| Operation Number     | BA-L1025                         | Chief of Operations Validation Date    | 10/12/17 |
|----------------------|----------------------------------|--|----------|
| Year- PMR Cycle      | First period Jan-Jun 2017        | Division Chief Validation Date         |          |
| Last Update          | 10/12/17                         | Country Representative Validation Date |          |
| PMR Validation Stage | Validated by Chief of Operations |  |          |

### **Basic Data**

### **Operation Profile**

| Operation Name     | Public Sector Smart Energy (PSSE) Program | Loan Number                      | 2748/OC-BA  |
|--------------------|---|----------------------------------|---|
| Executing Agency   | Division of Energy and Telecommunications | Sector/Subsector                 | EN-EEC - ENERGY-ENERGY EFFICIENCY AND RENEWABLE ENERGY IN END USE |
| Team Leader        | GISCHLER BLANCO, CHRISTIAAN               | 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                                  |                                  |   |

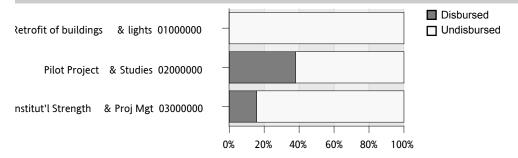
### **Environmental and Social Safeguards**

| Impacts Category C                       |  | Was/Were the objective(s) of this operation reformulated? | NO |
|--|--|---|----|
| Safeguard Performance Rating             |  | Date of approval  |    |
| Safeguard Performance Rating - Rationale |  |   |    |

### **Financial Data**

| Item       |              |            | Total Cost an          | id Source           | Available Funds (US\$) |                      |            |                    |               |
|------------|--------------|------------|------------------------|---------------------|------------------------|----------------------|------------|--------------------|---------------|
| цеш        | Original IDB |            | Co-Financing / Country | Total Original Cost | Current IDB            | Disb. Amount to Date | % Disb     | Undisbursed Amount |               |
| BA-L1025   | 17,000,000   | 17,000,000 | 0                      | 7,664,000           | 24,664,000             | 17,000,000           | 617,030.32 | 3.63%              | 16,382,969.68 |
| Aggregated | 17,000,000   | 17,000,000 | 0                      | 7,664,000           | 24,664,000             | 17,000,000           | 617,030.32 | 3.63%              | 16,382,969.68 |

### **Expense Categories by Loan Contract (cumulative values)**



Please note that the Overall Stage represents the stage of the operation at the time of this report's publication, which might not necessarily match the stage of the operation during the PMR Cycle to which the report pertains. Please also 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**

### **IMPACTS**

Impact Nbr. 1: PSSE Financial savings

cumulative to date (real

2012 US\$).

**Observation:** Financial savings from the reduction in electricity

purchased from BL&P by the GOBA, as well as the sale of electricity produced by the solar PV systems to BL&P, and reduction in fuel purchased for the GOBA vehicle fleet.

|                                | Indicator  | Unit of<br>Measure | Baseline | Baseline<br>Year |      | 2018 | EOP 2018      |  |  |  |
|--------------------------------|--|--------------------|----------|------------------|------|------|---------------|--|--|--|
| 1.1                            | PSSE Financial savings   | US\$               | 0.0      | 2012             | Р    |      | 11,284,963.00 |  |  |  |
|                                | cumulative to date (real 2012 US\$).   |                    |          |                  | P(a) |      | 11,284,963.00 |  |  |  |
|                                |  |                    |          |                  | Α    |      |               |  |  |  |
|                                |  |                    |          | Detai            | ls   |      |               |  |  |  |
| Means                          | Means of verification: Power consuption Information provided by the Government and by the utility (BL&P) |                    |          |                  |      |      |               |  |  |  |
| Pro-Gender No Pro-Ethnicity No |  |                    |          |                  |      |      |               |  |  |  |

**Impact Nbr.** 2: Avoided CO2 emissions by the PSSE Program

(cumulative to date).

#### Observation:

| Observ    | auon.   |                    |                  |                  |      |      |           |  |
|-----------|---|--------------------|------------------|------------------|------|------|-----------|--|
| Indicator |   | Unit of<br>Measure | Baseline         | Baseline<br>Year |      | 2018 | EOP 2018  |  |
| 2.1       | Avoided CO2 emissions by                        | tCO2               | 0.0              | 2012             | Р    |      | 32,528.00 |  |
|           | the PSSE Program (cumulative to date).          |                    |                  |                  | P(a) |      | 32,528.00 |  |
|           |   |                    |                  |                  | Α    |      |           |  |
| Details   |   |                    |                  |                  |      |      |           |  |
| Means     | of verification: Reports prepared by Government | ent of Barbados    | - Eneray Divisio | n                |      |      |           |  |

Pro-Gender No Pro-Ethnicity No

## **RESULTS MATRIX**

### **OUTCOMES**

Outcome Nbr. 1: RE capacity installed in government

buildings

Observation:

|     | Indicator   |     | Baseline | Baseline<br>Year |      | EOP 2018 |
|-----|---|-----|----------|------------------|------|----------|
| 1.1 | Electricity Generated from                          | MWh | 0.0      | 2012             | Р    | 6,073.00 |
|     | Solar PV Systems (MWh/year, MWh to date generated). |     |          |                  | P(a) | 6,073.00 |
|     |   |     |          |                  | Α    |          |

### **Details**

Means of verification: Reports prepared by Government of Barbados- Energy Dvision

Observations: Assuming an output of 1,700/kW/year for solar PV. Note: this includes the 50kW PV system installed for charging the Electric Vehicles in Component 2.

Pro-Gender No **Pro-Ethnicity** No

Outcome Nbr. 2: Energy saving with EE technologies in public lighting and buildings

#### Observation:

|     | Indicator   | Unit of<br>Measure | Baseline | Baseline<br>Year |      | EOP 2018  |  |  |  |
|-----|---|--------------------|----------|------------------|------|-----------|--|--|--|
| 2.1 | Electricity Saved through retrofits (energy efficient public                              | MWh                | 0.0      | 2012             | Р    | 28,608.00 |  |  |  |
|     | lights and energy efficient equipment in public buildings) (MWh/year, MWh to date saved). |                    |          | -                | P(a) | 28,608.00 |  |  |  |
|     |   |                    |          |                  | Α    |           |  |  |  |
|     | Details   |                    |          |                  |      |           |  |  |  |

Means of verification: Reports prepared by Government of Barbados Energy Division

Pro-Gender No **Pro-Ethnicity** No

Outcome Nbr. 3: Fossil Fuels Saved from the

implementation of the pilot projects (barrels of oil equivalent).

Observation:

| Indicator   | Unit of<br>Measure | Baseline | Baseline<br>Year |      | EOP 2018 |
|---|--------------------|----------|------------------|------|----------|
| 3.1 Fossil Fuels Saved from the implementation of the pilot | barrels of oil     | 0.0      | 2012             | Р    | 240.00   |
| projects (barrels of oil                                    |                    |          |                  | P(a) | 240.00   |

## **RESULTS MATRIX**

## **OUTCOMES**

| 3.1    | equivalent).  | barrels of oil | 0.0 | 2012 | Α  |             |    |  |  |  |  |  |
|--------|---|----------------|-----|------|----|-------------|----|--|--|--|--|--|
|        | Details   |                |     |      |    |             |    |  |  |  |  |  |
| Means  | Means of verification: Reports prepared by Government of Barbados - Energy Division |                |     |      |    |             |    |  |  |  |  |  |
| Pro-Ge | nder No   |                |     |      | Pr | o-Ethnicity | No |  |  |  |  |  |

Outcome Nbr. 4: public awareness increased in public sector for RE and EE

### Observation:

|        | Indicator  | Unit of<br>Measure | Baseline     | Baseline<br>Year |      | EOP 2018       |  |  |  |
|--------|--|--------------------|--------------|------------------|------|----------------|--|--|--|
| 4.1    | Percentage of survey respondents participating at events that report high                                    | %                  | 0.0          | 2012             | P    | 80.00          |  |  |  |
|        | awareness and support<br>of sustainable energy<br>practices (Number of<br>respondents that<br>answered ?high |                    |              | -                | P(a) | 80.00          |  |  |  |
|        | awareness and support<br>of sustainable energy?/<br>Total number of survey<br>res                            |                    |              |                  | Α    |                |  |  |  |
|        | Details  |                    |              |                  |      |                |  |  |  |
| Means  | of verification: Reports prepared by Governme  | ent of Barbados    | - Energy Div | vision           |      |                |  |  |  |
| Pro-Ge | nder No  |                    |              |                  | Pr   | p-Ethnicity No |  |  |  |

## **RESULTS MATRIX**

### **OUTPUTS: ANNUAL PHYSICAL AND FINANCIAL PROGRESS**

### Component Nbr. 1 RE and EE in public buildings

|     |                                    | PHYSICAL F      | PROGRESS | FINANCIAL I | PROGRESS |           |              |
|-----|------------------------------------|-----------------|----------|-------------|----------|-----------|--------------|
|     | Output                             | Unit of Measure |          | 2017        | EOP 2018 | 2017      | EOP 2018     |
| 1.1 | Streetlight installation completed | %               | Р        | 20          | 85       | 3,233,000 | 9,977,800    |
|     |                                    |                 | P(a)     | 10          | 85       | 1,490,523 | 9,977,898.87 |
|     |                                    |                 | Α        | 0           | 0        | 0         | 41,028.47    |
| 1.2 | Number of public                   | Buildings       | Р        | 3           | 12       | 1,383,000 | 4,150,000    |
|     | buildings retrofitted with EE      |                 | P(a)     | 0           | 12       | 0         | 4,150,000    |
|     |                                    |                 | Α        | 0           | 0        | 0         | 0            |
| 1.3 | PV in Public Buildings Installed   | kW              | Р        | 290         | 1,190    | 1,833,000 | 5,500,000    |
|     |                                    |                 | P(a)     | 1,190       | 1,190    | 4,950,000 | 5,510,761    |
|     |                                    |                 | Α        | 0           | 0        | 0         | 10,761       |

### Component Nbr. 2 Pilot projects

|     |  |                   |      | PHYSICAL PROGRESS |          | FINANCIAL PROGRESS |              |
|-----|--|-------------------|------|-------------------|----------|--------------------|--------------|
|     | Output   | Unit of Measure   |      | 2017              | EOP 2018 | 2017               | EOP 2018     |
| 2.1 | Public Electric Vehicles with Solar PV installed and pilot completed | Electric vehicles | Р    | 3                 | 8        | 110,000            | 300,000      |
|     |  |                   | P(a) | 6                 | 8        | 108,531            | 300,000      |
|     |  |                   | Α    | 0                 | 2        | 0                  | 116,469.25   |
| 2.2 | Ocean studies completed  | Studies           | Р    | 1                 | 1        | 80,000             | 1,000,000    |
|     |  |                   | P(a) | 0                 | 1        |                    | 1,000,031.36 |
|     |  |                   | Α    | 0                 | 0        | 0                  | 15,043.09    |

### Component Nbr. 3 capacity building

|     |   |  |      | PHYSICAL PROGRESS |          | FINANCIAL PROGRESS |              |
|-----|---|--|------|-------------------|----------|--------------------|--------------|
|     | Output  | Unit of Measure  |      | 2017              | EOP 2018 | 2017               | EOP 2018     |
| 3.1 | Capacity Building training/activities completed                 | Building training/activities completed numbr of people | Р    |                   | 0        | 656,000            | 1,395,000    |
|     |   |  | P(a) | 8                 | 100      | 95,960             | 1,416,345.97 |
|     |   |  | Α    | 0                 | 0        | 49,989             | 96,440       |
| 3.2 | Public awareness events completed                               | number of people                                       | Р    | 30                | 100      | 203,000            | 305,000      |
|     |   |  | P(a) | 0                 | 100      | 0                  | 305,000      |
|     |   |  | Α    | 0                 | 0        | 0                  | 0            |
| 3.3 | Monitoring and evaluation activities completed                  | activities   | Р    | 1                 | 4        | 135,000            | 500,000      |
|     |   |  | P(a) | 3                 | 5        | 99,229             | 500,000      |
|     |   |  | Α    | 0                 | 0        | 7,540              | 7,540        |
| 3.4 | Number of Jobs created in ETD for implementing the PSSE Program | Positions  | Р    |                   | 4        | 210,000            | 1,153,000    |
|     |   |  | P(a) | 0                 | 7        | 198,510.53         | 1,325,124.58 |
|     |   |  | Α    | 0                 | 7        | 100,379            | 817,470.93   |

### Other Cost

| Administrative fees expended | Р    |  |   | 383,200 |
|------------------------------|------|--|---|---------|
|                              | P(a) |  | 0 | 383,200 |
|                              | Α    |  | 0 | 0       |

### **Total Cost**

| Total Cost | P    | 7,843,000    | 24,664,000    |
|------------|------|--------------|---------------|
|            | P(a) | 6,942,753.53 | 24,868,361.78 |
|            | Α    | 157,908      | 1,104,752.74  |

# **CHANGES TO THE MATRIX**

No information available for this section