharge permits and will have no adverse impact on the timeline of the project. The following is sample description of some of the permits required

OGPe General Consolidated Permit

The General Consolidated Permit combines the following permits into a single application: Control of Erosion and Sedimentation Plan (CES Plan); Solid Waste Generation Permit (DS-3 Form); and Fugitive Dust Emission Permit (PFE).

Incidental Extraction Permit (DNER)

The Department of Natural and Environmental Resources (DNER) Earth Crust Material Extraction Regulation requires a Formal Soil Surface Removal Permit for soil removals greater than 5,000 m3 and a Simple Soil Surface Removal Permit for soil removals less than 5,000 m3.

Construction Storm Water NPDES Permit

Projects on more than one acre need to apply for an NPDES permit for storm water run-off from construction activities by filing a Notice of Intent (NOI) for the activity in the USEPA website.

Table 7 is the permitting matrix showing the required actions from federal and Table 8 is for the Commonwealth Agencies at each stage of the project. It shows the interactions of federal and local regulatory and overview agencies. Given the complex interaction of federal and local agencies, it is advantageous to coordinate with all involved agencies to align their reviews to be simultaneous to save time and effort.

**Table 7: Permitting Matrix for Federal Agencies**

| | FERC | USACE | EPA | USCG | DOE | PHMSA/DOT |
|---|---|---|---|---|---|---|
| **Phase I - EIA** | | | | | | |
| LGN Carrier Ship | Final IFR/EA | Final IFR/EA | Final IFR/EA | Final IFR/EA | Final IFR/EA | Final IFR/EA |
| FSRU and FSRB | pre-filing/EA | review | review | review | review | review |
| NG Transfer Dockside Installations | pre-filing/EA | pre-filing/EA | pre-filing/EA | pre-filing/EA | review | review |
| Units 5 and 6 conversion to LNG | n/a | n/a | NEPA | n/a | n/a | n/a |
| **Phase II - Construction** | | | | | | |
| LGN Carrier Ship | approve | n/a | n/a | approve | n/a | safety review |
| FSRU and FSRB | approve | n/a | n/a | approve | n/a | safety review |
| NG Transfer Dockside Installations | approve | approve | Title V/RMP | approve | review | safety review |
| Units 5 and 6 conversion to LNG | n/a | n/a | Title V/MATS | n/a | n/a | n/a |
| **Phase III - Operation** | | | | | | |
| FSRU and FSRB | approve | n/a | Title V/MATS | approve | n/a | review |
| LGN Carrier Ship | approve | n/a | Title V/MATS | approve | n/a | review |
| NG Transfer Dockside Installations | approve | approve | Title V/MATS | approve | n/a | review |
| Units 5 and 6 conversion to LNG | n/a | n/a | Title V/MATS | n/a | n/a | n/a |

**Table 8: Permitting Matrix for Commonwealth Agencies**

| | PRPA | PRPB | OGPe | PREQB | DNER |
|---|---|---|---|---|---|
| **Phase I - EIA** | | | | | |
| LGN Carrier Ship | Final IFR/EA | approve | review | Final IFR/EA | n/a |
| FSRU and FSRB | approve | approve | review | approve | n/a |
| NG Transfer Dockside Installations | approve | approve | review | approve | n/a |
| Units 5 and 6 conversion to LNG | n/a | n/a | review | approve | n/a |
| **Phase II - Construction** | | | | | |
| LGN Carrier Ship | approve | n/a | n/a | n/a | n/a |
| FSRU and FSRB | approve | n/a | n/a | n/a | n/a |
| NG Transfer Dockside Installations | approve | approve | gen. permit | Const Permit | n/a |
| Units 5 and 6 conversion to LNG | n/a | n/a | n/a | Const Permit | n/a |
| **Phase III - Operation** | | | | | |
| FSRU and FSRB | approve | n/a | n/a | n/a | n/a |
| LGN Carrier Ship | approve | n/a | n/a | n/a | n/a |
| NG Transfer Dockside Installations | approve | n/a | gen. permit | Opn Permit | n/a |
| Units 5 and 6 conversion to LNG | n/a | n/a | n/a | Opn Permit | n/a |

### 5.3.3. Permitting timeline

FERC NEPA review and permitting timeline

The following figure compares the timelines of the traditional and the pre-filing process from start of the NEPA review process to approval of a Final Environmental impact Statement (FEIS) for LNG projects. The traditional process takes about 24 months. The pre-filing process takes about 18 months.

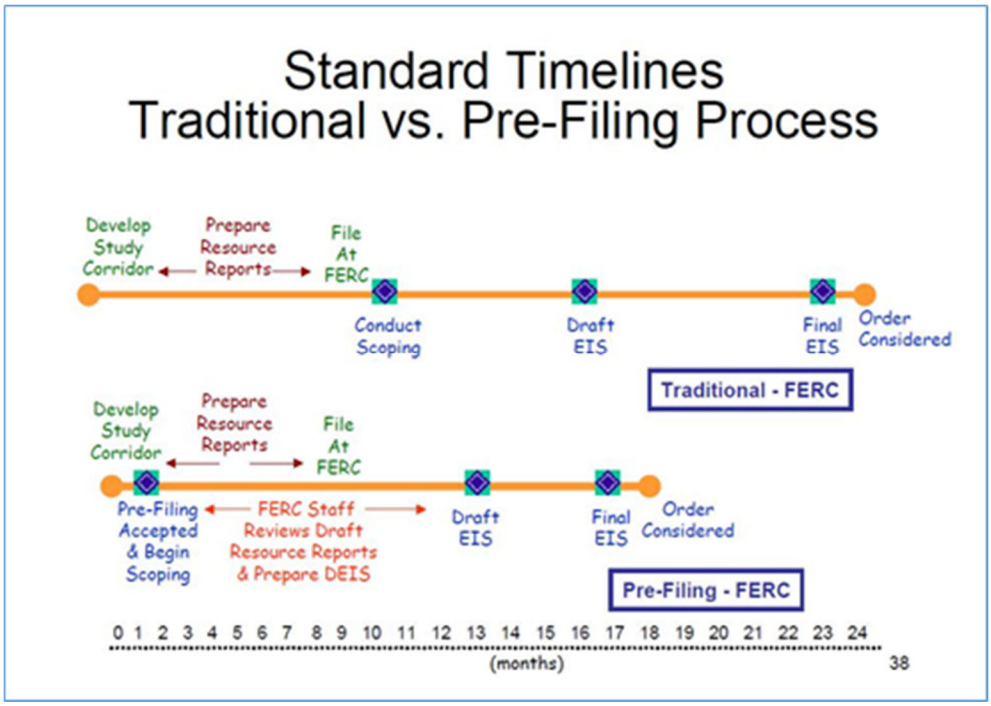



**Exhibit 26: Timelines of FERC traditional and pre-filing review processes** [1]

These timelines must represent an average that includes relatively large and complex LNG projects. Due to the minor civil works offshore (dredging works are not needed) and the location of the project in the port area (besides the environmental benefits of the replacement with Natural Gas for a cleaner production of electricity) it is presumable that the permits would require less specific studies than those required for conventional projects and therefore, timeline for the development of the permitting process would be shorter.

For these reasons, Naturgy consider that it is possible to reduce the timeline to about 8-12 months by reducing the time to prepare the Resource Report and the Draft EIS.

The standard construction permitting timeline for energy and infrastructure related projects is between 16 to 24 months. Naturgy considers that it is possible to reduce the construction and operation permitting timeline to about 8 to 12 months by working closely with all relevant agencies during the NEPA review process, anticipating their application, review and approval requirements and being ready to submit applications immediately after approval of the EIS.

The combined standard and expedited FERC NEPA review and permitting timeline is shown in Table 9.

| | FERC-NEPA | | CONSTRUCTION AND OPERATIONAL PERMITS | | TOTAL | |
|---|---|---|---|---|---|---|
| | low | high | low | high | low | high |
| **STANDARD** | 18 | 24 | 12 | 24 | **30** | **48** |
| **EXPEDITED** | 8 | 12 | 8 | 12 | **16** | **24** |

[1] Slide 38 from FERC Permitting and Review Process presentation by Medha Kochhar, Office of Energy Projects, Federal Energy Regulatory Commission, October 24, 2006 accessed at: https://www.asmfc.org/uploads/file/FederalEnergyPermittingandRegulation.pdf

Table 9. FERC NEPA review and permitting timeline

The total timeline for the expedited FERC-NEPA review and approval process is estimated to take between 16 to 24 months. The Gantt chart of the FERC-NEPA permitting path and permit request/approval is included in Annex II - (Permitting timeline).

**Local NEPA review and permitting timeline**

PREPA's objective is: "… to bring natural gas quickly and safely to the … San Juan 5 and 6 Plant preferably by the first quarter of 2019". The FERC-NEPA permitting timeline is a long-term process. If there would not be need for FERC to be involved, the permitting process could be shorten significantly. In order to satisfy PREPA needs to obtain the requested permits according to applicable legislation in the most effective and fast way, Naturgy has developed a timeline for an expedited local review and approval process of about 7 months assuming that with the support of PREPA all local agencies will commit to work simultaneously and expedite their review and approval processes with no design changes. Therefore, the Local NEPA permitting timeline is the one taken into account into the project schedule. The Gantt chart of the Local NEPA permitting path and permit request/approval is included in Annex III.

### 5.3.4. Letter of Support from Puerto Rico Port Authority:

Annex IV includes copy of the letter submitted to the Puerto Rico Port Authority presenting the proposed project, explaining its justification and requesting their support. Naturgy propose to meet with the Ports Authority to discuss in more detail the proposal and address their questions or concerns.

### 5.3.5. Demonstration of Jones Act compliance

The Jones Act requires that waterborne transportation of merchandise between two points in the United States must take place aboard a vessel that is U.S.-built, U.S.-owned, U.S.-flagged, and U.S.-crewed. This is also known as coastwise trade and is governed by cabotage laws.

As it was explained in Section 3.2, Naturgy counts with several points of supply and since the LNG for this project will not be loaded at a US port, the LNGC is not required to comply with Jones Act, which is the philosophy currently applied to our o spot basis LNG supplies in EcoElectrica.

Also, the FSRU/B will not be performing cabotage as the vessel will be moored in the San Juan harbor, and will not trading between two points in United States, and so would also be exempted for complying with this regulation.

## 5.4. Project Schedule

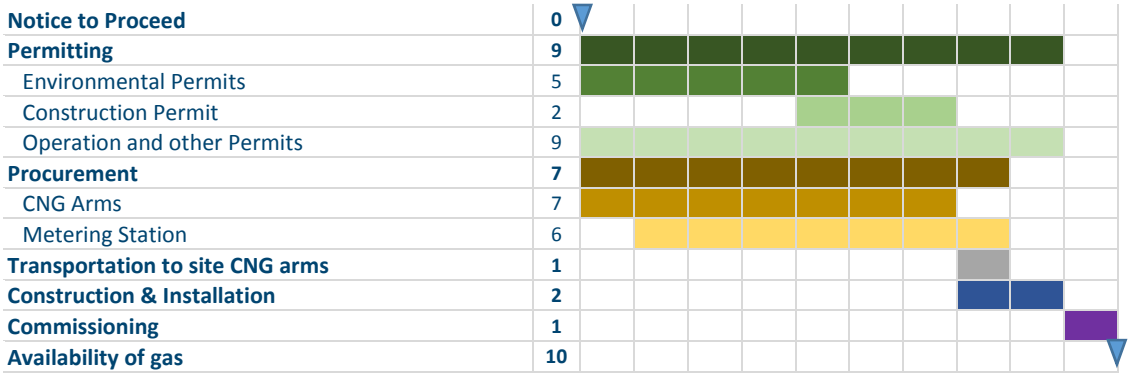
The project schedule for the FSRU installation can be divided into the following main tasks:

- Permitting
- Procurement: includes equipment manufacturing
- Transportation: delivery of main equipment to Puerto Rico
- Construction: includes all civil works to be performed at the site
- Installation: includes all mechanical installations and piping works
- Commissioning and start-up: includes training

Below is a summarized schedule of these tasks:

**PROJECT SCHEDULE (FSRU):**

| Mo. | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 |
|---|---|---|---|---|---|---|---|---|---|---|




Thanks to the FSRU being readily available, there is no delay caused by the construction of the FSRB, and fast tracks the project to deliver natural gas within 10 months.

The strategy of installing the FSRU while the FSRB is being built provides an effective gas solution to Puerto Rico while reducing the total investment cost and optimizing the time to market.

**However, this timing will be subject to Mitsubishi finalizing the conversion of Units 5 & 6 and starting commercial operation with natural gas.**

## 5.5. Legislation and applicable regulations

LNG and NG comply with very high safety standards all over the world and for this reason LNG and NG industries are safe. For example, the LNG shipping industry has an excellent safety record. Since the first LNG shipments on a regular commercial basis in 1964, over 45,000 shipments have been made without a single incident of LNG being lost through breach or failure of the ship's tanks. The LNG shipping industry must comply with international standards and NG facilities have to comply with local regulations.

As such, all the LNG Facilities we shall build, install, and operate for this project shall meet both international standards and be adapted to the Puerto Rico Legislation and Federal Regulations currently in force.

# ANNEX I – Insurance Letter

Marsh, S.A.
Paseo de la Castellana, 216
28046 Madrid
+34 91 456 9400
Fax +34 91 344 9799
www.marsh.es

25th September 2018

**To whom it may concern**

To all intents and purposes we inform that:

At present we are the Insurance Broker of the Corporate Insurance Program of **NATURGY ENERGY GROUP, S.A.** arranged from Spain, which includes assets and companies in different countries.

In the event that Naturgy Energy Group S.A. is awarded with the project of the RFP consisting in the conversion of generation units San Juan 5 & 6, and an associated natural gas fuel supply and use of a Floating Storage and Regasification Barge (FSRB) with a short gas pipeline connection to the combined cycle units 5 & 6 of the San Juan power plant, we have instructions from Naturgy Energy Group S.A. to place the following insurance policies with reputable insurers having legal authorization to offer insurance policies in Puerto Rico:

**Construction Phase**

1. Construction/ Erection All Risks insurance (CAR/EAR)

*Interest/Property Insured*: General works whether permanent or temporary and including the civil works, machinery and materials incorporated or to be incorporated therein and all temporary buildings and/or other contents used in connection therewith, all the property of the Insured or for which they are responsible including all construction and erection costs, administrative costs, overheads, import taxes, excavation, architectural, mechanical and electrical works and any related temporary works, camps and provisional installations or other activities directly related to the project.

*Insured Perils*: Cover for the Property Insured on an all risks basis for reasons that are not explicitly excluded, including among others:

- Conventional Risk (fire, explosion, theft).
- Risks from nature (wind, hail, snow, rain, lightning, overflow and flooding, earthquakes, volcanic eruption, frost, etc).
- Risks inherent to assembly (handling, installation, testing, short circuits, overvoltage, electric arc, human error, installation error, negligence, inexperience and malicious damage).

*General Limit / Insured amounts*: The limit shall be an amount equal to the total Project Completion Value, or the equivalent to the maximum possible loss as per the risk assessment undertaken by Naturgy Energy Group.

2. Liability Coverage

Legal responsibility of the insured party that may result from the activity described during the period of insurance coverage, including:

- General Liability.
- Employer's Liability.
- Sudden Pollution Liability.
- Bail bonds and legal defence.

*General Limit*: The limit shall be not lower than the limit purchased for similar projects in comparable regions.

3. Transport Coverage

This cover fully safeguards against the risk that the equipment in transit may be damaged. The limit shall be equal to the maximum value per shipment.

4. Other Insurances

There are various insurances that can lead to liabilities arising from their breach. This is the case for possible compulsory insurance:

- Personal Accident. It should be monitored that these are in force and meet legal requirements.
- Workers Compensation Policy according to the local legislation.
- In terms of the workers involved in building the project, checks will be carried out to ensure compliance with the commitments and obligations related to employment. These are for instance, taking out personal accident insurance or life assurance if they are agreed in collective or sector agreements or directly in employment contracts.

- Vehicle insurance, for this insurance, it will have to be verified that the vehicles used for carrying out the works, take compulsory vehicle insurances and meet all legal requirements.
- Any other compulsory insurance according to local legislation.

**Operation Stage/ LNG Supply**

1. Liability Coverage

Legal responsibility of the insured party that may result from the activity of LNG Supply during the period of insurance coverage, including:

- General Liability.
- Products Liability.
- Employer's Liability.
- Sudden Pollution Liability.
- Bail bonds and legal defence.

*General Limit*: The limit shall be not lower than the limit purchased for similar projects in comparable regions.

2. Other Insurances

There are various insurances that can lead to liabilities arising from their breach. This is the case for possible compulsory insurance:

- Personal Accident. It should be monitored that these are in force and meet legal requirements.
- Workers Compensation Policy according to the local legislation.
- In terms of the workers involved in building the project, checks will be carried out to ensure compliance with the commitments and obligations related to employment. These are for instance, taking out personal accident insurance or life assurance if they are agreed in collective or sector agreements or directly in employment contracts.

- Vehicle insurance, for this insurance, it will have to be verified that the vehicles used for carrying out the works, take compulsory vehicle insurances and meet all legal requirements.
- Any other compulsory insurance according to local legislation.

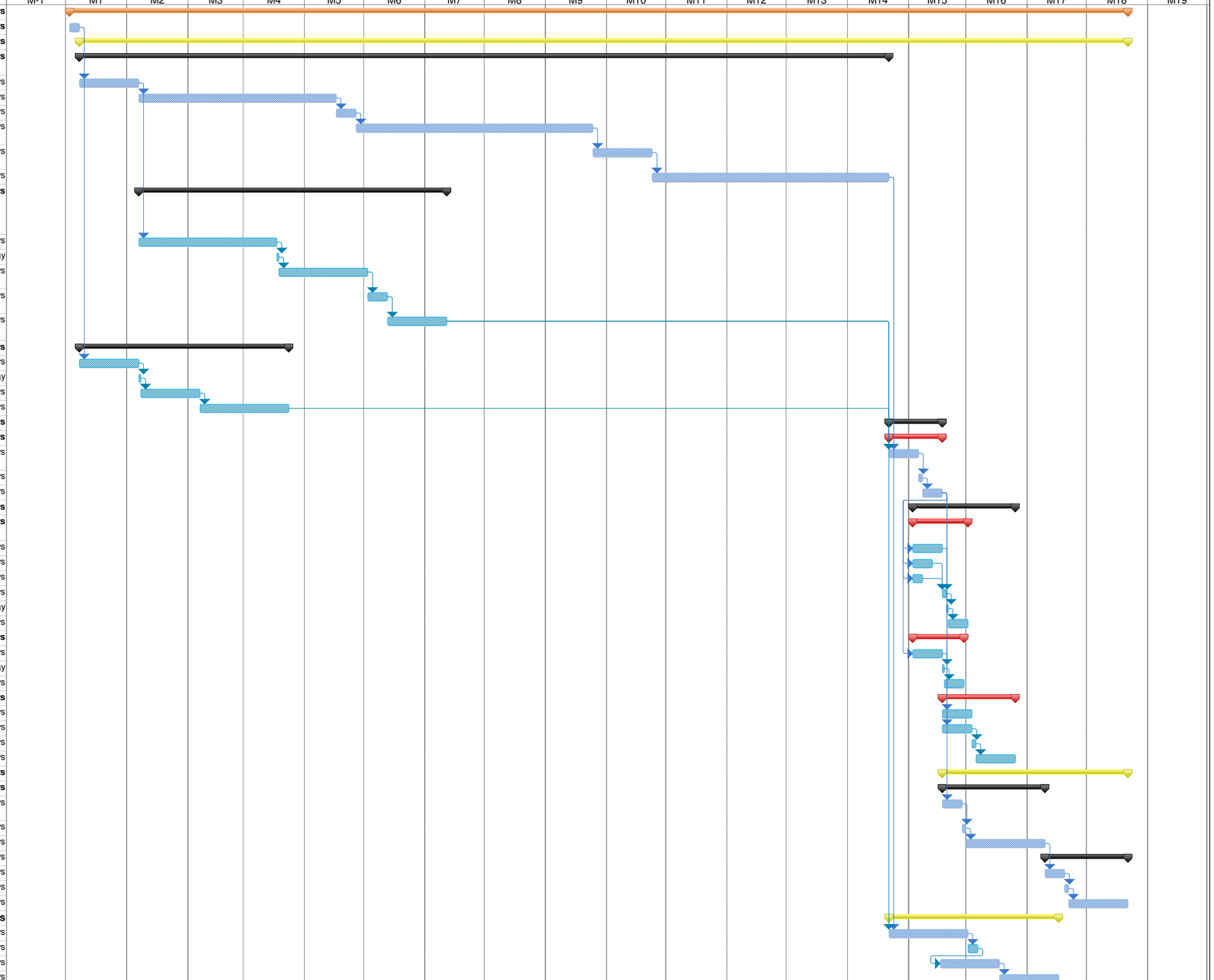
Yours faithfully,

MARSH, S.A.

# ANNEX II – FERC-NEPA permitting path

# PROJECTED PERMITTING IMPLEMENTATION SCHEDULE

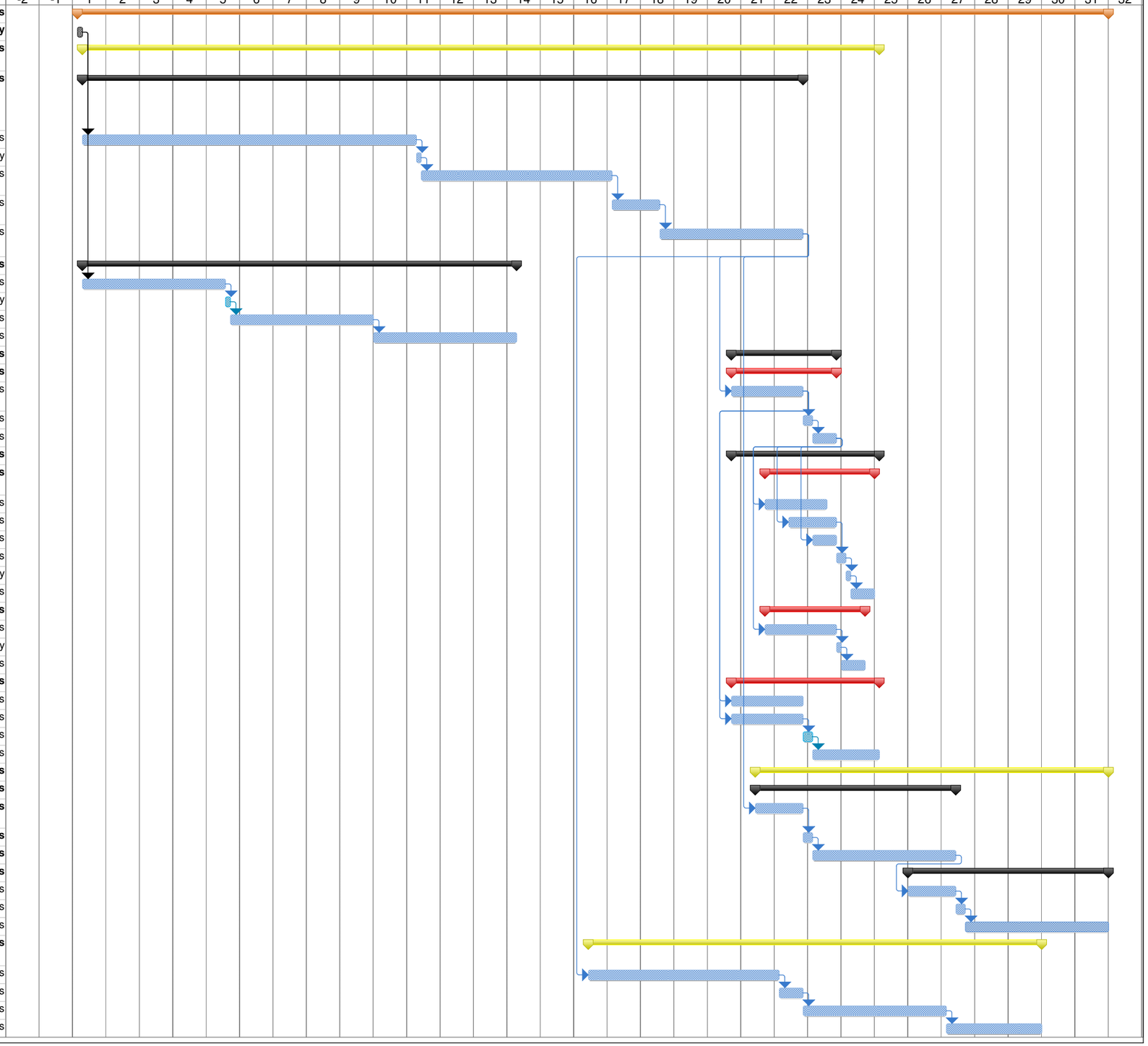
| ID | Task Name | Duration |
|---|---|---|
| 1 | **LNG CONVERSION ENVIRONMENTAL STRATEGY PROCESS** | **536 days** |
| 2 | **NOTICE TO PROCEED** | **5 days** |
| 3 | **PERMITTING** | **531 days** |
| 4 | **TIER I : FERC ENVIRONMENAL DOCUMENT (No dredging pmt from USACE required. )** | **410 days** |
| 5 | PRE-MEETING FERC TO PRESENT PROJECT | 30 days |
| 6 | PREPARE EIS DOCUMENT | 100 days |
| 7 | SUBMITT EIS TO FERC | 10 days |
| 8 | COMMENTS BY AGENCIES (FERC, NOAA, FISHAND WILDLIFE,SHIPPO, ETC.) | 120 days |
| 9 | INCORPORATE COMMENTS AND SUBMITTAL OF FINAL DEA (Final Environmental Assessment) | 30 days |
| 10 | APPROVAL BY AGENCIES | 120 days |
| 11 | **TIER I : ENVIRONMENAL DOCUMENT( Local Permits Management Office (PMO) only. Assumes also endorsement by Puerto Rico Ports Authority. No dredging pmt from USACE required. No Public Hearings required)** | **156 days** |
| 12 | PREPARE REA (Environmental Assessment Draft) | 70 days |
| 13 | SUBMITT REA | 1 day |
| 14 | COMMENTS BY AGENCIES (assumes the document runs through the Energy Projects expedite process) | 45 days |
| 15 | INCORPORATE COMMENTS AND SUBMITTAL OF FINAL DEA (Final Environmental Assessment) | 10 days |
| 16 | APPROVAL BY AGENCIES (assumes the document runs through the Energy Projects expedite process) | 30 days |
| 17 | **LOCATION APPROVAL (If necessary by local Planning Board)** | **106 days** |
| 18 | PREPARE LA DOCUMENT | 30 days |
| 19 | SUBMITT LA TO PLANNING BOARD | 1 day |
| 20 | PUBLIC HEARING (IF REQUIRED) | 30 days |
| 21 | APPROVAL BY PB | 45 days |
| 22 | **TIER II : CONSTRUCTION PERMIT** | **27 days** |
| 23 | **PMO CONSTRUCTION PERMIT** | **27 days** |
| 24 | PREPARE DOCUMENT (ASSUMES DESIGN, SPECIFICATIONS AND COST ESTIMATE ARE AVAILABLE BEFORE THIS TIME FRAME) | 15 days |
| 25 | SUBMITT TO PMO | 2 days |
| 26 | APPROVAL BY AGENCIES (Approval Notification) | 10 days |
| 27 | **TIER III CONSTRUCTION EXECUTION RELATED PERMITS** | **52 days** |
| 28 | **GENERAL CONSOLIDATED PERMIT (CES Plan, Solid Waste Disposal Permit, Fugitive Dust Air Pmt)** | **28 days** |
| 29 | PREPARE CES PLAN | 15 days |
| 30 | PREPARE SOLID WASTE DISPOSAL PLAN | 10 days |
| 31 | PREPARE FUGITIVE DUST AIR APLICATION | 5 days |
| 32 | PREPARE CONSOLIDATED PMT DOCUMENT | 2 days |
| 33 | SUBMITT TO PMO | 1 day |
| 34 | APPROVAL BY AGENCIES | 10 days |
| 35 | **INCIDENTAL EXTRACTION PERMIT (DNER)** | **26 days** |
| 36 | PREPARE DOCUMENT | 15 days |
| 37 | SUBMITT TO PMO | 1 day |
| 38 | APPROVAL BY AGENCIES | 10 days |
| 39 | **CONSTRUCTION STORM WATER PERMIT (NPDES)** | **37 days** |
| 40 | PREPARE DOCUMENT | 15 days |
| 41 | PREPARE SWPPP | 15 days |
| 42 | SUBMITT ELECTRONICALLY TO EPA | 2 days |
| 43 | APPROVAL BY AGENCIES | 20 days |
| 44 | **AIR QUALITY PERMITTING** | **94 days** |
| 45 | **AIR CONSTRUCTION PERMIT** | **52 days** |
| 46 | PREPARE PERMIT DOCUMENT (Minor Source Consideration. Assumes PREPA will manage its Title V Modification ) | 10 days |
| 47 | SUBMITT TO EQB | 2 days |
| 48 | APPROVAL BY AGENCIES | 40 days |
| 49 | **AIR OPERATION PERMIT** | 42 days |
| 50 | PREPARE OPERATIONS PERMIT | 10 days |
| 51 | SUBMITT TO EQB | 2 days |
| 52 | APPROVAL BY AGENCIES | 30 days |
| 53 | **NPDES PERMIT** | **86 days** |
| 54 | PREPARE LA DOCUMENT | 40 days |
| 55 | SUBMITT PMT SUBMITTAL TO EPA/EQB | 5 days |
| 56 | WATER QUALITY CERTIFICATE BY EQB | 30 days |
| 57 | APROVAL NPDES EPA | 30 days |



# ANNEX III – Local NEPA permitting path

# PROJECTED PERMITTING IMPLEMENTATION SCHEDULE

| ID | Task Name | Duration |
|---|---|---|
| 1 | **LNG CONVERSION ENVIRONMENTAL STRATEGY PROCESS** | **216 days** |
| 2 | **NOTICE TO PROCEED** | **1 day** |
| 3 | **PERMITTING (Considers project expedite approval process for energy related projects. Also assumes reviews to be conducted at the local regulatory agencies.)** | **167 days** |
| 4 | **TIER I : ENVIRONMENAL DOCUMENT( Local Permits Management Office (PMO) only. Assumes no FERC jurisdiction based on Jones Act Waiver. Assumes also endorsement by Puerto Rico Ports Authority. No dredging pmt from USACE required. No Public Hearings required)** | **151 days** |
| 5 | PREPARE REA (Environmental Assessment Draft) | 70 days |
| 6 | SUBMITT REA | 1 day |
| 7 | **COMMENTS BY AGENCIES (Assumes the document runs through the Energy Projects expedite process)** | 40 days |
| 8 | INCORPORATE COMMENTS AND SUBMITTAL OF FINAL DEA (Final Environmental Assessment) | 10 days |
| 9 | **APPROVAL BY AGENCIES (Assumes the document runs through the Energy Projects expedite process)** | 30 days |
| 10 | **LOCATION APPROVAL (If necessary by local Planning Board)** | **91 days** |
| 11 | PREPARE LA DOCUMENT | 30 days |
| 12 | SUBMITT LA TO PLANNING BOARD | 1 day |
| 13 | PUBLIC HEARING (IF REQUIRED) | 30 days |
| 14 | APPROVAL BY PB | 30 days |
| 15 | **TIER II : CONSTRUCTION PERMIT** | **22 days** |
| 16 | **PMO CONSTRUCTION PERMIT** | **22 days** |
| 17 | **PREPARE DOCUMENT (ASSUMES DESIGN, SPECIFICATIONS AND COST ESTIMATE ARE AVAILABLE BEFORE THIS TIME FRAME)** | 15 days |
| 18 | SUBMITT TO PMO | 2 days |
| 19 | APPROVAL BY AGENCIES (Approval Notification) | 5 days |
| 20 | **TIER III CONSTRUCTION EXECUTION RELATED PERMITS** | **31 days** |
| 21 | **GENERAL CONSOLIDATED PERMIT (CES Plan, Solid Waste Disposal Permit, Fugitive Dust Air Pmt)** | **23 days** |
| 22 | PREPARE CES PLAN | 13 days |
| 23 | PREPARE SOLID WASTE DISPOSAL PLAN | 10 days |
| 24 | PREPARE FUGITIVE DUST AIR APLICATION | 5 days |
| 25 | PREPARE CONSOLIDATED PMT DOCUMENT | 2 days |
| 26 | SUBMITT TO PMO | 1 day |
| 27 | APPROVAL BY AGENCIES | 5 days |
| 28 | **INCIDENTAL EXTRACTION PERMIT (DNER)** | **21 days** |
| 29 | PREPARE DOCUMENT | 15 days |
| 30 | SUBMITT TO PMO | 1 day |
| 31 | APPROVAL BY AGENCIES | 5 days |
| 32 | **CONSTRUCTION STORM WATER PERMIT (NPDES)** | **31 days** |
| 33 | PREPARE DOCUMENT | 15 days |
| 34 | PREPARE SWPPP | 15 days |
| 35 | SUBMITT ELECTRONICALLY TO EPA | 2 days |
| 36 | APPROVAL BY AGENCIES | 14 days |
| 37 | **AIR QUALITY PERMITTING** | **74 days** |
| 38 | **AIR CONSTRUCTION PERMIT** | **42 days** |
| 39 | **PREPARE PERMIT DOCUMENT (Minor Source Consideration. Assumes PREPA will manage its Title V Modification )** | **10 days** |
| 40 | SUBMITT TO EQB | **2 days** |
| 41 | APPROVAL BY AGENCIES | **30 days** |
| 42 | **AIR OPERATION PERMIT** | **42 days** |
| 43 | PREPARE OPERATIONS PERMIT | 10 days |
| 44 | SUBMITT TO EQB | 2 days |
| 45 | APPROVAL BY AGENCIES | 30 days |
| 46 | **COOLING WATER NPDES PERMIT (If water can be provided through PREPA this permit may not be required.)** | **95 days** |
| 47 | PREPARE LA DOCUMENT | 40 days |
| 48 | SUBMITT PMT SUBMITTAL TO EPA/EQB | 5 days |
| 49 | OBTAIN WATER QUALITY CERTIFICATE | 30 days |
| 50 | APPROVAL BY EPA | 20 days |



# ANNEX IV – Letter Puerto Rico Port Authority