

**Public Disclosure Template  
(Non-FI)**

Original language of the document: [English]

**A. Investment Summary**

<b>Disclosed Date:</b>	[Date]
<b>Project Name:</b>	National Gas Company – LPG Terminal
<b>Project Number:</b>	12486-01
<b>Investment Type:</b>	Loan
<b>E&amp;S Category:</b>	B
<b>Projected Board Approval Date:</b>	[Date]
<b>Company name (Borrower):</b>	National Gas Company (Belize) Limited.
<b>Sector:</b>	Energy
<b>Financing Requested:</b>	US\$5,500,000
<b>Financing Currency:</b>	United States Dollars
<b>Project Country:</b>	Belize
<b>Team Leader:</b>	Federico Chiaramonte
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**Project Scope and Objective:**

The project consists of the design, construction, operation and maintenance of an LPG terminal and its associated facilities to be located approximately 100 miles south of Belize’s capital, Belmopan.

The new terminal will consist of new LPG tanks, an LPG testing laboratory, loading and unloading facilities, and two bulk plants for wholesale distribution. It’s expected that it will be capable of storing at minimum 150% of Belize’s monthly LPG demand and will contribute to improve the quality of LPG supply into the country due to improved regulation and appropriate LPG blends, thus leading to a safer use of LPG in Belizean households. Additionally, the Project aims to provide a cost-effective LPG supply. The company leading the development of the Project is National Gas Company (Belize) Limited (“the Company” or “NGC”).

The total cost of the Project is estimated at US\$31.7 million, of which the IDB loan will finance up to US\$5.5 million. Through this loan IDB Invest seeks to greatly improve energy security in Belize.

## **B. Environmental and Social Review**

### 1. General Information and Overview of Scope of IDB Invest's Review

The Company will construct and operate a Liquefied Petroleum Gas (LPG) port terminal for receiving, blending, testing, storage and downstream wholesale of LPG received by sea. The Company will also build two central distribution facilities (bulk depots) in the Cayo (central) and Orange Walk (north) districts of Belize, respectively (the "Project"). The terminal as well as the two distribution facilities together will become the central points of LPG purchase in Belize for wholesalers throughout the country.

The terminal, located on a 6-hectare parcel of land leased from the Big Creek Port Facility, Stann Creek District in southeastern Belize, will be equipped with a firefighting facility with equipment, pumping facilities, loading areas, pathways and roads as well as muster points. Its on-site storage facility will comprise 19 storage tanks, with a 90,000 gallons maximum storage capacity each as well as an administration building and control room.

The terminal also includes a loading facility for wholesale tanker trucks, liquid/gas pipelines, and a berthing facility for offloading of the LPG gas carrier ship. Each bulk depot will have a 60,000-gallon storage capacity. Combined, the three Project sites will be able to store at least 150% of the monthly demand of LPG in Belize. Polaris, a Louisiana-based engineering firm, is the main EPC contractor in charge of designing and building the terminal as well as the two distribution bulk depots. Local subcontractors are executing the basic civil construction works.

The Environmental and Social (E&S) Due Diligence (ESDD) process which reviewed the Limited Level Environmental Study (LLES) and associated E&S management plans as well as several technical and Environmental Health and Safety (EHS) documents presented by the company, included a visit to the Project's site which took place from October 20 to 24. During this visit, IDB Invest met NGC's project development team at its office in Belmopan, where the central bulk depot is being constructed. IDB Invest undertook a site-visit of the terminal construction site and held meetings with the Port of Big Creek management and environmental, health and safety (EHS) personnel. At the construction site, workers, local construction sub-contractors as well as the EPC construction supervisor were interviewed. Meetings were also held with the current chair and deputy chair of the Mango Creek and Independence Village local council. Other stakeholders interviewed included the Belize Bureau of Standards, Beltraide, the Belize Chamber of Commerce and, subsequent to the site visit, the Department of the Environment (DOE).

## 2. Environmental and Social Categorization and Rationale

The Project has been classified as a **Category B** operation under the IDB Invest Environmental and Social Sustainability Policy, since its environmental and social (E&S) risks and impacts are expected to be of moderate intensity and importance, reversible and manageable through available mitigation measures and existing technologies. The key E&S risks and impacts associated with the Project's construction phase include: (i) generation of noise and dust, emissions from equipment; (ii) generation of solid (hazardous and non-hazardous) waste and domestic effluents; (iii) workers' health and safety; and (iv) community health and safety. Project key risks and impacts in its operation phase relate to: (i) generation of solid waste, domestic effluents and hazardous waste; (ii) workers' health and safety related to handling of flammable materials and associated fire hazards; (iii) community health and safety related to fire hazards and associated emergency situations; and (iv) natural disasters and physical climate-related risks, notably hurricanes, but also flooding and earthquakes given the location of the Project.

The Performance Standards (PS) triggered by the Project are:

PS1: Assessment and Management of Environmental and Social Risks and Impacts

PS2: Labor and Working Conditions

PS3: Resource Efficiency and Pollution Prevention

PS4: Community Health, Safety, and Security

## 3. Environmental and Social Context

The NGC terminal site is bordered to the north by the Big Creek Port road and to the east by the "Petro-fuel" tank storage facility belonging to the Port of Big Creek, which is presently not being utilized. An office building which houses the offices for the banana company of the Toledo Enterprises group is located approximately 200 feet from the north-east corner of the site. There are also a few residential houses for banana company employees approximately 1,500 feet northeast from the terminal site. To the west and south of the site lie some additional vacant Port of Big Creek properties, which are presently being filled with dredged material from the shipping channel. Outside the Port of Big Creek area, there is only one residential building approximately one kilometer west-northwest of the terminal site, and the next nearest facility is a shrimp farm office about three kilometers due southwest of the terminal. The outskirts of the Independence Village are a little over one kilometer north-northwest of the terminal.

The LLES indicates that the land parcel had already been partially cleared several years prior as part of ongoing port development, and that there was only some sparse vegetation consisting of some exotic and pioneer tree species: mango, blackberry, trumpet and coco-plum trees as well as

patches of palmettos and elephant grass, covering approximately 40% of the plot. The remaining 60% of the area consists of lowland savannah grasses. Along the front and north-western perimeter of the proposed plot, there are a few black mangrove trees, and at the rear end of the property are a few very small patches of red mangroves, both of which will fall within the setback distance that is required by the DOE and the National Fire Protection Association (NFPA) and, hence, will not be disturbed.

#### 4. Environmental Risks and Impacts and Proposed Mitigation and Compensation Measures

##### 4.1 Assessment and Management of Environmental and Social Risks

###### 4.1.a E&S Assessment and Management System

NGC has developed a Social and Environmental Management System (SEMS) manual. Its stated purpose is to effectively manage the impacts, risks and issues that affect NGC employees, surrounding communities and the environment. The SEMS is at an initial development stage; however, it is being conceptualized to specifically conform to the requirements of the IFC Performance Standards and relevant Belizean laws as well as in observance of ISO 14001 and OHSAS 18001 guidelines. The SEMS needs to be informed by plans and programs, including development of its necessary procedures, forms, checklists and registers for the SEMS to manage the Project's operational objectives.

###### 4.1.b Policy

NGC has developed a Social & Environmental Management Policy, governing the company's SEMS. The policy sets out general principles and commitments as well as some overall provisions. The policy, already approved at management level, with board approval and dissemination to all levels of the organization outstanding, will be reviewed on an annual basis and it includes a revision log to that effect.

###### 4.1.c Identification of Risks and Impacts

A simplified impact assessment (LLES - Limited Level Environmental Study) commissioned for the Project identified the main potential sources of health and safety risks, social and environmental impacts during Project operation such as possible fires and explosions resulting from leaks, liquid and solid wastes generated as well as impacts to air quality in areas of close proximity to the facility. Moving forward, the company will develop an EHS risk matrix in accordance with Performance Standard 1 for its operation phase.

###### 4.1.d Management Programs

NGC does not have a specific health and safety management plan for the construction site. It relies instead on Polaris' construction health and safety management plan, which is deemed adequate for the site's overall EHS risk level and the number of workers - currently at peak around 15 people. For the operation phase, NGC is required by the DOE -as per the environmental permitting

process- to implement an Environmental Compliance Plan (ECP) to address the key operational risks of the terminal. The Company has already developed a draft of its Operations and Maintenance Manual for the operational phase of the terminal, which takes into account the requirements of the ECP, but needs to be revised to take into account the existing specifications of the emergency preparedness and response plans already in place by the Port of Big Creek.

#### 4.1.e Organizational Capacity and Competency

NGC has already appointed an Operations Manager, who will be responsible for the terminal and the two bulk depots, with the support from a Senior Operations Supervisor and Control Room Operator for the terminal; there is also an additional operations supervisor for each of the two bulk storage depots. These staff members combined make up the Social and Environmental Management Team.

#### 4.1.f Emergency Preparedness and Response

As part of its Operations and Maintenance Manual, NGC has developed a draft Emergency Management and Response Plan (EMRP) that contains the company's approach to emergency preparedness and response. The plan includes sections on the required team structure, pre-incident planning, drills, training as well as alert systems, and the plan has set up preliminary communication protocols. The company has also developed a draft Hurricane Preparedness Plan as well as a Fire Contingency Plan. Notwithstanding, these plans need revising for content and form, and their interoperability and complementarity more clearly established.

#### 4.1.g Monitoring and Review

As part of its SEMS, the company has established preliminary qualitative and quantitative measures to monitor the effectiveness of environmental controls and the performance objectives of other operational criteria. The SEMS foresees regular EHS inspections to monitor compliance and facilitate subsequent corrective action and preventative action analysis. The DOE also specifies that it may inspect the facilities at its discretion; its environmental permit establishes a fee to that effect. The Company will submit periodical Environmental and Social Compliance Reports (ESCR) containing key indicators and EHS performance statistics. IDB Invest will perform regular supervision missions during construction and operation of the Project to verify its compliance with IDB Invest Sustainability Policy.

#### 4.1.h Stakeholder Engagement

As part of project design, NGC has held informed consultations with a variety of commercial stakeholders, facilitated by Beltraide - which is a unit of BelizeINVEST (national trade promotion bureau), and based on an initial stakeholder mapping process. The key objective of this initial stakeholder consultation was to analyze the effect of the Project on both the upstream and

downstream value chain. In addition to LPG wholesalers and retailers, the meetings included representatives from the Belize Ministry of Economic Development and the Belize Bureau of Standards.

NGC has not yet carried out a stakeholder consultation process with the potentially affected communities, including tenants of the Big Creek Port as well as inhabitants of the Mango Creek and Independence villages. Therefore, in coordination with the local village council, the Company will convene a townhall meeting to inform the village about the Project's key characteristics, risks and opportunities and to publicize its community grievance mechanism.

#### 4.1.i External Communication and Grievance Mechanisms

The Company has not yet developed a community grievance mechanism to ensure, either directly or anonymously, that local residents of Mango Creek and Independence villages, port tenants and other local businesses have an easily identifiable and known vehicle to channel any potential concerns or grievances as part of NGC's terminal and bulk depot operations.

## 4.2 Labor and Working Conditions

### 4.2.a Working Conditions and Management of Worker Relationships

NGC has developed a Social and Environmental Management Policy, in which the Company commits to sound social and environmental practices as being vital to ensuring employee and community wellbeing, as well as to NGC's long-term business success. The policy contains explicit references to best practices in EHS management, labor and working conditions as well as community health and safety and security, including the establishment of a grievance mechanism for workers and the community.

#### 4.2.a.i Human Resources Policies and Procedures

The company's total projected workforce will be in the range of 20-25 employees. NGC follows national labor legislation and has developed an Employee Handbook, which serves as a policy complementing national law (Labour Act, Chapter 297 of the Laws of Belize as amended by the Labour (Amendment) Act 2011) and which is made accessible to all employees. Furthermore, an Employee Training and Development Policy as well as a Training Plan are both currently under development.

#### 4.2.a.ii Working Conditions and Terms of Employment

The Company's Employee Handbook contains detailed provisions on the conditions and terms of employment for all NGC staff and contractors. The principles of freedom of association and nondiscrimination of any kind are explicitly contemplated in NGC's Social and Environmental Management Policy.

#### 4.2.a.iii Non-discrimination and Equal Opportunity

A chapter of the Company's Employee Handbook is dedicated to equal opportunity and diversity. The document explicitly lays out prohibition of discrimination and a commitment to equal opportunity without regard to race, color, ancestry, national origin, gender, sexual orientation, marital status, religion, age and disability and defines prohibited activities such as unlawful as well as sexual harassment. The handbook also includes a Harassment and Complaint Procedure to receive and address grievances. Complaints can be raised with either the employee's direct supervisor, the Administration Officer or any other member of management. The internal grievance mechanism will be revised to allow for anonymous grievances or inquiries to be received and processed.

#### 4.2.b Protecting the Workforce

The Employee Handbook has a dedicated Workplace Safety chapter that refers to the Company's commitment to a drug-, alcohol- and smoke-free workplace. A Drug and Alcohol Policy complements this commitment. Furthermore, the handbook has additional guidelines on gender-based discrimination and violence prevention, maintenance of safety commitments as well as emergency procedures and closings.

The appraisal process did not detect any instances of child and/or forced labor.

#### 4.2.c Occupational Health and Safety

NGC has developed a general Health and Safety Policy, enshrined in the Company's Health and Safety Manual. It outlines both its general occupational policy as well as specific health and safety and security requirements for all personnel, which will be reviewed on an annual basis.

Besides the manual and to allow for a timely, efficient and effective response that will minimize risk to life and mitigate major disruptions of operations, NGC has also developed a draft Fire Contingency Plan. It includes the actions to be taken by all staff and visitors in the event of a fire, as well as the steps to activate the Fire Suppression System and notify the National Fire Service located in Independence Village, some 2.5Km away.

#### 4.2.d Workers Engaged by Third Parties

The construction workforce by Polaris and its subcontractors is small and has reached a peak (about 15 workers). NGC's Health and Safety Manual includes a Code of Practice for contractors. However, it only refers to health and safety guidelines for general construction and operation works, and not specific for LPG operations, such as those that will take place to load wholesale distribution trucks belonging to/operated by third parties. Therefore, the Company will develop a

specific Safety Procedure for Independent Wholesalers of LPG, to be applied at the wholesale tanker truck loading facility.

#### 4.3 Resource Efficiency and Pollution Prevention

##### 4.3.a Resource Efficiency

###### 4.3.a.i Greenhouse Gases

A preliminary analysis showed that the Project will not emit significant amounts of Scope 1 or 2 greenhouse gas (GHG) emissions that would require disclosure (i.e. above the 25,000 tons eq. CO<sub>2</sub>/year threshold). Indeed, the most significant source of direct emissions is the four trucks owned and operated by NGC that will transport LPG from the terminal in Big Creek to the two bulk depots in Belmopan (Central) and Orange Walk (North).

###### 4.3.a.ii Water Consumption

During construction, small quantities of water will be required for on-site concrete preparation for foundation works. For the operation phase, NGC will require small amounts of water (for domestic consumption within the facility, primarily for the administrative building including the kitchen and restrooms) which will be supplied by the existing pipeline that serves the Port of Big Creek and runs parallel along the main access road.

##### 4.3.b Pollution Prevention

The generation of noise and dust as well as emissions from equipment during construction will be localized and deemed not significant. The site is adjacent to the main port access (paved) road and has no residential receptors in its immediate vicinity. Although the LLES does not contain an air quality baseline or an acoustic baseline, air quality is deemed to be good, given the lack of urbanization or industrial development in the greater Big Creek port area (the port is used mostly as an agribusiness export hub). The Company has developed a draft Air Quality Monitoring Plan to be used during the operation phase to comply with DOE's Environmental Compliance Plan by periodically monitoring the following compounds: Nitrogen Dioxide (NO<sub>2</sub>), Sulphur Dioxide (SO<sub>2</sub>) and Volatile Organic Compounds (VOCs).

The Air Quality Monitoring Plan prescribes the use of passive diffusion tubes (at least quarterly) to ascertain pollutant levels, to be collected from a total of four monitoring stations established along the perimeter of the facility. It also foresees daily and weekly visual inspections and gas detection tests to all the facility structures, with corresponding data logs. NGC has already identified a contractor to carry out the air quality analyses. The company will establish the appropriate baselines and numerical parameters (limits) consistent with national legislation and PS3.



#### 4.3.b.i Wastes

NGC will implement waste minimization strategies accepted by the industry. As per its Social and Environmental Management Policy, NGC will adopt the Triple R concept (Reduce, Reuse and Recycle). Solid waste separation has been taking place during the Project's construction: re-usable inert construction waste (sand, concrete blocks etc.) is being used for landfilling, while the rest of the construction waste is being collected and transported to a designated dump site.

During Project operation, the liquid effluents will be: i) storm water run-off, which will be managed through a surface drainage system designed to aid in firefighting response; ii) grey water that will be produced in the kitchen area and that will be disposed in a leach field put in place; and iii) black water, mainly from the bathroom facilities, that will be treated via a sealed multi-chambered septic system and disposed thereafter in a leach field.

In terms of solid waste, NGC has set up both a dedicated Terminal Waste Management Plan as well two separate solid waste plans for the Orange Walk Depot and the Central Depot. The Terminal Waste Management Plan contains explicit provisions for separation of solid wastes in clearly labeled or color-coded containers for hazardous and non-hazardous waste. Reusable and Recyclable materials are separated and, in some instances, stored either indoors or, as in the case of scrap metals, out in the open designated areas until final disposal. Similar procedures will be put in place for the two bulk storage depots.

The company will update the three solid waste management plans to reflect the identification of appropriate, licensed final destination (i.e. recycling) or landfill sites for disposal of solid wastes.

#### 4.3.b.ii Hazardous Materials Management

The import of LPG and its distribution does not produce significant quantities of hazardous wastes, even though the gas itself is hazardous. But some operations, for example blending, odorizing, laboratory analyses and landscaping works will require the use of chemicals including insecticides, odorants, and other laboratory compounds. Those are normally packaged in plastic bags or plastic, metal and glass bottles of various shapes and sizes.

Overall, NGC will ensure the proper storage, transport and labeling of all waste and chemicals and where possible, will purchase chemicals from companies practicing reuse of containers, allowing the return of the latter. To this end, according to its Terminal Waste Management Plan, NGC will ensure that all agrochemical (herbicides, pesticides, etc.) containers will be triple rinsed, punctured and labelled as "Used Pesticide Container" prior to being taken to either the Mile 24 Hazardous Waste Cell at the Sanitary Landfill or disposed of by incineration at the Belize Natural

Energy Iguana Creek Facility, whilst the non-hazardous wastes will be disposed of at the locally DOE approved disposal site.

Other hazardous materials and waste that NGC is expected to be handling concerns: i) oil-contaminated solid wastes (oily rags and oil contaminated filters from equipment and machinery); and ii) oil-contaminated liquid waste (from cleaning and washing of oily equipment and vehicle parts, and in some instances from spills). In both cases materials will be collected in covered and labelled drums. Oil and fuel filters, after properly being drained, will then be removed and placed in the scrap metal area for recycling. Refuse oil will be disposed through incineration. The used oil waste will be collected in drums and placed inside a designated containment area and then transported for reuse or recycling, by a DOE authorized company. Lastly, any medical waste will be double-bagged and placed in a designated waste bin prior to incineration at the Belize Natural Energy Iguana Creek Facility for incineration.

#### 4.4 Community Health, Safety and Security

##### 4.4.a Community Health and Safety

##### 4.4.a.i Infrastructure and Equipment Design and Safety

The engineering and design practices developed by Polaris have been reviewed by a Belize civil engineer, approved by the local professional board and it will be reviewed by the Project's Independent Engineer (WSP). Site infrastructure has been designed to the process industry good practices (PIP) and the following civil, mechanical, electrical, instrumentation, and process standards: i) National Fire Protection Association (NFPA 15, 20, 58), ii) American Society of Civil Engineers (ASCE 7-10: wind speed maps for the Caribbean based on a 700-year return period); and Seismic Values Per OBO-ICS 2018<sup>1</sup>, and other additional US and international codes<sup>2</sup>. Site stability was assessed by GeoTech Belize, who conducted site-specific soil stability analyses.

##### 4.4.a.ii Natural disaster and climate resilience

According to the EPC contractor, the engineering designs for the terminal conform to an acceptable occupancy risk for human life in situations of onset of natural disasters - such as hurricanes, storm flooding, and earthquakes. The main terminal building and control room have been designed to withstand hurricane force winds, and as such may be used as a shelter for such

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<sup>1</sup> International Codes Supplements Amendments to the International Building Code -United States Department of State and Seismic Hazard Maps, Belize.

<sup>2</sup> International Building Code (IBC 2012); Overseas Building Operations (OBO 2018); American Institute Structural Steel (AISC 14); American Concrete Institute (ACI 318-11); American Society of Mechanical Engineers (ASME Section VIII Div 2) - (Pressure Vessels); ASME B31.3 - (Piping Design); National Fire Protection Association NFPA 70, National Electric Code (NEC); NFPA 497: Recommended Practice for the Classification of Flammable Liquids, Gases, or Vapors and of Hazardous (Classified) Locations for Electrical Installations in Chemical Process Area; National Electrical Manufacturers Association (NEMA); Institute of Electrical and Electronics Engineers (IEEE); National Electrical Code (NEC); Instrument Standards of Automation (ISA); American Petroleum Institute (API); National Fire Protection Association (NFPA 70) Process; American Institute of Chemical Engineering (AIChE); and Pro4cess Hazard Analysis (PHA OSHA Standard 29CFR 1910).

extreme natural hazards.<sup>3</sup> It will have an “I” beam steel frame with exterior metal panel walls .. The Building is spaced according to NFPA 58 -2020 Table 6.4.1.1 (*Separation Distances Between Containers, Important Buildings, and Line of Adjoining Property That Can Be Built Upon*).

#### 4.4.a.iii Hazardous Materials Management and Safety

Propane and butane -and any mixture of such gases- are known to be highly flammable and hazardous. LPG vapors are heavier than air and tend to collect on the ground and in low spots. After LPG is released, it readily mixes with air and rapidly expands. As it expands and mixes, it could form a flammable mixture that could ignite and cause a fire or vapor cloud explosion (VCE). A VCE can occur when a large amount of flammable vaporizing liquid or gas is rapidly released into the surrounding air and is ignited before being diluted. Another risk situation is known as a BLEVE (Boiling Liquid Expanding Vapor Explosion), which can occur if adequate cooling water is not applied to the tanks in the event of an exposure to very high heat loads (such as occurrence of a nearby fire). In the case that a VCE or BLEVE occurs, there will be an area closest to the release that is above the flammable range because the gas mixture is too rich for combustion, an intermediate area that may be in the flammable range (i.e. between 2.0% to 10% LPG/air concentration), and areas that will be below the lower flammable limit because the mixture is too lean to ignite. Mixing via natural air currents and diffusion of LPG vapors affect the size and extent of these areas. If these processes continue, eventually the mixture is diluted to below the lower flammable limit.

Polaris has carried out a process hazard analysis (PHA, similar to a hazard and operability study - HAZOP). The purpose of the PHA was to identify hazards associated with the new propane and butane terminal storage facility being installed in Big Creek, which include the following steps: i) unload propane and butane ship; ii) store propane and butane; iii) blend butane and propane (C3/C4 mix); iv) load propane trucks; and v) load C3/C4 mix trucks. The PHA includes worksheets with each operational risk scenario, including, inter alia, alterations of flow/no flow, valve closures and pump trip malfunctions, automatic shutdowns, potential to deadhead ship unloading pumps, etc. The PHA report also made operability recommendations for each scenario. Similar worksheets have been made for both the Orange Walk and Belmopan (Central) bulk depots.

To reduce the fire and explosion risk at its LPG storage facility and to ensure that all safety precautions are taken, NGC will put in place both administrative and engineering controls to ensure that these materials are stored and transported in an environmentally safe and sound manner. To this end, the Project will apply various relevant standards and international codes for

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<sup>3</sup> The building will be able to sustain maximum wind speeds of up to 161mph, corresponding to a Category 4/5 hurricane in the Saffir-Simpson Hurricane Wind Scale i.e. potentially leading to catastrophic damage to infrastructure. <https://www.weather.gov/mfl/saffirsimpson>.

managing LPG facilities and proper fire protection mechanisms, as per its engineering designs<sup>4</sup>. These will adhere to various considerations and requirements such as layout, spacing, and distance for vessels, drainage, and containment control to help limit the extent of fire damage in case of an incident. Safety precautions included in the designs also consider: i) vapor recovery system from the tanker trucks that are being filled; ii) installation of collar release break-away systems that are designed to eliminate spillage and damage associated with drive or pull away incidents when loading LPG; iii) LPG gas storage tanks designed for a working pressure corresponding to the vapor pressure at the highest temperature that the tanks are likely to reach<sup>5</sup>; iv) pressure gauges and devices for measuring the liquid content and its temperature for each tank; v) excess flow valves will be fitted to prevent the loss of LPG gas; and vi) remote-controlled hydraulically operated shut-off valves will be fitted to each storage tank<sup>6</sup>.

#### 4.4.a.iv Emergency Preparedness and Response

Notwithstanding best applicable engineering and operational controls, a massive failure of a vessel containing a full inventory of LPG represents one of the Project's greatest risks (i.e. a VCE/BLEVE event). Although the probability of this type of failure occurring is very small and can be mitigated or at least controlled to a reasonable and tolerable level by engineering itself, this risk can also be mitigated by an appropriately designed and operated fire suppression system, as well as with a well-trained and dedicated firefighting team. Therefore, NGC will have in place a state-of-the-art fire suppression and control system to efficiently and effectively prevent an incident from escalating, and to limit the fire damage once a fire occurs. For this purpose, NGC will also have a well-trained members of the workforce.

The firefighting system at the terminal will consist of twenty five fire hydrants with monitors connected via underground pipeline to a fire kill pump capable of supplying some 4,000 gallons of water per minute. The hydrants, equipped with a fire suppression foam supply system, will be strategically installed throughout the entire terminal to ensure full fire coverage (offloading berth facility, pipeline, storage tanks facility, office and laboratory building, and tanker truck loading facility). To ensure that there will be an adequate supply of water to combat any incident on the

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<sup>4</sup> Some of these key sources include: National Fire Protection Association (NFPA) 54, National Fuel Gas Code; NFPA 58: Liquefied Petroleum Gas Code; NFPA 59: Utility LP-Gas Plant Code; American Petroleum Institute (API) 2510: Design and Construction of LPG Installations; API 2510A: Fire-Protection Considerations for the Design and Operation of Liquefied Petroleum Gas (LPG) Storage Facilities; and IP Code of Practice for LPG.

<sup>5</sup> NGC will ensure that the maximum quantity of gas filled into anyone tank will be such that at the maximum operating temperature it would not occupy more than 85% of the capacity of the storage tank.

<sup>6</sup> NGC will also ensure that its storage LPG tanks are equipped with the following fixtures: i) filling valve; ii) intake valve of the gas phase; iii) pressure gauge; iv) maximum overflow valve; v) intake valve of the liquid phase; vi) level sensor; vii) safety relief valve(s); and viii) pressure relief valves—propane tanks are protected by pressure relief valves that open and close to prevent excessive internal pressure due to abnormal conditions.

facility, NGC will construct an onsite water retention pond capable of storing approximately two million gallons of water, allowing almost eight hours of continuous firefighting time. The existing berthing area at the Big Creek port will be protected by mobile hydrant connected to the BNE fuel tank storage facility fire kill system<sup>7</sup>.

NGC's fire suppression system will be maintained and operated by NGC personnel trained to combat industrial fires. They will be trained by a certified Industrial Fire Fighter. The Terminal will have four persons trained, the Belmopan Depot will have three persons trained and the Orange Walk Depot will have two persons trained. The NGC fire team will conduct daily inspections of the fire suppression system and hold frequent fire drills to test the readiness of the team and NGC personnel. The NGC fire team will also have to work in conjunction with the local National Fire Service Team based in Independence Village and the Big Creek Port Facility fire response team, through sharing of the Project's emergency contingency plans, to ensure that all parties are cognizant of their roles and responsibilities should the need to work together ever arise. NGC will also conduct joint fire drills in coordination with these parties.

In order to properly prepare for, and respond to, emergencies such as spills, fires, hurricanes and earthquakes, the Company has already developed the following draft key plans: i) a Fire Contingency Plan; ii) an Emergency Management and Response Plan; and iii) a Hurricane Preparedness Plan. However, these plans are still general and, thus, need revisions and updates. The Fire Contingency Plan, for instance, should consider the exact location and capacity of firefighting equipment, reflect the chemical and material safe data sheets (MSDS), and include and reference the applicable NGC Standard Operating Procedures (SOPs). The Hurricane Preparedness Plan needs to include as the provision for emergency communication systems to be used in the event of loss of power during a hurricane, mapping of escapes routes and shelters, the location of survival kits, etc. Also, all three plans need to reflect the latest EHS organigram and better describe roles and responsibilities of the response team members (as for instance an Environmental Liaison Officer is mentioned but not fully reflected in all plans).

It is also not clear how these existing plans will relate to the overall Emergency Management and Response Plan (EMRP), which should be an overarching document that includes the essential provisions of both the Fire Contingency Plan and the Hurricane Preparedness Plan and any other associated plans. Currently, the Emergency Preparedness Plan does not include a detailed mapping of emergency scenarios and their likely severity and consequences. Also, it puts forward additional contingency plans yet to be developed, such as a Transportation Plan, Accidental Release Plan, Evacuation Plan, and Fire and Explosion Plan whose inter-relationships need establishing and clarifying<sup>8</sup>.

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<sup>7</sup> This mobile hydrant will be put in place each time the LPG Gas Carrier Ship is in dock for off-loading.

<sup>8</sup> For instance, the Fire and Explosion Plan could be the same as the Fire Contingency Plan, or a supplemental plan in case of more extreme fire events.

Hence, before commercial operation commences, NGC will review for content and form the constituent elements of the EMRP, either as separate (standalone) documents or as part of the EMRP itself, to make sure they comply with the provisions of IFC Performance Standards, OSHA emergency planning guidelines<sup>9</sup> and the LLES . The contingency plans will need to include the facilities' technical specifications and be aligned with the respective procedures already in place at the Port of Big Creek (including the future LPG supply ship, which will be an ISPS<sup>10</sup> certified vessel with its own Emergency Preparedness Plan or equivalent), as well as seeking alignment with, and participation of, the local Fire Department of Mango Creek and Independence Village. Joint emergency response and evacuation drills involving the key stakeholder and first responders will also have to be performed as part of the alignment process and revisions to the three contingency plans designed to cover emergency preparedness.

According to the LLES, the terminal facility will establish two concentric evacuation zones (area contours) and associated muster points (safe zones) according to the nature of a major incident so as to safeguard human life. Hence, for a VCE incident involving an explosive vapor cloud when released; muster points will initially set at a minimum of 300 meters away from the source, in two separate directions. For an incident involving a large uncontrollable release of gas (such as a boiling liquid expanding vapor explosion-BLEVE) for which is believed that the situation can become more serious, additional muster points will be designated a minimum of 800 meters away from the source, along the road in two different directions. This distance coincides with the nearest residential receptor outside of the Big Creek port area.

#### 4.4.b Security Personnel

There will be no armed security personnel on any of the three sites. Instead, the perimeters will be surveilled at a central control room at the Terminal site. All three sites including the two bulk storage depots will be equipped with closed-caption television (CCTV) cameras. An on-demand security firm will be contracted to be able to service the site in case any trespassing or violation is detected.

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<sup>9</sup> To include NFPA's Emergency Evacuation Planning Guide for People with Disabilities, where applicable.

<sup>10</sup> The International Ship and Port Facility (ISPS) Code is the basis for a comprehensive mandatory security regime for international shipping. The Code outlines detailed, mandatory maritime and port security-related requirements which contracting governments, port authorities and shipping companies must adhere to, in order to be compliant with the Code.

#### 4.5 Land Acquisition and Involuntary Resettlement

The Project does not require or cause involuntary resettlement or livelihood displacement.

#### 4.6 Biodiversity Conservation and Natural Habitats

The LPG terminal and the two bulk depots are sited on modified habitat without the occurrence of significant biodiversity components or threatened species.

#### 4.7 Indigenous Peoples

There are no known indigenous lands or communities in the Project area and its vicinities.

#### 4.8 Cultural Heritage

Earth movement and foundation works are completed, and no archaeological finds have been found. However, a simplified chance find protocol will be developed by NGC and applied by Polaris to ensure that pipeline trench laying works are done with a precautionary approach in place.

#### 5. Local Access of Project Documentation

The documentation relating to the project can be accessed at the following link:

<http://www.nationalgas.bz>

#### 6. Contact Information

For project inquiries, including environmental and social questions related to an IDB Invest transaction please contact the client (see Investment Summary tab), or IDB Invest using the email [divulgacionpublica@iadb.org](mailto:divulgacionpublica@iadb.org). As a last resort, affected communities have access to the IDB Invest Independent Consultation and Investigation Mechanism by writing to [mecanismo@iadb.org](mailto:mecanismo@iadb.org) or [MICI@iadb.org](mailto:MICI@iadb.org), or calling +1(202) 623-3952.

#### 7. Environmental and Social Action Plan (ESAP -next page)

**PROJECT National Gas Company LPG Terminal Belize  
Environmental and Social Action Plan (ESAP)**

No.	Aspect	Action	Product	Expected delivery date
<b>PS 1: Assessment and Management of Environmental and Social Risks and Impacts</b>				
1.1	EHS Policy	1. Submit Policy for NGC Board of Directors' review and approval.	1. Approved Policy	1. Prior to First Disbursement
1.2	Identification of Risks and Impacts	1. Develop a comprehensive risk & impacts matrix for the Project.	1. Complete Risks & Impacts Matrix	1. Prior to First Disbursement
1.3	E&S Management System (SEMS)	1. Review the SEMS manual to include project numerical standards, environmental procedures, quantitative indicators and monitoring and evaluation tools, as per the requirements of PS 1. 2. Develop the associated SEMS management tools (procedures, forms/checklists and registers) for the SEMS to manage the Project operational phase.	1. Updated SEMS manual 2. Evidence of management tools developed	1. Prior to start of commercial operations 2. Prior to start of commercial operations
1.4	E&S Management Programs	1. Prepare a Site Decommissioning and Rehabilitation Plan (in accordance with the DOE's Environment Compliance Plan).	1. Site Decommissioning and Rehabilitation Plan	1. Prior to Project Completion
1.5	Organizational Capacity and Competency	1. Clarify roles and responsibilities of the EHS team in terms of i) expertise and experience necessary for emergency preparedness – in particular, fire prevention and combat; and ii) environmental management oversight. If necessary, hire/outsource specific expertise.	1. Revised EHS organigram with description of roles and responsibilities	1. Prior to First Disbursement
1.6	Emergency Preparedness and Response	1. Upgrade the Emergency Management and Response Plan (EMRP) for the operations phase, to include: i) a written Fire Safety Analysis document to evaluate the product control system and specify the modes of fire protection to be installed; ii) provisions for spills of hazardous materials; iii) identification of critical receptors (residences, businesses etc.); iii) mapping of escape routes, safe zones, shelters, first aid kits, etc.; iv) location and capacity assessment of local emergency services; v) an analysis of response times,	1. Updated EMRP plan	1. Prior to start of commercial operations



No.	Aspect	Action	Product	Expected delivery date
		<p>in relation to severity/injury scenarios and access to adequate treatment facilities; vi) clarification of relationships with the other, existing contingency plans; vii) provisions of the Hurricane Preparedness Plan, Fire Contingency Plan, and other associated contingency plans listed as to-be-developed as part of the EMRP; viii) identification and establishment of linkages with the existing Big Creek Port contingency plans.</p> <p>2. Revise the Fire Contingency Plan to include: i) an exact location and capacity of firefighting equipment; ii) the chemical/material safe data sheets (MSDS); iii) reference the applicable NGC Standard Operating Procedures (SOPs); iv) links with the EMRP and the associated plans to be developed; v) clarification of the relationship with the Fire and Explosion Plan; vi) sharing the plan and provide alignment with the existing Big Creek contingency plan(s); vii) linkages and communication channels with the Fire Department of Mango Creek and Independence Village.</p> <p>3. Revise the Hurricane Preparedness Plan to include: i) a description of the trigger mechanisms (external and internal to the company) used as early warning for approaching hurricanes; ii) emergency communication systems e.g. in the event of loss of power during a hurricane; iii) mapping of escapes routes/shelters; iv) location of survival kits; and v) establish links with public emergency services/first responders.</p> <p>4. Reflect the latest EHS organigram in the above plans, by describing roles and responsibilities of NGC's response team members (as for instance an</p>	<p>2. Updated Fire Contingency Plan</p> <p>3. Updated Hurricane Preparedness Plan</p> <p>4. Revised EHS organigram with job descriptions</p>	<p>2. Prior to start of commercial operations</p> <p>3. Prior to start of commercial operations</p> <p>4. Prior to First Disbursement</p>

No.	Aspect	Action	Product	Expected delivery date
		<p>Environmental Liaison Officer is mentioned but not fully reflected in all plans).</p> <p>5. Develop the remaining EMRP plans (e.g. Transportation Plan, Accidental Release Plan, Evacuation Plan), each with clearly established objectives, interrelationships with other plans, as well as necessary procedures.</p> <p>6. Ensure that the plans include and reflect the Emergency Preparedness Plan (or equivalent plan) of the LPG bulk delivery ship.</p>	<p>5. Develop the remaining EMRP plans (e.g. Transportation Plan, Accidental Release Plan, Evacuation Plan)</p> <p>6. Ensure that the contingency plans reflect the Emergency Preparedness Plan (or equivalent plan) of the LPG bulk delivery ship</p>	<p>5. Prior to start of commercial operations</p> <p>6. Prior to start of commercial operations</p>
1.7	E&S Management Plan	1. Revise the draft Operations and Maintenance Manual for the operational phase, to: i) consider and reflect changes and upgrades to the contingency/emergency preparedness plans in section 5 above; ii) the requirements of the DOE's Environmental Control Plan (ECP).	1. Revised Operations and Maintenance Manual for operational phase	1. Prior to start of commercial operations
1.8	Grievance Mechanism for Affected Communities	1. Develop a Community Grievance Mechanism as a dedicated external grievance and complaints mechanism with corresponding responsibility and decision-making procedures to address stakeholders' concerns/suggestions. Include an explicit commitment against reprisals or retaliation towards any project stakeholders as well as option for anonymous claims.	1. Grievance Mechanism for Affected Communities established	1. Prior to First Disbursement
<b>PS 2: Labor and Working Conditions</b>				
2.1	Grievance Mechanism	1. Review the draft Grievance Mechanism for NGC employees and contractor workers to include: i) an anonymous claim option and ensure confidentiality in all cases; and ii) a registry of typology of different claims, written and oral requests, suggestions, etc. to allow tracking of different kind of grievances.	1. Revised Grievance Mechanism for NGC employees and contractor workers	1. Prior to First Disbursement

No.	Aspect	Action	Product	Expected delivery date
2.2	Workers Engaged by Third Parties	1. Update NGC's Health and Safety Manual to include a specific Safety Procedure for Independent Wholesalers of LPG, to be applied at the wholesale tanker truck loading facility.	1. Safety Procedure for Independent Wholesalers of LPG	1. Prior to start of commercial operations
<b>PS 3: Resource Efficiency and Pollution Prevention</b>				
3.1	Air Emissions and Air Quality	1. Establish an ambient air quality baseline (based on existing local data or a measurement campaign) for the Project and reference applicable numerical thresholds consistent with national legislation/IFC standards.	1. Ambient air quality baseline established Numerical air quality thresholds documented	1. Prior to First Disbursement
3.2	Noise	1. Establish an acoustic baseline (based on existing local data or a measurement campaign) for the Project and reference applicable numerical thresholds consistent with national legislation/IFC standards.	1. Acoustic baseline established and numerical noise limits documented	1. Prior to First Disbursement
3.3	Waste management	1. Revise the three waste management plans to specify the final destinations of both solid wastes and hazardous wastes (including medical waste).	1. Revised Solid Waste Management Plans	1. Prior to start of commercial operations
<b>PS 4: Community Health, Safety, and Security</b>				
4.1	Emergency preparedness and response	1. Develop an outreach effort to socialize the EMRP and its associated plans and procedures (e.g. emergency scenarios, alert systems, and evacuation instructions) with the key relevant local stakeholders, including the Big Creek Port, Fire Department of Mango Creek and Independence Village, and other relevant first responders.	1. Evidence of outreach efforts (e.g. townhall event) held to socialize plans	1. Prior to start of commercial operations
<b>PS 8: Cultural Heritage</b>				
8.1	Chance Find Procedure	1. Develop a simplified Chance Find protocol for use by Polaris and its subcontractors during trenching and pipeline laying civil works.	1. Chance Find Procedure	1. Prior to Financial Close