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**Barbados**

**Deployment of Cleaner Fuels and Renewable Energies in Barbados**

**BA-L1012**

**Analysis of Compliance with the Public Utilities Policy**

**(GN-2716-4)**

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| **Policy Conditions** | **Description** | **Comments** |
| **1. Financial Sustainability** | Each operation must ensure that the related service generates sufficient funds to meet its financial commitments and cover the operational and maintenance expenses of the systems related to the operation. | The investments supported through the Deployment of Cleaner Fuels and Renewable Energies in Barbados (‘the Program’) are financially viable. The IRR to NPC for the main sub-projects included in the Program is ABOVE 12 percent. All projects are able to service their debts, pay their operating costs, and provide a return to NPV based on the revenue gained from selling the incremental natural gas or the sale of excess electricity to BP&L.  The risk related to the financial viability of the included sub-projects is low. NPC can mitigate the primary risk of rising natural gas prices by linking the retail price of natural gas to the cost of the natural gas imports. BP&L currently links retail electricity prices to fuel imports, setting an important precedent for NPC. TK |
| **2. Economic Analysis** | Projects that finance public services must be economically viable. A project’s economic viability must be calculated based on the cost benefit and cost effectiveness methodologies used and accepted by the IDB. | The Program is economically viable. The economic NPV of the main sub-projects is US$9.8 million at a 12 percent real discount rate. The IRR for the main sub-projects is 25 percent. (See the Cost Benefit Analysis for further details) |

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| **Objectives of the Policy** | **Description** | **Comments** |
| **1. Promote Access** | The Policies should promote access to the service by the entire population, including the most disadvantaged communities and groups, in both urban and rural areas. | The Project will promote access to natural gas supply by supporting the infrastructure necessary to import natural gas to meet current customers’ needs as well as expand natural gas supply to additional customers. Modernizing and improving the current distribution pipeline grid will allow the connection of new customers within the region that is currently served. |
| **2. Deliver a reliable, quality service** | It is important to ensure that the service provided to the user meets minimum quality and reliability standards that are viable and consistent with a cost-benefit or cost-efficiency analysis, in keeping with the nature of the service and the supply conditions. | A central component of the Project is to upgrade Barbados’ natural gas infrastructure in order to ensure service reliability and quality. Investments will include a GIS system, SCADA controls, and improved metering to better monitor the system’s performance and enable faster responses to leaks or other system faults. |
| **3. Deliver a service efficiently** | It is important to deliver a service efficiently, in terms of supply, while seeking to deliver the service at the least possible cost. | The Project will improve the efficiency of NPC’s natural gas service by upgrading system compression pumps, replacing older service trucks with new models with higher fuel efficiency, and improving energy efficiency in NPC’s facilities through the use of smart systems.  In addition, a major objective of the VS LNG plant component is to reduce electricity costs through lower fuel costs. Electricity prices in Barbados are among the highest in the region, driven by a reliance on imported heavy fuel oil for electricity generation. Switching electricity generation from heavy fuel oil to LNG will lower the fuel costs incurred by the utility and lower the price of electricity to all consumers. |
| **4. Create suitable incentives for service demand** | The Policies should create suitable incentives for service demand, so users make use of the services in a manner consistent with their economic, financial, and environmental sustainability. | The Project will ensure that demand from current natural gas customers is reliably met, thereby avoiding a reduction in natural gas consumption owing to a lack of supply. The Project will also facilitate the addition of new customers and expanded natural gas demand by ensuring security of supply and addressing potential customers’ concerns about future supply shortages.  The system expansions and upgrades are expected to allow NPC to continue to provide natural gas at a discount to imported LPG, diesel, and fuel oil. The fuel cost savings from switching to natural gas will also provide an incentive for customers to switch. |
| **5. Promote the Sustainability of Public Utility Companies.** | The scope of the sustainability of public utilities is promoted in accordance with three pillars:  a. Financial Sustainability: ensuring sufficient revenues for the provision of service to users, with contributions from the community and the direct contributions of the Government that allows for the provision of a cost effective service  b. Environmental Sustainability: by maintaining the selection, execution, operation and maintenance of projects to deliver a service that complies with the environmental safeguards of the Bank and contributes to the development of a more resilient infrastructure, considering viable alternatives to mitigate climate change.  c. Social Sustainability: contributing to increased access to service and establishment of mechanisms to consult with communities about relevant aspects of service provision. | *Financial Sustainability:* Audited financial statements show that NPC has been consistently profitable with revenue from natural gas tariffs higher than the cost to provide the service. Although tariffs have not been adjusted consistently in the past, a new tariff structure is planned to be timed with the Project investments that will increase revenue to the NPC while maintaining prices below those of competing fuels.  *Environmental Sustainability:* The Project seeks to improve local environmental sustainability and mitigate climate change. It does this by funding preparations and pre-investment activities for a potential LNG import terminal that will allow the utility to reduce the use of heavy fuel oil for electricity generation, thereby reducing local pollution as well as GHG emissions. In addition, the Project will reduce NPC’s environmental footprint by funding the capital investments necessary to; (i) install renewable energy (wind and PV)and smart energy systems to improve efficiency, and (ii) higher efficiency electric compression pumps to replace current pumps that use natural gas.  *Social Sustainability:* The Project will improve social sustainability by increasing access to natural gas and reducing the cost of electricity. It will do this by funding the capital required to expand and maintain the natural gas pipeline service. Barbados has nearly universal access to electricity but very high electricity costs, particularly in relation to per capita income. Because of this, many residents may not be able to afford electricity or may spend a high share of the income on electricity bills. By reducing electricity prices, the Project will contribute to reducing energy poverty in Barbados. |

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| **Policy Principles that guide the design of the Bank's operations** | **Description** | **Comments** |
| **1. Supporting the countries to address basic access needs** | The Bank will support the development of sustainable systems that use the combination of cost-efficiency and the most appropriate technology solutions, given the characteristics of the demand and the public utility, to address the access needs of the population, both urban and rural. | The Project supports continued and expanded access to natural gas. Upgrading and maintaining the current pipeline grid is the most cost effective option within its current service region.  The Project will also support two different LNG import options—ISO containers and a very small LNG import facility—based on the anticipated demand. The ISO container facility is designed to meet residential, commercial and small industrial demand. The very small LNG import facility will meet natural gas demand for electricity generation which could be close to 10x the level of current non-electricity generation demand. Each technology is the most cost effective option for the scale of anticipated demand. |
| **2. Continual improvements in the governance of public utilities will be key for increasing efficiency in service delivery and satisfactorily protecting the interests of users** | The Policy holds that governance for decision-making in public utilities management, as well as the policy and/or regulatory framework that regulates and supervises the utilities are the primary factors determining their performance, quality, and sustainability. | The Project will support institutional strengthening and capacity building at the NPC. It will support the process of amalgamating NPC with BNOCL, improving corporate governance, legal and regulatory functions, and quality managements systems. It will also fund staff certification and training. |
| ***A. Promoting integrity, transparency, and accountability*** | The Bank will support the development of sustainable systems that use the combination of cost-efficiency and the most appropriate technology solutions, given the characteristics of the demand and the public utility, to address the access needs of the population, both urban and rural. | The Project will support investment in new LNG import infrastructure and maintenance of existing natural gas pipeline systems using the appropriate technology solutions. The Project will promote Bank-approved procurement processes to ensure that equipment and services purchases are cost-effective. |
| ***B. Analyzing the characteristics and impacts of subsidies.*** | The operation and financing of the services addressed by this Policy should efficiently recover service delivery costs through rates charged to users. However, this Policy acknowledges that, occasionally, financial sustainability can be achieved by supplementing the revenues earned through rates charged to users for the service with contributions from the community and direct government contributions. Where subsidies are granted, the Bank will promote both their transparent allocation and use, subject to frequent, effective accountability mechanisms. Such mechanisms will include: (i) identification and analysis of sources and beneficiaries of the subsidies; (ii) analysis of the distributive incidence of the subsidies; and (iii) quantification of the subsidy relative to macroeconomic indicators (for example, gross domestic product, total public sector expenditures) used by the Bank or by the level of government granting the subsidies to report on their fiscal sustainability. In cases where rate subsidies are granted, the Bank will promote their targeting toward the most vulnerable and lowest-income groups. In addition, to the extent possible, the Bank will help countries replace rate subsidies for public utilities with income transfer mechanisms that are more direct and targeted toward the lowest-income population segments. | NPC’s total operating revenues exceed operating costs and it does not receive subsidies from the Government of Barbados. The proposed natural gas tariff adjustment is expected to allow future revenues to continue to reflect future costs after the Project is implemented and an appropriate rate of return for NPC. |
| ***C. Separating institutional roles to improve sector governance*** | Experience shows that the most effective organization for the sectors to achieve this Policy’s objective is the separation of the roles of policy-maker, regulator, and service provider. In this context, the sector authority retains responsibility for policy-making and planning, the public agencies determine and oversee compliance with the regulatory system, and public or private entities are assigned responsibility for providing the service. This Policy recognizes, nonetheless, that the institutional organization cannot follow a single model, but must be adapted to the specific features of each sector and country. In several of the region’s countries, responsibility for policy-making, regulation, and delivery of public utilities is based at the local (provincial or municipal) level. In these cases, where it is not necessarily optimal to separate the roles of policy-making and regulation, the Bank will promote homogeneous regulation, with adequate minimum quality parameters, rate-setting principles, supervision and control mechanisms. It will also help develop institutional mechanisms that strengthen appropriate management in the framework of local legislation. | Barbados’ regulatory structure separates the role of service provider from that of regulator and policy-maker. The Ministry of Energy and the Energy and Telecoms Division (ETD) within the Office of the Prime Minister monitor NPC’s activities.  The Project will help strengthen sector governance by supporting the amalgamation of NPC and BNOCL. The amalgamation is expected to streamline sector governance by reducing the number of entities involved in natural gas supply. It will also promote skills and capacity development.  The Project will also support improved sector governance by directly funding consulting services and training to improve corporate governance, legal and regulatory functions within the combined entity. |
| ***D. Establishing the most appropriate sector structure given the characteristics of the service and the objectives of the Policy*** | Considering the heterogeneity of markets and services in the region, this Policy does not promote a single sector industrial organization for the delivery of public utilities, and emphasizes that regardless of the management model used, there must be good governance practices and a clear, predictable, stable regulatory framework that encourages efficiency and investment. | The Project will help improve the overall efficiency of the sector by funding consulting services and training to support the amalgamation of NPC and BNOCL. Combining the two entities will reduce overhead costs, increase market penetration, and improve quality of service. |
| ***E.******The role of economic regulation in creating incentives for efficiency, investment, and protection of users’ rights*** | The adoption of an effective regulatory system tailored to the specific conditions of each sector in each country is a key factor for achieving the Policy’s objectives. The promotion of users’ rights should be a core objective of the service regulation process. Thus, regulation should ensure that the efficiency gains achieved over time by the service providers are passed on to the users through rate reductions or improvements in service quality. For this to happen, it is essential to prevent the abuse of dominant market power by the provider and strictly apply the standards for quality of service. Regardless of the sector structure and institutional regulation model selected by each country, the Bank will provide assistance in developing information systems that show policy-makers and users the structure and cost and rate levels at all stages of service production. | Not applicable to this project. |
| ***F. Creating the proper conditions so private participation in public utilities service delivery is a viable option*** | This Policy recognizes that competition has the potential to increase productive efficiency and quality of service. In markets where production technology does not exhibit characteristics specific to natural monopolies, market competition can be generated by allowing several companies to offer services simultaneously. When the markets are natural monopolies, competition for market can produce the same results as competition in the market, as long as the process of selection and regulation of the company providing the service is open and effective. The Policy also recognizes that private participation (in any of its manifestations, including management contracts, concessions, or mixed-ownership enterprises) is a key tool for closing gaps in the quantity and quality of utilities in the region. | The Project will provide technical assistance to support the development of a Public Private Partnership to manage the Very Small LNG terminal. This structure will allow increased private sector participation and reduce the debt burden on the Government of Barbados associated with the required capital investments. |
| ***G. Strengthening the management of infrastructure used for public utilities service delivery*** | The most pertinent spheres of action for optimizing infrastructure management are: (i) encouraging efficiency in business management; (ii) developing and implementing appropriate, stable asset maintenance policies; and (iii) optimizing the use of the infrastructure through incentives for demand. | The Project will improve NPCs ability to manage and optimize its assets. It will do so by funding investment in GIS system, SCADA controls, and improved metering. In addition, it will fund training and certification of NPC staff to increase their skills in quality management. |
| **3. Promoting innovation to foster efficiency, access, and environmental sustainability** | This Policy highlights the role of technology for increasing access with cost-effective solutions, reducing maintenance costs, and managing consumption, while avoiding unnecessary investments in increased capacity. The Policy recognizes that the Bank will help disseminate information on the adoption, financing, and systems for management of the most appropriate technology solutions for each particular combination of public utility and demand characteristics. | The Project supports improved efficiency and sustainability by investing in high efficiency compression pumps, smart energy systems for NPC facilities, and new wind and solar PV electricity generation capacity. In addition, the increased use of natural gas for general consumption and for electricity generation contributes to the reduction of GHG emissions from more polluting fuels such as LPG, diesel, and heavy fuel oil. |