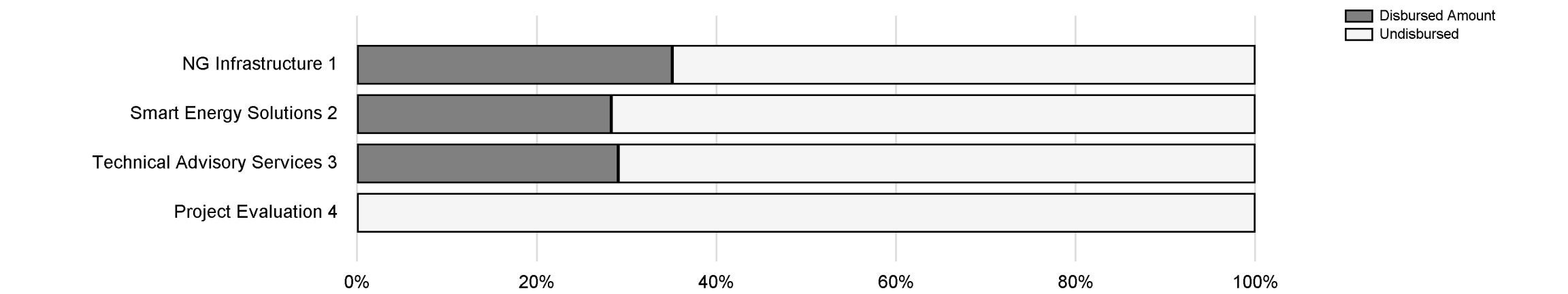


PMR Public Report

| | | | |
|----------------------|----------------------------------|--|----------|
| Operation Number | BA-L1012 | Chief of Operations Validation Date | 10/14/22 |
| Year- PMR Cycle | First period Jan-Jun 2022 | Division Chief Validation Date | |
| Last Update | 09/30/22 | Country Representative Validation Date | |
| PMR Validation Stage | Validated by Chief of Operations | | |

| | | | |
|--|--|---|---|
| Basic Data | | | |
| Operation Profile | | | |
| Operation Name | Deployment of Cleaner Fuels and Renewable Energies in Barbados | Loan Number | 3843/OC-BA |
| Executing Agency | NATIONAL PETROLEUM CORPORATION | Sector/Subsector | ENERGY-ENERGY SECTOR REHABILITATION AND EFFICIENCY |
| Team Leader | ECHEVERRIA, CARLOS BLADIMIR | Overall Stage | Disbursing (From eligibility until all the Operations are closed) |
| Operation Type | Loan Operation | Country | Barbados |
| Lending Instrument | Investment Loan | Convergence related Operation(s) | |
| Borrower | BARBADOS | | |
| Environmental and Social Safeguards | | | |
| Impacts Category | B | Was/Were the objective(s) of this operation reformulated? | NO |
| Safeguard Performance Rating | Satisfactory | Date of approval | |
| Safeguard Performance Rating - Rationale | Currently the project focused on the initial set up of renewable energy sources and overall resource efficiencies building, due to focus of Barbados that is shifting away from LNG. Minor upgrades to local LNG lines have been performed. Additional focus and development of renewable energy (wind and solar) might be included as studies. These studies should ensure proper assessment all environmental and social impacts, especially if designed offshore. All impacts of the projects so far have been properly mitigated | | |

| | | | | | | | | | |
|---|-----------------------|-------------|-------------------|------------------------|---------------------|------------------------|----------------------|-------------|--------------------|
| Financial Data | | | | | | | | | |
| | Total Cost and Source | | | | | Available Funds (US\$) | | | |
| Operations | Original IDB | Current IDB | Local Counterpart | Co-Financing / Country | Total Original Cost | Current IDB | Disb. Amount to Date | % Disbursed | Undisbursed Amount |
| BA-L1012 | 34,000,000 | 34,000,000 | 0 | 0 | 34,000,000 | 34,000,000 | 15,656,652.8 | 46.05% | 18,343,347.2 |
| Aggregated | 34,000,000 | 34,000,000 | 0 | 0 | 34,000,000 | 34,000,000 | 15,656,652.8 | 46.05% | 18,343,347.2 |
| Expense Categories by Loan Contract (cumulative values) | | | | | | | | | |



Please note that inactive indicators and outputs are not displayed; totals in the actual cost table may not match the sum of the cost of the outputs displayed, due to the cost of inactive outputs.

RESULTS MATRIX

General Development Objectives

General Development Objectives Nbr. 0: Expected long-term impacts include a reduction in the electricity tariff that contributes to one of the goals in the Barbados Country Strategy and GHG emissions reductions from power generation.

Observation:

| Indicator | | Unit of Measure | Baseline | Baseline Year | Expected Year of Achievement | EOP 2023 | |
|-----------|---|------------------------------------|----------|---------------|------------------------------|----------|-----|
| 0.0 | Total GHG emissions resulting from power generation in Barbados | Million tons CO2 equivalent t/year | 2 | 2015 | 2023 | P | 1.5 |
| | | | | | | A | - |

Details

Means of Verification: Reports Intended Nationally Determined Contribution (INDC) compliance

Observations:

The General Development Objective indicator target is expected to be observed by the operation's "Fully Justified" date in Convergence (CO): No

| Pro-Gender | No | Pro-Ethnicity | No | CRF indicator | | | | | |
|------------|---|---------------|----|-----------------|----------|---------------|------------------------------|----------|-----|
| | | | | | | | | | |
| Indicator | | | | Unit of Measure | Baseline | Baseline Year | Expected Year of Achievement | EOP 2023 | |
| 0.1 | Average national electricity tariff in Barbados | | | US\$/KWh | 0.28 | 2015 | 2023 | P | .25 |
| | | | | | | | | A | - |
| Details | | | | | | | | | |

Means of Verification: Reports from Barbados Light and Power (BL&P)

Observations:

The General Development Objective indicator target is expected to be observed by the operation's "Fully Justified" date in Convergence (CO): No

| | | | | | | | |
|------------|----|---------------|----|---------------|--|--|--|
| Pro-Gender | No | Pro-Ethnicity | No | CRF indicator | | | |
| | | | | | | | |

RESULTS MATRIX

Specific Development Objectives

Specific Development Objectives Nbr. 0: Expected Result 1: Ensure Natural gas service continuity

Observation:

| | Indicator | Unit of Measure | Baseline | Baseline Year | | 2018 | 2019 | 2020 | 2021 | 2022 | 2023 | EOP 2023 |
|-----|---|---------------------------|----------|---------------|---|------|------|------|------|------|------|----------|
| 0.0 | Annual Natural Gas sales by NPC to residential, commercial and industrial clients | Million cubic feet (mmcf) | 511 | 2015 | P | 511 | 511 | 538 | 575 | 600 | 600 | 600 |
| | | | | | A | 511 | - | - | - | - | - | - |

Details

Means of Verification: Semi-annual reports (SAR) from NPC/BNCOL.

Observations:

Evaluation Methodology: -

| | | | | | |
|------------|----|---------------|----|---------------|--|
| Pro-Gender | No | Pro-Ethnicity | No | CRF indicator | |
| | | | | | |

Specific Development Objectives Nbr. 1: Expected Result 2: Increase the number of LNG suppliers to Barbados to enhance energy security

Observation:

| | Indicator | Unit of Measure | Baseline | Baseline Year | | 2018 | 2019 | 2020 | 2021 | 2022 | 2023 | EOP 2023 |
|-----|--|--------------------|----------|---------------|---|------|------|------|------|------|------|----------|
| 1.0 | Number of international/regional Liquefied Natural Gas (LNG) suppliers to Barbados | # of LNG suppliers | 1 | 2015 | P | 2 | 2 | 2 | 2 | 2 | 2 | 2 |
| | | | | | A | 1 | - | - | - | - | - | - |

Details

Means of Verification: Semi-annual reports (SAR) from NPC/BNCOL.

Observations:

Evaluation Methodology: -

| | | | | | |
|------------|----|---------------|----|---------------|--|
| Pro-Gender | No | Pro-Ethnicity | No | CRF indicator | |
| | | | | | |

Specific Development Objectives Nbr. 2: Expected Result 3: Reduce CO2 emission reductions from NPC/BNOCL operational and administrative facilities

Observation:

| | Indicator | Unit of Measure | Baseline | Baseline Year | | 2018 | 2019 | 2020 | 2021 | 2022 | 2023 | EOP 2023 |
|-----|---|---------------------------|----------|---------------|---|------|------|------|-------|-------|-------|----------|
| 2.0 | Annual CO2 emission reductions from implementing smart energy solutions in NPC and/or BNOCL operational and administrative facilities | Tons CO2 equivalent /year | 0 | 2015 | P | - | - | - | 1,500 | 1,500 | 6,000 | 9,000 |
| | | | | | A | - | - | - | - | - | - | - |

Details

Means of Verification: Semi-annual reports (SAR) from NPC/BNCOL.

Observations: Calculated based on EE saved, RE installed and accepted carbon emission reduction methodologies. Smart energy solutions includes RE and EE.

Evaluation Methodology: -

| | | | | | |
|------------|----|---------------|----|---------------|--|
| Pro-Gender | No | Pro-Ethnicity | No | CRF indicator | |
| | | | | | |

Specific Development Objectives Nbr. 3: Expected Result 4: Increased operational efficiency in NG transmission and distribution

Observation:

| | Indicator | Unit of Measure | Baseline | Baseline Year | | 2018 | 2019 | 2020 | 2021 | 2022 | 2023 | EOP 2023 |
|-----|--|-----------------|----------|---------------|---|------|------|------|------|------|------|----------|
| 3.0 | NPC's Annual Operational cost per customer | US\$/ customer | 5.2 | 2015 | P | 5.2 | - | - | - | - | 4.3 | 4.3 |
| | | | | | A | 5.2 | - | - | - | - | - | - |

Details

Means of Verification: Semi-annual reports (SAR) from NPC/BNCOL.

Observations: The operational cost per customer will take into account only transmission and distribution of NG which is NPC's main responsibility

Evaluation Methodology: -

| | | | | | |
|------------|----|---------------|----|---------------|--|
| Pro-Gender | No | Pro-Ethnicity | No | CRF indicator | |
| | | | | | |

Specific Development Objectives Nbr. 4: Expected Result 5: Increase private sector participation to develop an LNG project

Observation:

| | Indicator | Unit of Measure | Baseline | Baseline Year | | 2018 | 2019 | 2020 | 2021 | 2022 | 2023 | EOP 2023 |
|---------|--|------------------------------|----------|---------------|---|------|------|------|------|------|------|----------|
| 4.0 | Number of private sector partners with a contract awarded to implement the Small LNG Plant | # of private sector partners | 0 | 2015 | P | - | 1 | - | - | - | - | 1 |
| | | | | | A | - | - | - | - | - | - | - |
| Details | | | | | | | | | | | | |

Means of Verification: Contract with winning proponent which will be attached to the semi-annual reports from NPC and BNOCL

Observations:

Evaluation Methodology: -

| | | | | | |
|------------|----|---------------|----|---------------|--|
| Pro-Gender | No | Pro-Ethnicity | No | CRF indicator | |
| | | | | | |

RESULTS MATRIX

OUTPUTS: ANNUAL PHYSICAL AND FINANCIAL PROGRESS

Component Nbr. 1 Component 1: Natural Gas Infrastructure

| | | | | PHYSICAL PROGRESS | | FINANCIAL PROGRESS | |
|------|--|-----------------|-------|-------------------|----------|--------------------|--------------|
| | Output | Unit of Measure | | 2022 | EOP 2023 | 2022 | EOP 2023 |
| 1.01 | Monitoring and control systems upgraded/replaced | # of Systems | P | - | 7 | - | 6,241,431.5 |
| | | | P (a) | 0.35 | 3 | 767,712 | 4,300,580 |
| | | | A | 0.35 | 2.75 | 109,932.66 | 3,406,145.54 |
| 1.02 | Pipelines for transmission and distribution replaced, realigned and/or installed | Km of pipeline | P | - | 10 | - | 8,286,400.2 |
| | | | P (a) | 3.2 | 12.5 | 2,499,761 | 5,873,206 |
| | | | A | - | - | 985,296 | 1,615,662.78 |
| 1.03 | Natural Gas distribution stations upgraded | # of stations | P | - | 1 | - | 250,000 |
| | | | P (a) | - | 1 | - | 900,000 |
| | | | A | - | - | - | - |
| 1.04 | On-road Natural Gas distribution fleet acquired or modernized | # of vehicles | P | - | 12 | - | 1,500,000 |
| | | | P (a) | - | 22 | - | 829,467 |
| | | | A | - | 22 | - | 776,149.27 |

Component Nbr. 2 Component 2: Smart Energy Solutions

| | | | | PHYSICAL PROGRESS | | FINANCIAL PROGRESS | |
|------|--|-----------------|-------|-------------------|----------|--------------------|--------------|
| | Output | Unit of Measure | | 2022 | EOP 2023 | 2022 | EOP 2023 |
| 2.01 | RE capacity installed in NPC/BNOCL/newly created entity facilities | MW | P | 0.85 | 1.15 | - | 4,704,826.05 |
| | | | P (a) | 3.28 | 9.1 | 2,420,903 | 15,253,180 |
| | | | A | - | 0.82 | 347,215 | 5,140,487.93 |
| 2.02 | EE and/or RE equipment installed in NPC and/or BNOCL or newly created entity’s operational and administrative facilities | Binary (yes/no) | P | - | 1 | - | 1,360,000 |
| | | | P (a) | - | 1 | - | 300,000 |
| | | | A | - | - | - | - |
| 2.03 | Technical Feasibility Study developed for Wind facilities in Barbados | # of studies | P | - | - | - | - |
| | | | P (a) | - | 1 | 137,819 | 413,455.95 |
| | | | A | - | - | - | 110,254.95 |

Component Nbr. 3 Component 3: Technical Advisory Services

| | | | | PHYSICAL PROGRESS | | FINANCIAL PROGRESS | |
|------|---|-----------------|-------|-------------------|----------|--------------------|------------|
| | Output | Unit of Measure | | 2022 | EOP 2023 | 2022 | EOP 2023 |
| 3.01 | Studies developed to improve NPC and/or BNOCL or newly created entity’s corporate governance, environmental, legal and regulatory functions, quality management systems, and information technology | # of studies | P | - | 4 | 270,000 | 1,223,000 |
| | | | P (a) | - | 4 | 31,111 | 899,383 |
| | | | A | - | 1 | - | 399,716.06 |
| 3.02 | NPC and/or BNOCL or newly created entity personnel trained in technical and management areas to support Natural Gas expansion | # of persons | P | - | 17 | - | 150,000 |
| | | | P (a) | 9 | 17 | 5,810 | 55,810 |
| | | | A | 13 | 13 | 5,810 | 5,810 |

| Other Cost | | | | |
|------------|---|-------|------------|---------------|
| | Program Management, Monitoring and Evaluation | P | 444,164.15 | 2,523,083.39 |
| | | P (a) | 607,339 | 5,174,918.05 |
| | | A | 385,713 | 2,187,161.61 |
| Total Cost | | | | |
| | Total Cost | P | 714,164.15 | 33,594,203.09 |

| | | | | |
|--|------------|-------|--------------|---------------|
| | Total Cost | P (a) | 6,470,455 | 34,000,000 |
| | | A | 1,833,966.66 | 13,641,388.14 |

No information available for this section

RISKS AND PLANNED RESPONSES

| Risk ID | Risk Status | | Risk Taxonomy | | |
|---------|------------------|---------------------|-----------------------|--------|--|
| 3 | Materialized | | Political Environment | | |
| | | | | | |
| | Response Actions | | | | |
| | 3.0 | Management Strategy | | Status | |
| | | - | | | |
| | | | | | |
| | | | | | |

| Risk ID | Risk Status | | Risk Taxonomy | | |
|---------|------------------|---------------------|-----------------------|--------|--|
| 6 | Active | | Political Environment | | |
| | | | | | |
| | Response Actions | | | | |
| | 6.1 | Management Strategy | | Status | |
| | | MITIGATE | | ACTIVE | |
| | | | | | |
| | | | | | |

| Risk ID | Risk Status | | Risk Taxonomy | | |
|---------|------------------|---------------------|---------------------------|--------|--|
| 9 | Active | | Institutional Environment | | |
| | | | | | |
| | Response Actions | | | | |
| | 9.1 | Management Strategy | | Status | |
| | | MITIGATE | | ACTIVE | |
| | | | | | |
| | | | | | |

| Risk ID | Risk Status | | Risk Taxonomy | | |
|---------|------------------|---------------------|---------------------------|----------|--|
| 12 | Inactive | | Institutional Environment | | |
| | | | | | |
| | Response Actions | | | | |
| | 12.1 | Management Strategy | | Status | |
| | | MITIGATE | | INACTIVE | |
| | | | | | |
| | | | | | |

| Risk ID | Risk Status | | Risk Taxonomy | | |
|---------|------------------|---------------------|---------------------------|----------|--|
| 15 | Inactive | | Institutional Environment | | |
| | | | | | |
| | Response Actions | | | | |
| | 15.1 | Management Strategy | | Status | |
| | | MITIGATE | | INACTIVE | |
| | | | | | |
| | | | | | |

| Risk ID | Risk Status | | Risk Taxonomy |
|---------|------------------|---------------------|--------------------|
| 18 | Active | | Internal Processes |
| | | | |
| | Response Actions | | |
| | 18.1 | Management Strategy | Status |
| | | MITIGATE | ACTIVE |
| | | | |
| | | | |

| Risk ID | Risk Status | | Risk Taxonomy |
|---------|------------------|---------------------|--------------------|
| 21 | Active | | Social Environment |
| | | | |
| | Response Actions | | |
| | 21.1 | Management Strategy | Status |
| | | MITIGATE | ACTIVE |
| | | | |
| | | | |

| Risk ID | Risk Status | | Risk Taxonomy |
|---------|------------------|---------------------|--------------------|
| 24 | Active | | Social Environment |
| | | | |
| | Response Actions | | |
| | 24.1 | Management Strategy | Status |
| | | MITIGATE | ACTIVE |
| | | | |
| | | | |

| Risk ID | Risk Status | | Risk Taxonomy |
|---------|------------------|---------------------|---------------------------|
| 26 | Active | | Institutional Environment |
| | | | |
| | Response Actions | | |
| | 26.1 | Management Strategy | Status |
| | | MITIGATE | ACTIVE |
| | | | |
| | | | |

IMPLEMENTATION STATUS AND LEARNING

| Lesson Learned - Categories |
|---|
| Others - Technical-Sectorial Dimensions |
| Project Design |