**TC ABSTRACT**

**I. Basic Project Data**

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| ▪ Country/Region: | SURINAME/CCB - Caribbean Group |
| ▪ TC Name: | Support the development of solar floating photovoltaic energy in Suriname |
| ▪ TC Number: | SU-T1138 |
| ▪ Team Leader/Members: | Jordi Abadal (INE/ENE), Team Leader; Juan Paredes (INE/ENE), Alternate Team Leader; Arturo Alarcón; Issei Aoki; Fidel Márquez; Juervo Cuervo (INE/ENE); Raijant Amarnath Gangadin (CCB/CSU); Natalia Almeida (LEG/SGO); Yeo Jin Noh (INO/IEN) |
| ▪ Taxonomy: | Client Support |
| ▪ Number and name of operation supported by the TC: | N/A |
| ▪ Date of TC Abstract: | 08 Mar 2021 |
| ▪ Beneficiary: | Staatsolie Power Company Suriname N.V. (SPCS) |
| ▪ Executing Agency: | Inter-American Development Bank |
| ▪ IDB funding requested: | US$300,000.00 |
| ▪ Local counterpart funding: | US$34,000.00 (In Kind) |
| ▪ Disbursement period: | 24 months |
| ▪ Types of consultants: | Firms |
| ▪ Prepared by Unit: | INE/ENE - Energy |
| ▪ Unit of Disbursement Responsibility: | INE/ENE - Energy |
| ▪ TC included in Country Strategy (y/n): ▪ TC included in CPD (y/n): | No No |
| ▪ Alignment to the Update to the Institutional Strategy 2010-2020: | Productivity and innovation; Environmental sustainability |

**II. Objective and Justification**

2.1 The objective of this TC is to promote the development of solar floating PV energy in Suriname, by supporting the establishment of a proper strategic, policy and regulatory framework and by preparing a feasibility study for a floating solar PV installation in the Afobaka hydropower dam, making use of the expertise developed by other countries. This TC will benefit from the experiences and lessons learned of the Japanese policy and regulatory framework for solar floating projects, as well as the strategies and technologies used in Japan to adapt the infrastructure to extreme weather events and to integrate the floating solar systems in existing hydroelectric facilities. There will be a particular attention to issues relevant to Latin America and the Caribbean such as climate resilience and risk mitigation.

2.2 Non-conventional renewable energy is being slowly introduced in Suriname. The biggest solar plant in the country is a 5 MW solar plant that was commissioned in 2014 to supply power to the IAMGold Rosebel gold mine. The IDB is financing several smaller solar mini grids (both isolated and grid connected) with the aim to increase energy access and improve quality of the electricity service in rural areas using renewable energies.

2.3 Suriname is committed to the development of renewable energy as stated in the Policy Development Plan 2017-2021 with the aim of increasing the use of renewable energy sources as part of the optimal energy mix, in particular solar energy due to the progress and the price drop of the technology. The Nationally Determined Contribution of Suriname for 2020, submitted in December 2019, committed that the share of renewable energies stays above 25% by 2025 and above 35% by 2030.

2.4 The quality service in the main electric system system (EPAR) is critical during peaks periods in the dry season, coinciding with the warmer periods of the year (partly related to the consumption of air-conditioning equipment) and higher solar irradiation. Solar energy helps to soften these peaks and optimize the management of water resources to have reserves at critical moments. Solar plants can be connected to the same transmission line used for the hydropower facility, in this case solar and hydro generation is managed in an integrated way (hybrid hydro and solar system).

2.5 Floating solar photovoltaic (PV) installations open up new opportunities for scaling up solar generating capacity under the technological leadership of countries such as Japan, China or South Korea. Floating solar systems have certain advantages over land-based systems, including improved energy yield thanks to the cooling effects of water and the decreased presence of dust, use of affected land, easy installation, and reduction of shading. The possibility of adding floating solar capacity to existing hydropower plants is of particular interest in the case of large hydropower sites that can be flexibly operated and can use the existing electricity transmission infrastructure. Because of this, it makes sense to support the implementation of a policy and technical framework to promote solar floating energy.

2.6 Japan is one of the world leaders in floating solar power, owning 73, and more than 50% of the installed capacity, from the 100 largest floating solar plants in the world. The first floating PV system was built in 2007 in Aichi, Japan. The region with more solar floating plants in Japan is Hyogo, an agriculture region with more than 50 MW of installed capacity distributed in 32 solar floating plants plants. Kagawa is the region with the second largest capacity, with a total of 17 plants and more than 17 MW. The biggest project in Japan is the 13.7 MW Yamakura solar plant, which became operational in March 2018.

2.7 Recently, plants with capacity of tens and even hundreds of megawatts have been installed in China; more are planned in India and Southeast Asia. In 2018, the cumulative installed capacity of floating solar panels was 1,000 MW, from which more than 500 MW were installed in 2018. Latin America heavily relies in hydro power generation, so there is a significant potential for developing solar PV floating panels that can build on the expertise developed by the early adopters.

**III. Description of Activities and Outputs**

3.1 **Component I: Policy and regulatory framework for floating solar PV systems in Suriname.** Will include an analysis and provide recommendation to establish an adequate policy and regulatory framework for the development of floating solar PV systems in Suriname. The analysis and recommendations will consider the existing policies and regulations developed Japan. This component will also finance dissemination activities as: (i) workshops and seminars; (ii) knowledge products; and (iii) training to relevant stakeholders.

3.2 **Component II: Feasibility studies of floating solar PV installation. To support the development of the policy framework.** Include: (i) the technical, economic, institutional, legal and environmental studies, for the installation of a 25-75 MW floating solar PV installation; (ii) the analysis of the value chain for the supply, installation, Operation and Maintenance of the floating solar PV installations; (iii) options for working with the private sector for the financing of the investment. The studies will incorporate the lessons learned and experiences of the floating solar plants from Japan.

3.3 **Component III: Logistic, coordination and evaluation.** Will finance the dissemination and communication event, supervision, project management, and a final evaluation.

**IV. Budget**

**Indicative Budget**

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| **Activity/Component** | **IDB/Fund Funding** | **Counterpart Funding** | **Total Funding** |
| Policy and regulatory framework for floating solar PV systems in Suriname | US$75,000.00 | US$0.00 | US$75,000.00 |
| Feasibility studies of floating solar PV installation. To support the development of the policy framework | US$200,000.00 | US$34,000.00 | US$234,000.00 |
| Logistic, coordination and evaluation | US$25,000.00 | US$0.00 | US$25,000.00 |
| **Total** | **US$300,000.00** | **US$34,000.00** | **US$334,000.00** |

**V. Executing Agency and Execution Structure**

5.1 The Bank through INE/ENE will be the executing agency of the project with close collaboration with the Ministry on Natural Resources (MNH), the Energy Authority of Suriname (EAS) and SPCS. The Bank will coordinate and engage with the main stakeholders from the beginning of the implementation of the TC, seeking feedback and regularly presenting and discussing progress report.

5.2 The beneficiary (SPCS) has requested that the Bank execute the TC. The Bank has the required experience in executing TC from this donor and the technical capacity to duly and timely execute the activities from this TC.

**VI. Project Risks and Issues**

6.1 The main risk in the TC is the potential delay arising from the coordination with multiple stakeholders. This risk will be mitigated by involving the counterpart from the beginning of the implementation of the TC, seeking feedback and regularly presenting and discussing progress report.

**VII. Environmental and Social Classification**

7.1 The ESG classification for this operation is "undefined".