



Operation Number: **VE-L1033**  
Year- PMR Cycle: **First period Jan-Jun 2016**  
Last Update: **10/4/2016**  
PMR Validation Stage: **Validated by Chief of Operations**

Chief of Operations validation date: **10/20/2016**  
Division Chief validation date:  
Country Representative validation date:

Inter-American Development Bank - IDB  
Office of Strategic Planning and Development Effectiveness

## Operation Profile

### Basic Data

|                        |  |                                   |   |
|------------------------|--|-----------------------------------|---|
| Operation name:        | Rehabilitation of Units 1 to 6 of Powerhouse I Simón Bolívar Hydroelectric Plant | Loan Number:                      | 2429/OC-VE  |
| Executing Agency (EA): | CORPORACION ELECTRICA NACIONAL   |                                   |   |
| Team Leader:           | Malagón Orjuela, Edwin Antonio   | Sector/Subsector:                 | NEW HYDROPOWER PROJECTS   |
| Operation Type:        | Loan Operation   | Overall Stage:                    | Disbursing (From eligibility until all the Operations are closed) |
| Lending Instrument:    | Investment Loan  | Country:                          | VENEZUELA   |
| Borrower:              | REPUBLICA BOLIVARIANA DE VENEZUELA   | Convergence related Operation(s): |   |

### Total Cost and Source

|          | Original IDB     | Current Active IDB | Local Counterpart | Co-Financing/Country | Total operation cost - Original Estimate |
|----------|------------------|--------------------|-------------------|----------------------|--|
| VE-L1033 | \$700,000,000.00 | \$700,000,000.00   | \$609,771,000.00  |                      | \$1,309,771,000.00                       |

### Available Funds (US\$)

|          | Current IDB      | Disb. Amount to Date | % Disbursed | Undisbursed Balance |
|----------|------------------|----------------------|-------------|---------------------|
| VE-L1033 | \$700,000,000.00 | \$86,794,218.53      | 12.40%      | \$613,205,781.47    |

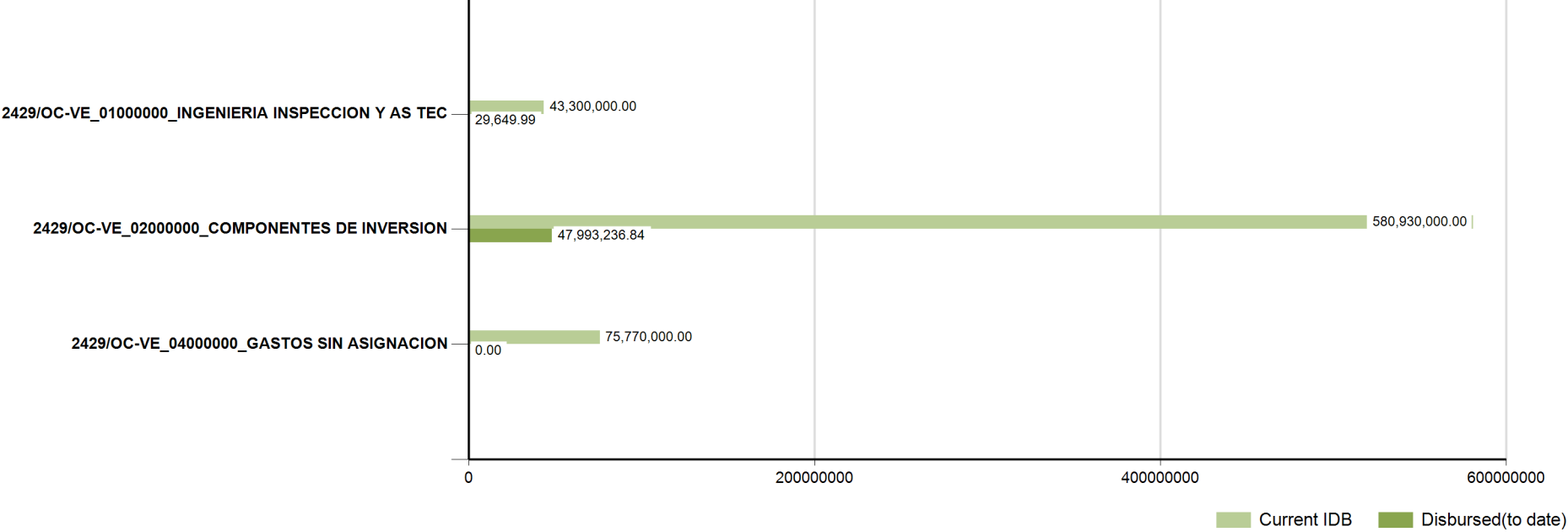
### Environmental and Social Safeguards

| Main Operation                            |  |
|---|--|
| Impacts Category:                         | B  |
| Safeguard Performance Rating:             | Partially Unsatisfactory   |
| Safeguard Performance Rating - Rationale: | La misión de Debida Diligencia se orientó a actualizar al BID sobre el estado de la ejecución de los contratos relacionados a este componente. La ejecución del componente ambiental ha sufrido una demora de aproximadamente 2 años. A la fecha, solo se habían contratado dos consultorías, y se proponía revisar y ajustar el plan de adquisiciones ambiental. Como resultado de la misión, el componente se encuentra en revisión de alcances y reestructuración. El Plan de Acción Correctiva describe las medidas que CORPOELEC debería tomar para volver a cumplir con las actividades requeridas en el componente ambiental. |

### Reformulation Information

| Main Operation  |    |
|---|----|
| Was/Were the objective(s) of this operation reformulated? | NO |
| Date of approval:   |    |

Expense Categories by Loan Contract (cumulative values)



## Results Matrix

## Impacts

| <b>Impact:</b>   | 1 Disminución del Impacto sobre el Ambiente a través del uso más eficiente de una fuente de energía renovable. |                 |          |               |                                   |              |      |      |
|--|--|-----------------|----------|---------------|-----------------------------------|--------------|------|------|
| <b>Observation:</b>  | Acordar la metodología para el calculo del indicador   |                 |          |               |                                   |              |      |      |
| Indicators   | Flags*   | Unit of Measure | Baseline | Baseline Year | Means of verification             | Observations | EOP  |      |
| 1.1 Reducción de Emisiones de Contaminantes a la Atmósfera |  | CO2             |          | 2011          | Informes Ambientales de CORPOELEC |              | P    | 0.00 |
|  |  |                 |          |               |                                   |              | P(a) | 0.00 |
|  |  |                 |          |               |                                   |              | A    |      |

 RF - Contribution
  RF - Alignment
  RF - Strategic Alignment
  RF - Strategic Alignment during Execution

 SI - Sector Indicator
  CI - Country Indicator
  PG - Pro-Gender
  PE - Pro-Ethnicity

## Outcomes

| Outcome:  | 1 capacidad de generación con recursos renovables incrementada   |                 |          |               |                                  |              |                      |          |          |          |          |          |          |
|---|--|-----------------|----------|---------------|----------------------------------|--------------|----------------------|----------|----------|----------|----------|----------|----------|
| Observation:                                      | Se ajustó de acuerdo al nuevo cronograma de trabajo del contrato 1 de la empresa Dongfang  |                 |          |               |                                  |              |                      |          |          |          |          |          |          |
| Indicators  | Flags*   | Unit of Measure | Baseline | Baseline Year | Means of verification            | Observations | 20162017201820192020 |          |          |          |          |          | EOP      |
|   |  |                 |          |               |                                  |              |                      |          |          |          |          |          |          |
| 1.1 Capacidad Instalada Nominal en Unidades 1 a 6 |  | MW              | 1,215.00 | 2008          | Sistema de Control de la Planta  |              | P                    | 2,010.00 |          |          |          |          | 2,010.00 |
|   |  |                 |          |               |                                  |              | P(a)                 | 1,215.00 | 1,215.00 | 1,565.00 | 1,830.00 | 2,010.00 | 2,010.00 |
|   |  |                 |          |               |                                  |              | A                    |          |          |          |          |          |          |
| 1.2 Capacidad Instalada Unidad 1                  |  | MW              | 185.00   | 2011          | Sistemas de Control de la Planta |              | P                    | 270.00   |          |          |          |          | 270.00   |
|   |  |                 |          |               |                                  |              | P(a)                 |          |          | 270.00   |          |          | 270.00   |
|   |  |                 |          |               |                                  |              | A                    |          |          |          |          |          |          |
| 1.3 Capacidad Instalada Unidad 2                  |  | MW              | 185.00   | 2011          | Sistemas de Control de la Planta |              | P                    |          |          |          |          |          | 270.00   |
|   |  |                 |          |               |                                  |              | P(a)                 |          |          | 270.00   |          |          | 270.00   |
|   |  |                 |          |               |                                  |              | A                    |          |          |          |          |          |          |
| 1.4 Capacidad Instalada Unidad 3                  |  | MW              | 185.00   | 2011          | Sistema de Control de la Planta  |              | P                    |          |          |          |          |          | 270.00   |
|   |  |                 |          |               |                                  |              | P(a)                 |          |          |          | 270.00   |          | 270.00   |
|   |  |                 |          |               |                                  |              | A                    |          |          |          |          |          |          |
| 1.5 Capacidad Instalada Unidad 4                  |  | MW              | 220.00   | 2011          | Sistema de Control de la Planta  |              | P                    |          |          |          |          |          | 400.00   |
|   |  |                 |          |               |                                  |              | P(a)                 |          |          | 400.00   |          |          | 400.00   |
|   |  |                 |          |               |                                  |              | A                    |          |          |          |          |          |          |
| 1.6 Capacidad Instalada Unidad 5                  |  | MW              | 220.00   | 2011          | Sistema de Control de la Planta  |              | P                    |          |          |          |          |          | 400.00   |
|   |  |                 |          |               |                                  |              | P(a)                 |          |          |          | 400.00   |          | 400.00   |
|   |  |                 |          |               |                                  |              | A                    |          |          |          |          |          |          |
| 1.7 Capacidad Instalada Unidad 6                  |  | MW              | 220.00   | 2011          | Sistema de Control de la Planta  |              | P                    |          |          |          |          |          | 400.00   |
|   |  |                 |          |               |                                  |              | P(a)                 |          |          |          |          | 400.00   | 400.00   |
|   |  |                 |          |               |                                  |              | A                    |          |          |          |          |          |          |
| Outcome:  | 2 aporte de energía del Bajo Caroní al Sistema Eléctrico Nacional (SEN) aumentado  |                 |          |               |                                  |              |                      |          |          |          |          |          |          |
| Observation:                                      | Se ajustó de acuerdo al nuevo cronograma de trabajo del contrato 1 de la empresa Dongfang. Se corrigió un error aritmético en el indicador 2.1 |                 |          |               |                                  |              |                      |          |          |          |          |          |          |

| Indicators                                    | Flags* | Unit of Measure | Baseline | Baseline Year | Means of verification           | Observations | 2016 | 2017      | 2018     | 2019      | 2020      | EOP       |
|---|--------|-----------------|----------|---------------|---------------------------------|--------------|------|-----------|----------|-----------|-----------|-----------|
| 2.1 Energía media entregada anualmente al SEN |        | GWh             | 8,940.00 | 2008          | Sistema de Control de la Planta |              | P    | 15,849.00 |          |           |           | 15,849.00 |
|   |        |                 |          |               |                                 |              | P(a) | 8,940.00  | 8,940.00 | 11,958.00 | 14,225.00 | 15,741.00 |
|   |        |                 |          |               |                                 |              | A    |           |          |           |           |           |
| 2.2 Energía Unidad 1                          |        | GWh             | 1,378.00 | 2011          | Sistema de Control de la Planta |              | P    | 2,129.00  |          |           |           | 2,129.00  |
|   |        |                 |          |               |                                 |              | P(a) |           | 2,129.00 |           |           | 2,129.00  |
|   |        |                 |          |               |                                 |              | A    |           |          |           |           |           |
| 2.3 Energía Unidad 2                          |        | GWh             | 1,378.00 | 2011          | Sistema de Control de la Planta |              | P    |           |          |           |           | 2,129.00  |
|   |        |                 |          |               |                                 |              | P(a) |           | 2,129.00 |           |           | 2,129.00  |
|   |        |                 |          |               |                                 |              | A    |           |          |           |           |           |
| 2.4 Energía Unidad 3                          |        | GWh             | 1,378.00 | 2011          | Sistema de Control de la Planta |              | P    |           |          |           |           | 2,129.00  |
|   |        |                 |          |               |                                 |              | P(a) |           |          | 2,129.00  |           | 2,129.00  |
|   |        |                 |          |               |                                 |              | A    |           |          |           |           |           |
| 2.5 Energía Unidad 4                          |        | GWh             | 1,638.00 | 2011          | Sistema de Control de la Planta |              | P    |           |          |           |           | 3,154.00  |
|   |        |                 |          |               |                                 |              | P(a) |           | 3,154.00 |           |           | 3,154.00  |
|   |        |                 |          |               |                                 |              | A    |           |          |           |           |           |
| 2.6 Energía Unidad 5                          |        | GWh             | 1,638.00 | 2011          | Sistema de Control de la Planta |              | P    |           |          |           |           | 3,154.00  |
|   |        |                 |          |               |                                 |              | P(a) |           |          | 3,154.00  |           | 3,154.00  |
|   |        |                 |          |               |                                 |              | A    |           |          |           |           |           |
| 2.7 Energía Unidad 6                          |        | GWh             | 1,638.00 | 2011          | Sistema de Control de la Planta |              | P    |           |          |           |           | 3,154.00  |
|   |        |                 |          |               |                                 |              | P(a) |           |          |           | 3,154.00  | 3,154.00  |
|   |        |                 |          |               |                                 |              | A    |           |          |           |           |           |

Outcome:

3 disponibilidad de las unidades generadoras 1 a 6 aumentada

Observation:

Se ajustó de acuerdo al nuevo cronograma de trabajo del contrato 1 de la empresa Dongfang

| Indicators   | Flags* | Unit of Measure | Baseline | Baseline Year | Means of verification                              | Observations | 2016 | 2017  | 2018  | 2019  | 2020  | EOP   |
|--|--------|-----------------|----------|---------------|--|--------------|------|-------|-------|-------|-------|-------|
| 3.1 Disponibilidad de las unidades generadoras 1 a 6 |        | %               | 85.00    | 2008          | Informe de Operación (plan de parada de la planta) |              | P    | 90.00 |       |       |       | 90.00 |
|  |        |                 |          |               |  |              | P(a) | 85.00 | 85.00 | 87.50 | 89.17 | 90.00 |
|  |        |                 |          |               |  |              | A    |       |       |       |       |       |
| 3.2 Disponibilidad Unidad 1                          |        | %               | 85.00    | 2011          | Plan de Paradas de Planta                          |              | P    | 90.00 |       |       |       | 90.00 |
|  |        |                 |          |               |  |              | P(a) |       | 90.00 |       |       | 90.00 |
|  |        |                 |          |               |  |              | A    |       |       |       |       |       |
| 3.3 Disponibilidad Unidad 2                          |        | %               | 85.00    | 2011          | Plan de Paradas de Planta                          |              | P    |       |       |       |       | 90.00 |
|  |        |                 |          |               |  |              | P(a) |       | 90.00 |       |       | 90.00 |
|  |        |                 |          |               |  |              | A    |       |       |       |       |       |
| 3.4 Disponibilidad Unidad 3                          |        | %               | 85.00    | 2011          | Plan de Paradas de Planta                          |              | P    |       |       |       |       | 90.00 |
|  |        |                 |          |               |  |              | P(a) |       |       | 90.00 |       | 90.00 |
|  |        |                 |          |               |  |              | A    |       |       |       |       |       |
| 3.5 Disponibilidad Unidad 4                          |        | %               | 85.00    | 2011          | Plan de Paradas de Planta                          |              | P    |       |       |       |       | 90.00 |
|  |        |                 |          |               |  |              | P(a) |       | 90.00 |       |       | 90.00 |
|  |        |                 |          |               |  |              | A    |       |       |       |       |       |
| 3.6 Disponibilidad Unidad 5                          |        | %               | 85.00    | 2011          | Plan de Paradas de Planta                          |              | P    |       |       |       |       | 90.00 |
|  |        |                 |          |               |  |              | P(a) |       |       | 90.00 |       | 90.00 |
|  |        |                 |          |               |  |              | A    |       |       |       |       |       |
| 3.7 Disponibilidad Unidad 6                          |        | %               | 85.00    | 2011          | Plan de Paradas de Planta                          |              | P    |       |       |       |       | 90.00 |
|  |        |                 |          |               |  |              | P(a) |       |       |       | 90.00 | 90.00 |
|  |        |                 |          |               |  |              | A    |       |       |       |       |       |

| Outcome:  | 4 Eficiencia de las Unidades aumentada   |        |                 |          |               |  |              |      |       |      |       |       |       |       |
|---|--|--------|-----------------|----------|---------------|--|--------------|------|-------|------|-------|-------|-------|-------|
| Observation:                                      | Se ajustó de acuerdo al nuevo cronograma de trabajo del contrato 1 con la empresa Dongfang |        |                 |          |               |  |              |      |       |      |       |       |       |       |
| Indicators  |  | Flags* | Unit of Measure | Baseline | Baseline Year | Means of verification  | Observations | 2016 | 2017  | 2018 | 2019  | 2020  | EOP   |       |
| 4.1 Eficiencia de las Unidades generadoras 1 a 6  |  |        | %               | 84.00    | 2008          | Reporte de Pruebas Operacionales. Medición en Línea.           |              | P    |       |      |       |       | 95.00 |       |
|   |  |        |                 |          |               |  |              | P(a) |       |      |       | 95.00 | 95.00 |       |
|   |  |        |                 |          |               |  |              | A    |       |      |       |       |       |       |
|   |  |        |                 |          |               |  |              |      |       |      |       |       |       |       |
| 4.2 Aumentar la Eficiencia de la Unidad 1         |  |        | %               | 84.00    | 2011          | Pruebas de Eficiencia  |              | P    | 95.00 |      |       |       | 95.00 |       |
|   |  |        |                 |          |               |  |              | P(a) |       |      | 95.00 |       | 95.00 |       |
|   |  |        |                 |          |               |  |              | A    |       |      |       |       |       |       |
|   |  |        |                 |          |               |  |              |      |       |      |       |       |       |       |
| 4.3 Aumentar la Eficiencia de la Unidad 2         |  |        | %               | 84.00    | 2011          | Pruebas de Eficiencia  |              | P    |       |      |       |       | 95.00 |       |
|   |  |        |                 |          |               |  |              | P(a) |       |      | 95.00 |       | 95.00 |       |
|   |  |        |                 |          |               |  |              | A    |       |      |       |       |       |       |
|   |  |        |                 |          |               |  |              |      |       |      |       |       |       |       |
| 4.4 Aumentar la Eficiencia de la Unidad 3         |  |        | %               | 84.00    | 2011          | Pruebas de Eficiencia  |              | P    |       |      |       |       | 95.00 |       |
|   |  |        |                 |          |               |  |              | P(a) |       |      |       | 95.00 | 95.00 |       |
|   |  |        |                 |          |               |  |              | A    |       |      |       |       |       |       |
|   |  |        |                 |          |               |  |              |      |       |      |       |       |       |       |
| 4.5 Aumentar la Eficiencia de la Unidad 4         |  |        | %               | 84.00    | 2011          | Pruebas de Eficiencia  |              | P    |       |      |       |       | 95.00 |       |
|   |  |        |                 |          |               |  |              | P(a) |       |      | 95.00 |       | 95.00 |       |
|   |  |        |                 |          |               |  |              | A    |       |      |       |       |       |       |
|   |  |        |                 |          |               |  |              |      |       |      |       |       |       |       |
| 4.6 Aumentar la Eficiencia de la Unidad 5         |  |        | %               | 84.00    | 2011          | Pruebas de Eficiencia  |              | P    |       |      |       |       | 95.00 |       |
|   |  |        |                 |          |               |  |              | P(a) |       |      |       | 95.00 | 95.00 |       |
|   |  |        |                 |          |               |  |              | A    |       |      |       |       |       |       |
|   |  |        |                 |          |               |  |              |      |       |      |       |       |       |       |
| 4.7 Aumentar la Eficiencia de la Unidad 6         |  |        | %               | 84.00    | 2011          | Pruebas de Eficiencia  |              | P    |       |      |       |       | 95.00 |       |
|   |  |        |                 |          |               |  |              | P(a) |       |      |       |       | 95.00 | 95.00 |
|   |  |        |                 |          |               |  |              | A    |       |      |       |       |       |       |
|   |  |        |                 |          |               |  |              |      |       |      |       |       |       |       |
| Outcome:  | 5 Indisponibilidad por mantenimiento reducida  |        |                 |          |               |  |              |      |       |      |       |       |       |       |
| Observation:                                      | Se ajustó de acuerdo al nuevo cronograma de trabajo del contrato 1 con la empresa Dongfang |        |                 |          |               |  |              |      |       |      |       |       |       |       |
| Indicators  |  | Flags* | Unit of Measure | Baseline | Baseline Year | Means of verification  | Observations | 2016 | 2017  | 2018 | 2019  | 2020  | EOP   |       |
| 5.1 Frecuencia de mantenimientos mayores          |  |        | Años            | 2.00     | 2008          | Informe de Inspección por garantías (proyección de tendencias) |              | P    |       |      |       |       | 5.00  |       |
|   |  |        |                 |          |               |  |              | P(a) |       |      |       | 5.00  | 5.00  |       |
|   |  |        |                 |          |               |  |              | A    |       |      |       |       |       |       |
|   |  |        |                 |          |               |  |              |      |       |      |       |       |       |       |
| 5.2 Frecuencia de Mantenimientos Mayores Unidad 1 |  |        | Años            | 2.00     | 2011          | Plan de Paradas de Planta                                      |              | P    | 5.00  |      |       |       | 5.00  |       |
|   |  |        |                 |          |               |  |              | P(a) |       |      | 5.00  |       | 5.00  |       |
|   |  |        |                 |          |               |  |              | A    |       |      |       |       |       |       |
|   |  |        |                 |          |               |  |              |      |       |      |       |       |       |       |
| 5.3 Frecuencia de Mantenimientos Mayores Unidad 2 |  |        | Años            | 2.00     | 2011          | Plan de Paradas de Planta                                      |              | P    |       |      |       |       | 5.00  |       |
|   |  |        |                 |          |               |  |              | P(a) |       |      | 5.00  |       | 5.00  |       |
|   |  |        |                 |          |               |  |              | A    |       |      |       |       |       |       |
|   |  |        |                 |          |               |  |              |      |       |      |       |       |       |       |

|   |  |      |       |      |   |  |   |       |       |       |       |       |
|---|--|------|-------|------|---|--|---|-------|-------|-------|-------|-------|
| 5.4 Frecuencia de Mantenimientos Mayores Unidad 3 |  | Años | 2.00  | 2011 | Plan de Paradas de Planta                                       |  | P |       |       |       |       | 5.00  |
|   | P(a)   |      |       |      |   |  |   |       | 5.00  |       | 5.00  |       |
|   | A  |      |       |      |   |  |   |       |       |       |       |       |
| 5.5 Frecuencia de Mantenimientos Mayores Unidad 4 |  | Años | 2.00  | 2011 | Plan de Parada de Planta  |  | P |       |       |       |       | 5.00  |
|   | P(a)   |      |       |      |   |  |   | 5.00  |       |       | 5.00  |       |
|   | A  |      |       |      |   |  |   |       |       |       |       |       |
| 5.6 Frecuencia de Mantenimientos Mayores Unidad 5 |  | Años | 2.00  | 2011 | Plan de Parada de Planta  |  | P |       |       |       |       | 5.00  |
|   | P(a)   |      |       |      |   |  |   |       | 5.00  |       | 5.00  |       |
|   | A  |      |       |      |   |  |   |       |       |       |       |       |
| 5.7 Frecuencia de Mantenimientos Mayores Unidad 6 |  | Años | 2.00  | 2011 | Plan de Parada de Planta  |  | P |       |       |       |       | 5.00  |
|   | P(a)   |      |       |      |   |  |   |       |       | 5.00  | 5.00  |       |
|   | A  |      |       |      |   |  |   |       |       |       |       |       |
| 5.8 Duración de Mantenimientos Mayores            |  | Días | 60.00 | 2011 | Informe de Inspeccion por garantias (Proyeccion de Tendencias ) |  | P |       |       |       |       | 45.00 |
|   | P(a)   |      |       |      |   |  |   |       |       | 45.00 | 45.00 |       |
|   | A  |      |       |      |   |  |   |       |       |       |       |       |
| 5.9 Duración de Mantenimientos Mayores Unidad 1   |  | Días | 60.00 | 2011 | Plan de Parada de Planta  |  | P | 45.00 |       |       |       | 45.00 |
|   | P(a)   |      |       |      |   |  |   | 45.00 |       |       | 45.00 |       |
|   | A  |      |       |      |   |  |   |       |       |       |       |       |
| 5.10 Duración de Mantenimientos Mayores Unidad 2  |  | Días | 60.00 | 2011 | Plan de Parada de Planta  |  | P |       |       |       |       | 45.00 |
|   | P(a)   |      |       |      |   |  |   | 45.00 |       |       | 45.00 |       |
|   | A  |      |       |      |   |  |   |       |       |       |       |       |
| 5.11 Duración de Mantenimientos Mayores Unidad 3  |  | Días | 60.00 | 2011 | Plan de Parada de Planta  |  | P |       |       |       |       | 45.00 |
|   | P(a)   |      |       |      |   |  |   |       | 45.00 |       | 45.00 |       |
|   | A  |      |       |      |   |  |   |       |       |       |       |       |
| 5.12 Duración de Mantenimientos Mayores Unidad 4  |  | Días | 60.00 | 2011 | Plan de Parada de Planta  |  | P |       |       |       |       | 45.00 |
|   | P(a)   |      |       |      |   |  |   | 45.00 |       |       | 45.00 |       |
|   | A  |      |       |      |   |  |   |       |       |       |       |       |
| 5.13 Duración de Mantenimientos Mayores Unidad 5  |  | Días | 60.00 | 2011 | Plan de Parada de Planta  |  | P |       |       |       |       | 45.00 |
|   | P(a)   |      |       |      |   |  |   |       | 45.00 |       | 45.00 |       |
|   | A  |      |       |      |   |  |   |       |       |       |       |       |
| 5.14 Duración de Mantenimientos Mayores Unidad 6  |  | Días | 60.00 | 2011 | Plan de Parada de Planta  |  | P |       |       |       |       | 45.00 |
|   | P(a)   |      |       |      |   |  |   |       |       | 45.00 | 45.00 |       |
|   | A  |      |       |      |   |  |   |       |       |       |       |       |
| Outcome:  | 6 vida útil de las unidades generadoras 1 a 6 extendida                                    |      |       |      |   |  |   |       |       |       |       |       |
| Observation:                                      | Se ajustó de acuerdo al nuevo cronograma de trabajo del contrato 1 con la empresa Dongfang |      |       |      |   |  |   |       |       |       |       |       |

| Indicators  |   | Flags* | Unit of Measure | Baseline | Baselin e Year | Means of verificatio n                   | Observ ations | 2016 | 2017  | 2018  | 2019   | 2020  | EOP    |
|---|---|--------|-----------------|----------|----------------|--|---------------|------|-------|-------|--------|-------|--------|
| 6.1 Vida útil teórica remanente promedio de las unidades 1 a 6  |   |        | Años            | 0.00     | 2008           | Reportes del Fabricante de las unidades. |               | P    |       |       |        |       | 25.00  |
|   |   |        |                 |          |                |  |               | P(a) |       |       |        | 25.00 | 25.00  |
|   |   |        |                 |          |                |  |               | A    |       |       |        |       |        |
| 6.2 Vida Útil Teórica Unidad 1  |   |        | Años            | 0.00     | 2011           | Reportes del Fabricante de las unidades. |               | P    | 25.00 |       |        |       | 25.00  |
|   |   |        |                 |          |                |  |               | P(a) |       | 25.00 |        |       | 25.00  |
|   |   |        |                 |          |                |  |               | A    |       |       |        |       |        |
| 6.3 Vida Útil Teórica Unidad 2  |   |        | Años            | 0.00     | 2011           | Reportes del Fabricante de las unidades. |               | P    |       |       |        |       | 25.00  |
|   |   |        |                 |          |                |  |               | P(a) |       | 25.00 |        |       | 25.00  |
|   |   |        |                 |          |                |  |               | A    |       |       |        |       |        |
| 6.4 Vida Útil Teórica Unidad 3  |   |        | Años            | 0.00     | 2011           | Reportes del Fabricante de las unidades. |               | P    |       |       |        |       | 25.00  |
|   |   |        |                 |          |                |  |               | P(a) |       |       | 25.00  |       | 25.00  |
|   |   |        |                 |          |                |  |               | A    |       |       |        |       |        |
| 6.5 Vida Útil Teórica Unidad 4  |   |        | Años            | 0.00     | 2011           | Reportes del Fabricante de las unidades. |               | P    |       |       |        |       | 25.00  |
|   |   |        |                 |          |                |  |               | P(a) |       | 25.00 |        |       | 25.00  |
|   |   |        |                 |          |                |  |               | A    |       |       |        |       |        |
| 6.6 Vida Útil Teórica Unidad 5  |   |        | Años            | 0.00     | 2011           | Reportes del Fabricante de las unidades. |               | P    |       |       |        |       | 25.00  |
|   |   |        |                 |          |                |  |               | P(a) |       |       | 25.00  |       | 25.00  |
|   |   |        |                 |          |                |  |               | A    |       |       |        |       |        |
| 6.7 Vida Útil Teórica Unidad 6  |   |        | Años            | 0.00     | 2011           | Reportes del Fabricante de las unidades. |               | P    |       |       |        |       | 25.00  |
|   |   |        |                 |          |                |  |               | P(a) |       |       |        | 25.00 | 25.00  |
|   |   |        |                 |          |                |  |               | A    |       |       |        |       |        |
| Outcome:  | 7 Gestión del recurso hidrológico ampliada con la incorporación de conocimiento y herramientas técnicas para la consideración de potenciales impactos de cambio climático |        |                 |          |                |  |               |      |       |       |        |       |        |
| Observation:  | Se ajustó debido a los retrasos que se observan en las contrataciones del componente ambiental  |        |                 |          |                |  |               |      |       |       |        |       |        |
| Indicators  |   | Flags* | Unit of Measure | Baseline | Baselin e Year | Means of verificatio n                   | Observ ations | 2016 | 2017  | 2018  | 2019   | 2020  | EOP    |
| 7.1 Identificación y valoración del impacto en el régimen hidrológico de la cuenca del Caroní (estudios y modelación completados sobre variables como caudales, recurrencias, tendencias) |   |        | %               | 50.00    | 2010           | Documento                                |               | P    |       |       |        |       | 100.00 |
|   |   |        |                 |          |                |  |               | P(a) |       |       | 100.00 |       | 100.00 |
|   |   |        |                 |          |                |  |               | A    |       |       |        |       |        |
| Outcome:  | 8 Confiabilidad de información de variables ambientales para el fortalecimiento del sistema de generación hidroeléctrica aumentada  |        |                 |          |                |  |               |      |       |       |        |       |        |

| Observation:  |  |                                       |           |               |                        |              |      |      |       |           |           |           |
|---|--|---------------------------------------|-----------|---------------|------------------------|--------------|------|------|-------|-----------|-----------|-----------|
| Indicators  | Flags*   | Unit of Measure                       | Baseline  | Baseline Year | Means of verification  | Observations | 2016 | 2017 | 2018  | 2019      | 2020      | EOP       |
|   |  |                                       |           |               |                        |              |      |      |       |           |           |           |
| 8.1 Asertividad de Pronósticos temporada de sequía                    |  | %                                     | 90.00     | 2010          | Reporte de Pronósticos |              | P    |      |       |           |           | 98.00     |
|   | P(a)   |                                       |           |               |                        |              |      |      | 98.00 |           | 98.00     |           |
|   | A  |                                       |           |               |                        |              |      |      |       |           |           |           |
| 8.2 Asertividad de Pronósticos temporada de lluvia                    |  | %                                     | 80.00     | 2010          | Reporte de Pronósticos |              | P    |      |       |           |           | 90.00     |
|   | P(a)   |                                       |           |               |                        |              |      |      | 98.00 |           | 90.00     |           |
|   | A  |                                       |           |               |                        |              |      |      |       |           |           |           |
| Outcome:  | 9 Vulnerabilidad ambiental para la operatividad de la Central Simón Bolívar reducida                     |                                       |           |               |                        |              |      |      |       |           |           |           |
| Observation:  |  |                                       |           |               |                        |              |      |      |       |           |           |           |
| Indicators  | Flags*   | Unit of Measure                       | Baseline  | Baseline Year | Means of verification  | Observations | 2016 | 2017 | 2018  | 2019      | 2020      | EOP       |
|   |  |                                       |           |               |                        |              |      |      |       |           |           |           |
| 9.1 Efectividad de Atención a Emergencias y Contingencias Ambientales |  | %                                     | 0.00      | 2010          | Reporte de Gestión     |              | P    |      |       |           |           | 70.00     |
|   | P(a)   |                                       |           |               |                        |              |      |      | 70.00 |           | 70.00     |           |
|   | A  |                                       |           |               |                        |              |      |      |       |           |           |           |
| 9.2 Adecuación ambiental de las operaciones de la Central             |  | % de Cumplimiento de la Normativa     | 50.00     | 2010          | Informes de Adecuación |              | P    |      |       |           |           | 100.00    |
|   | P(a)   |                                       |           |               |                        |              |      |      | 70.00 |           | 100.00    |           |
|   | A  |                                       |           |               |                        |              |      |      |       |           |           |           |
| Outcome:  | 10 Responsabilidad Ambiental y Social asociada a las operaciones de la Central Simón Bolívar fortalecida |                                       |           |               |                        |              |      |      |       |           |           |           |
| Observation:  |  |                                       |           |               |                        |              |      |      |       |           |           |           |
| Indicators  | Flags*   | Unit of Measure                       | Baseline  | Baseline Year | Means of verification  | Observations | 2016 | 2017 | 2018  | 2019      | 2020      | EOP       |
|   |  |                                       |           |               |                        |              |      |      |       |           |           |           |
| 10.1 Mejoramiento de la imagen corporativa de la Central              |  | Número de visitantes a la Central/año | 30,092.00 | 2010          | Reporte de visitas     |              | P    |      |       |           |           | 40,000.00 |
|   | P(a)   |                                       |           |               |                        |              |      |      |       | 40,000.00 | 40,000.00 |           |
|   | A  |                                       |           |               |                        |              |      |      |       |           |           |           |

-  RF - Contribution
-  RF - Alignment
-  RF - Strategic Alignment
-  RF - Strategic Alignment during Execution
-  SI - Sector Indicator
-  CI - Country Indicator
-  PG - Pro-Gender
-  PE - Pro-Ethnicity



Outputs: Annual Physical and Financial Progress

| Unidades 1 a 6 y sus Sistemas Auxiliares, Eléctricos y Mecánicos                 |                             | Physical Progress |      |      | Financial Progress |               |                |
|--|-----------------------------|-------------------|------|------|--------------------|---------------|----------------|
| Outputs  | Unit of Measure             |                   | 2016 | EOP  |                    | 2016          | EOP            |
| Primera Unidad Rehabilitada y Repotenciada                                       | unidad                      | P                 | 1.00 | 1.00 | P                  | 18,461,540.00 | 40,000,000.00  |
|  |                             | P(a)              |      | 1.00 | P(a)               | 8,299,164.00  | 56,957,050.15  |
|  |                             | A                 |      | 0.00 | A                  | 5,198,803.11  | 13,874,526.28  |
| Segunda Unidad Rehabilitada y Repotenciada                                       | unidad                      | P                 |      | 1.00 | P                  |               | 40,000,000.00  |
|  |                             | P(a)              |      | 1.00 | P(a)               | 8,299,164.00  | 56,957,050.15  |
|  |                             | A                 |      | 0.00 | A                  | 5,198,803.11  | 13,874,526.28  |
| Tercera Unidad Rehabilitada y Repotenciada                                       | unidad                      | P                 |      | 1.00 | P                  |               | 40,000,000.00  |
|  |                             | P(a)              |      | 1.00 | P(a)               | 8,299,164.00  | 56,957,050.15  |
|  |                             | A                 |      | 0.00 | A                  | 5,198,803.11  | 13,874,526.28  |
| Cuarta Unidad Rehabilitada y Repotenciada  | unidad                      | P                 |      | 1.00 | P                  |               | 53,333,334.00  |
|  |                             | P(a)              |      | 1.00 | P(a)               | 10,373,955.00 | 71,196,312.69  |
|  |                             | A                 |      | 0.00 | A                  | 5,198,803.11  | 13,874,526.28  |
| Quinta Unidad Rehabilitada y Repotenciada  | unidad                      | P                 | 1.00 | 1.00 | P                  | 41,025,641.00 | 53,333,333.00  |
|  |                             | P(a)              |      | 1.00 | P(a)               | 10,373,955.00 | 71,196,312.70  |
|  |                             | A                 |      | 0.00 | A                  | 5,198,803.11  | 13,874,526.28  |
| Sexta Unidad Rehabilitada y Repotenciada   | unidad                      | P                 | 1.00 | 1.00 | P                  | 41,025,641.00 | 53,333,333.00  |
|  |                             | P(a)              |      | 1.00 | P(a)               | 10,373,955.00 | 71,196,312.69  |
|  |                             | A                 |      | 0.00 | A                  | 5,198,803.11  | 13,874,526.28  |
| Sistemas Auxiliares Eléctricos y Mecánicos Comunes Rehabilitados y Repotenciados | Conjunto de Sistemas        | P                 | 1.00 | 1.00 | P                  | 35,536,070.00 | 370,000,000.00 |
|  |                             | P(a)              |      | 1.00 | P(a)               | 13,140,343.00 | 90,181,996.09  |
|  |                             | A                 |      | 0.00 | A                  |               | 2,739,879.53   |
| Pacios y Conexiones Rehabilitados y Repotenciados                                |                             | Physical Progress |      |      | Financial Progress |               |                |
| Outputs  | Unit of Measure             |                   | 2016 | EOP  |                    | 2016          | EOP            |
| Patio de Media Tensión Rehabilitado y Repotenciado                               | unidad                      | P                 |      | 1.00 | P                  |               | 8,380,000.00   |
|  |                             | P(a)              |      | 1.00 | P(a)               | 6,898,033.88  | 20,694,101.64  |
|  |                             | A                 |      | 0.00 | A                  |               | 0.00           |
| Patio 230KV Rehabilitado y Repotenciado  | unidad                      | P                 |      | 1.00 | P                  |               | 56,650,000.00  |
|  |                             | P(a)              |      | 1.00 | P(a)               | 18,622,010.38 | 55,866,031.14  |
|  |                             | A                 |      | 0.00 | A                  |               | 0.00           |
| Patio 400KV Rehabilitado y Repotenciado  | unidad                      | P                 |      | 1.00 | P                  |               | 169,970,000.00 |
|  |                             | P(a)              |      | 1.00 | P(a)               | 35,011,064.74 | 175,055,323.82 |
|  |                             | A                 |      | 0.00 | A                  |               | 0.00           |
| Lineas de transmisión Casa de Maquinas - Patio Rehabilitadas                     | Líneas                      | P                 |      | 0.00 | P                  |               | 0.00           |
|  |                             | P(a)              |      | 1.00 | P(a)               | 2,445,144.27  | 12,225,721.35  |
|  |                             | A                 |      | 0.00 | A                  |               | 0.00           |
| Transformadores Operando   | Conjunto de Transformadores | P                 |      | 0.00 | P                  |               | 0.00           |
|  |                             | P(a)              |      | 1.00 | P(a)               | 1,231,764.41  | 6,158,822.05   |
|  |                             | A                 |      | 0.00 | A                  |               | 0.00           |
| Arquitectura, Sistemas Auxiliares, Eléctricos y Mecánicos Comunes                |                             | Physical Progress |      |      | Financial Progress |               |                |
| Outputs  | Unit of Measure             |                   | 2016 | EOP  |                    | 2016          | EOP            |
| Adecuación de casa de Máquinas 1 completada                                      | unidad                      | P                 | 1.00 | 1.00 | P                  | 7,600,000.00  | 38,384,000.00  |
|  |                             | P(a)              |      | 1.00 | P(a)               |               | 70,000,000.00  |
|  |                             | A                 |      | 0.00 | A                  |               | 0.00           |
| Componente Ambiental   |                             | Physical Progress |      |      | Financial Progress |               |                |
| Outputs  | Unit of Measure             |                   | 2016 | EOP  |                    | 2016          | EOP            |

|   |                   |      |  |      |      |              |               |
|---|-------------------|------|--|------|------|--------------|---------------|
| RED DE MEDICIONES DE VARIABLES AMBIENTALES HIDROMETEOROLÓGICAS Y LIMNOLÓGICAS FORTALECIDA | Red de Medición   | P    |  | 1.00 | P    |              | 4,100,000.00  |
|   |                   | P(a) |  | 2.00 | P(a) | 1,362,000.00 | 5,863,055.54  |
|   |                   | A    |  | 0.00 | A    | 83,661.64    | 83,661.64     |
| GESTIÓN DE RIESGOS AMBIENTALES OPERACIONALES FORTALECIDA                                  | Gestión de Riesgo | P    |  | 1.00 | P    |              | 6,180,000.00  |
|   |                   | P(a) |  | 1.00 | P(a) | 600,000.00   | 11,912,832.92 |
|   |                   | A    |  | 0.00 | A    |              | 0.00          |
| OBRAS DE RECUPERACIÓN DE ÁREAS DEGRADADAS Y ADECUACIÓN PAISAJÍSTICA EJECUTADAS            | Obras             | P    |  | 1.00 | P    |              | 2,250,000.00  |
|   |                   | P(a) |  | 4.00 | P(a) |              | 2,778,450.36  |
|   |                   | A    |  | 0.00 | A    |              | 0.00          |
| INFRAESTRUCTURA DE SERVICIO DE ATENCIÓN A LA SALUD DE LOS TRABAJADORES EJECUTADA          | Módulo            | P    |  | 1.00 | P    |              | 4,000,000.00  |
|   |                   | P(a) |  | 2.00 | P(a) |              | 7,263,922.52  |
|   |                   | A    |  | 0.00 | A    |              | 0.00          |

| Other Cost   |      | 2016             | Cost               |
|--|------|------------------|--------------------|
| Ingeniería e Inspección                                  | P    | \$8,232,000.00   | \$70,250,000.00    |
|  | P(a) | \$1,650,000.00   | \$121,200,000.00   |
|  | A    |                  | \$0.00             |
| Administración   | P    | \$6,000,000.00   | \$46,154,000.00    |
|  | P(a) | \$9,200,000.00   | \$46,000,000.00    |
|  | A    |                  | \$0.00             |
| Auditoría Externa  | P    | \$124,180.00     | \$330,000.00       |
|  | P(a) | \$60,000.00      | \$300,000.00       |
|  | A    |                  | \$0.00             |
| Evaluación Medio Término y Final, Monitoreo y Evaluación | P    | \$60,000.00      | \$120,000.00       |
|  | P(a) | \$100,000.00     | \$200,000.00       |
|  | A    |                  | \$0.00             |
| Imprevistos  | P    | \$2,999,000.00   | \$65,389,000.00    |
|  | P(a) |                  | \$89,901,000.01    |
|  | A    |                  | \$0.00             |
| Escalamiento   | P    | \$5,787,000.00   | \$61,260,000.00    |
|  | P(a) | \$16,125,583.08  | \$80,627,915.40    |
|  | A    |                  | \$0.00             |
| Costos Financieros                                       | P    | \$31,588,750.00  | \$126,355,000.00   |
|  | P(a) | \$25,360,000.00  | \$126,800,000.00   |
|  | A    |                  | \$0.00             |
| Total Cost   |      | 2016             | Total Cost         |
|  | P    | \$198,439,822.00 | \$1,309,772,000.00 |
|  | P(a) | \$187,825,300.76 | \$1,307,489,261.37 |
|  | A    | \$31,276,480.30  | \$86,070,698.85    |

## Changes to the Matrix

No information related to this operation.

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.