

PERU LNG

I. INTRODUCTION

The Peru LNG project (the “Project”) consists of the development, construction and operation of a liquefied natural gas (LNG) plant, a related marine loading terminal and a natural gas pipeline.

The project will liquefy natural gas purchased from Blocks 56 and 88 in the Camisea gas fields and sell it to Repsol Comercializadora de Gas S.A. (Repsol CG) for export from Peru, most likely to markets in Mexico but possibly Chile and the United States for re-gasification.

This project is a key strategic element in Peru’s overall energy plan to exploit its extensive reserves in the Camisea gas fields by exporting them to other countries. The project will monetize Peruvian natural gas resources in excess of local demand, providing the country with a sustainable export commodity.

Peru LNG will generate roughly US\$800 million in annual hard currency revenues, increasing the country’s total exports by an estimated 1.5% and transforming Peru into a net hydrocarbons exporter in the medium term.

The Project will attract large amounts of foreign direct investment to Peru. With a total cost of approximately US\$3.2 billion including financing costs, the Project represents the largest foreign direct investment ever made in the country. Approximately 30% of this amount is expected to be spent locally. The Project will also create a significant number of jobs during both construction and operation (approximately 35,000 direct and indirect jobs during construction and 2,750 during the life of the project).

Additionally and as a result of the Project, the Peruvian government will receive an average of US\$200 million per year in incremental royalties and US\$150 million in additional income taxes over the first 20 years.

The entire project is expected to yield US\$4.8 billion in net present value terms in cumulative economic benefits, or an amount equivalent to 6% of Peru GDP in 2005

The LNG purchased by Repsol CG is expected to be transported to Mexico and possibly other countries, including Chile; therefore, the Project will also contribute to gas supply and diversification of the energy matrix for other countries in the region.

II. PROJECT DESCRIPTION

The LNG plant will consist of one 4.4 million ton per annum train and related loading facilities (the “Plant”); a 408 km, 32-inch pipeline extension will connect the Plant to the existing Transportadora de Gas del Perú (TGP) pipeline.

The Plant’s technology involves the use of Air Products and Chemicals, Inc.’s (APCI) propane pre-cooled mixed refrigerant (MR) Liquefaction process. The Plant will contain the following process units:

- Feed Gas Receiving, Liquid Separation, Gas Metering and Pressure Reduction;
- Acid Gas Removal (Carbon Dioxide);
- Gas Dehydration and Carbon Adsorption Units;
- Refrigeration and Liquefaction;
- LNG Storage; and
- Refrigerant Storage.

The major plant process units at the Project site will be located at an elevation of 135 meters above mean sea level (masl). The Plant will be capable of producing, on average, 218 TBtu per year of LNG available for shipping. This assumes a daily feedgas volume of 620 mmcf/d from Blocks 56 and 88, a production capacity of approximately 540,690 kg/hr, gas shrinkage rate of 8.2%, and average availability of 96% throughout the life of the Project. Additionally, the loading terminal is designed with berth reliability of over 99%.

The Project’s gas processing and liquefaction system will be simpler than those observed in most LNG projects. The Plant will be using the following units:

Gas processing:

- Acid gas removal unit: following pressure regulation at the gas inlet facilities, an acid gas unit, based on MDEA (methyldiethanolamine in a 50/50 amine aqueous solution) is used to remove CO₂ from the sour feedgas. The acid gas removal unit will be licensed from BASF, using a well-proven technology.
- Dry gas: molecular sieves are used to dry the gas.
- Mercury removal: a single, activated carbon pot is used for mercury removal.
- No fractionation or liquefaction will be necessary at the plant as the propane will be removed at the Malvinas NGL separation plant, with propane content specification in the downstream gas below 0.02 mol %.
- No front-end compression facilities in the LNG plant will be needed due to the high delivery pressure to the site.

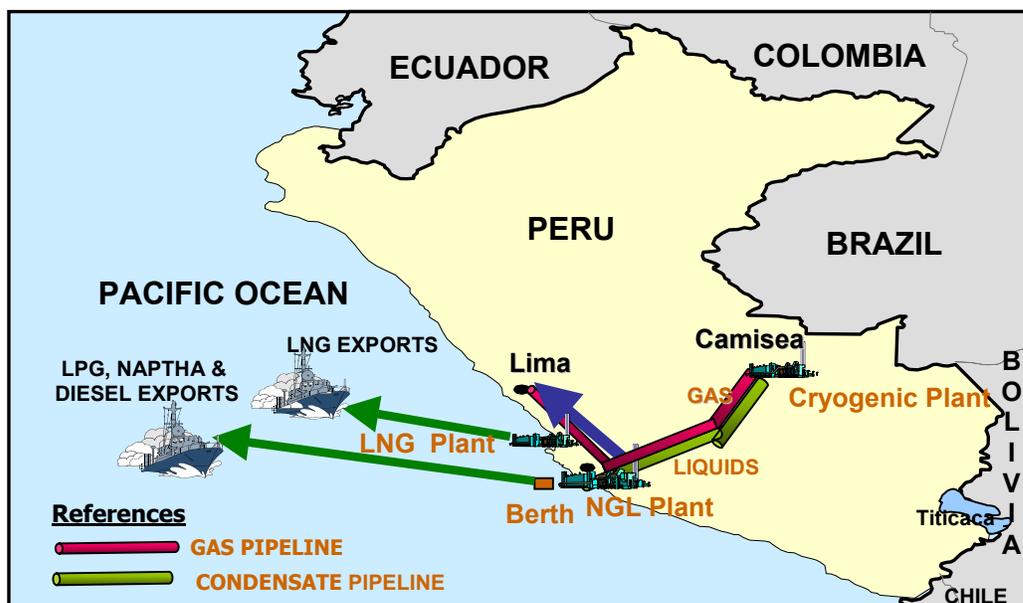
Utilities: PLNG will install major utility systems to ensure the Plant's autonomy. These systems include power generation, nitrogen rejection, air compression, seawater desalination and water polishing.

Liquefaction system: liquefaction is achieved via cooling to -160°C , using the following components:

- Cooling via fin fan air coolers (therefore no water is needed for the cooling system).
- A main cryogenic heat exchanger provided by Air Products and Chemicals, Inc. (APCI).
- Two refrigeration circuits, employing propane and multi-refrigerant (mixture of propane, ethylene, methane and nitrogen) compression systems (provided by Nuovo Pignone). The compressors will use the GE LM2500+ turbines at 80 MW each and assisted by 10 MW starter/helper motors.

Storage facilities: two storage tanks of $130,000\text{ m}^3$ each.

The LNG Plant will be located at Pampa Melchorita on the Pacific coast of Peru near San Vicente de Cañete, 169 km south of Lima. The natural gas for the Project will be supplied from the Camisea gas fields, located 431 km east of Lima in the Department of Cusco, through two separate Gas Sales Agreements (GSAs) with Block 56 and Block 88.



Block 88, which has been producing since August 2004 was developed by a consortium that includes Hunt Oil Company of Peru, SK Corporation, Pluspetrol Peru Corporation (Pluspetrol), Tecpetrol del Perú (Tecpetrol), Sonatrach Peru Corporation (Sonatrach) and Repsol Exploración Peru (all together the "Upstream"). The Upstream is currently developing Block 56, which is adjacent to Block 88. Natural gas produced from the two

blocks will be transported through the rainforest via the TGP gas pipeline and then through the PLNG Pipeline to the Plant.

The output of the LNG Plant will be sold to Repsol CG under an 18-year LNG Sales and Purchase Agreement (SPA). The LNG is expected to be exported to the west coast of Mexico. The SPA, however, allows for delivery flexibility, enabling Repsol CG to sell the LNG to other potential markets (e.g., Chile and/or the west coast of the United States).

The LNG Plant construction is scheduled to start in the second semester of 2006 while the construction of the PLNG Pipeline should start in early 2007. Start of commercial operation is expected to occur in the first quarter of 2010. Hunt Oil Company, through an affiliate, is the operator of the Project.

The gas from Block 56 and Block 88 will be transported first through a 211-km portion of the existing TGP gas pipeline running from the Malvinas separation plant near the gas fields through the rainforest, and then through the PLNG Pipeline to the Plant.

LNG Pipeline route (blue), shown with existing Camisea pipeline (black dotted)



Several routes have been evaluated for the PLNG pipeline. The selected route has been fully surveyed and runs parallel to the TGP gas pipeline, from km 211 to the Pisco area and along the coast to Pampa Melchorita.

From Malvinas to km 211 (the rainforest portion) PLNG will use the existing TGP pipeline, which was initially designed and constructed using 32-inch pipe in order to avoid the need to return to the sensitive environment of the rainforest for future

expansion. The rest of the TGP gas pipeline is a 24-inch pipe sufficient only for the domestic market, hence the construction of the PLNG pipeline will take place only in the less sensitive highland and coastal areas.

For additional information on the project see: <http://www.perulng.com/project.asp>.

III. ENVIRONMENTAL AND SOCIAL ASPECTS

The Peru LNG Project involves the construction and operation of an LNG plant/export facility on the Peruvian coast and a new natural gas pipeline commencing from pump-station 3 (at km 211) of the existing TGP pipeline. In order to avoid the need to return to the sensitive environment of the rainforest, the Project will use the existing TGP natural gas pipeline portion in the rainforest, which was designed and constructed to handle the additional capacity to deliver the natural gas to support the Project.

The proposed location for the LNG Plant at the Pampa Melchorita site was selected as a result of a thorough alternative site analysis performed along the Peruvian coastline between Pisco and Lima. Seventeen potential locations were evaluated on criteria that considered engineering feasibility, environmental sensitivities and potential social impacts. The Pampa Melchorita location was deemed to have been the least sensitive and most remotely located and therefore was chosen as the site of the liquefaction facility.

The new pipeline will begin at the edge of the rainforest and follow a route parallel to the existing TGP pipeline to the greatest degree possible, deviating only where engineering, topographical or environmental conditions limit the ability to build in the common corridor.

An Environmental and Social Impact Assessment (ESIA) for each of the components making up the Peru LNG project is being developed, in accordance with Peruvian legislation and international financial institution (IFI) standards (e.g., Inter-American Development Bank).

The ESIA for the Peru LNG Plant component, including the breakwater and terminal, was submitted to the MEM in mid-2003 and approved in June 2004. An amendment to this ESIA was submitted in May 2006 and is currently pending approval. Peru LNG is in the process of securing the necessary permits and licenses required prior to construction. See: http://www.perulng.com/env_plant.asp for details.

The ESIA for the quarry to be used as a source of materials to build the breakwater was submitted in July 2005 and approval was granted in June 2006. See: http://www.perulng.com/env_quarry.asp for details.

The ESIA for the natural gas pipeline expansion was submitted to the MEM in April 2006. PLNG responses to observations from MEM were submitted in late June. The EIA approval is expected mid-September. See: http://www.perulng.com/env_pipeline.asp for details.

The Peru LNG Project has adopted a proactive stakeholder involvement policy since the early stages of project development, in accordance with its Community Relations Policy, which commits to carry out its operations in keeping with sound and ethical standards that respect the rights and values of all affected parties by providing open and honest communication for a meaningful and clear exchange of information.

See: <http://www.perulng.com/responsibility.asp> for additional details.

Public consultation began at the early stages of the project conception (scoping phase), has been integral to the assessment and implementation planning phases and will be continued throughout the development of the project. The intent is to promote meaningful and effective dialogue with stakeholders and create opportunities for community participation throughout the life of the project. Public hearings by the GOP are also being performed as part of the EIA review and approval process.

The Project's design includes a series of environmental, social, and health and safety management plans and procedures that are being developed by Peru LNG to mitigate potential negative impacts.

The Peru LNG environmental policy embodies the company's commitments and states that the company will:

- Integrate environmental integrity, social equity and economic viability into our business processes.
- Provide staff with the resources to make environmentally sound decisions.
- Comply fully with environmental legislation and regulations.
- Carefully manage our use of natural resources and improve energy efficiency.
- Assess the environmental sensitivity of lands, identify impacts and propose mitigation, where appropriate.
- Conduct our operations in a manner intended to prevent pollution, conserve resources and deal responsibly with past environmental issues.
- Minimize our overall land disturbance on new developments.
- Ensure corporate preparedness with an effective emergency response program.
- Promote innovative thinking in the development and implementation of new ideas relating to environmental integrity.
- Measure our performance using comprehensive audits.
- Establish environmental targets and objectives to improve our performance.
- Respond to the concerns and views of stakeholders in a timely and open fashion.
- Engage interested parties, when necessary, to discuss our business operations and their relationship to affected communities and the environment.
- Provide clear and candid environmental information about our products, services and operations to customers, employees, government agencies and the public, as appropriate.

Although not part of the Project under consideration, there are associated facilities integral to the operation of Peru LNG Project including: i) the development of Blocks 56 and 88, where the natural gas will be extracted, ii) expansion to the existing cryogenic processing plant in Las Malvinas; iii) the existing natural gas pipeline from Las Malvinas to pump station 3 and the existing natural gas liquids pipeline; iv) the expansion of the Pisco fractionation plant necessary to process the additional liquids generated from Block 56.

The EIA for the development of the gas fields in Block 56, which also assessed the impacts of the expansion of the cryogenic processing plant at Las Malvinas, was approved by MEM in July 2005. The EIA for the expansion of the fractionation plant at Pisco is tentatively scheduled to be submitted by Pluspetrol during summer 2006.