

TC ABSTRACT

I. Basic Project Data

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| ▪ Country/Region: | REGIONAL/CSC - Southern Cone |
| ▪ TC Name: | Innovation in Energy in Southern Cone countries |
| ▪ TC Number: | RG-T3227 |
| ▪ Team Leader/Members: | AIELLO, ROBERTO GABRIEL (INE/ENE) Team Leader; SNYDER, VIRGINIA MARIA (INE/ENE) Alternate Team Leader; HERNANDEZ-SANTOYO, JOEL (INE/ENE); CARDENAS VALERO, JUAN CARLOS (INE/ENE); SEMINARIO, ANA CECILIA (ITE/ITE); SUBER, STEPHANIE ANNE (INE/ENE); ALATORRE FRENK, CLAUDIO (CSD/CCS); SAWADA, EMILIO (INE/ENE); CARVALHO METANIAS HALLACK, MICHELLE (INE/ENE); PAREDES, JUAN ROBERTO (INE/ENE); ALARCON, ARTURO (INE/ENE); MONTER FLORES, ERNESTO (INE/TSP); RUBINSTEIN DA SILVA, ELIAS (INE/TSP); MALAGON ORJUELA, EDWIN ANTONIO (INE/ENE) |
| ▪ Taxonomy: | Research and Dissemination |
| ▪ Number and name of operation supported by the TC: | N/A |
| ▪ Date of TC Abstract: | 13 Mar 2018 |
| ▪ Beneficiary: | Relevant governemtn counteparts in CSC countries |
| ▪ Executing Agency: | INTER-AMERICAN DEVELOPMENT BANK |
| ▪ IDB funding requested: | \$ 370,000.00 |
| ▪ Local counterpart funding: | \$ 0.00 |
| ▪ Disbursement period: | 36 months |
| ▪ Types of consultants: | Individuals; Firms |
| ▪ Prepared by Unit: | Energy |
| ▪ Unit of Disbursement Responsibility: | Country Office Paraguay |
| ▪ TC included in Country Strategy (y/n): | No |
| ▪ TC included in CPD (y/n): | No |
| ▪ Alignment to the Update to the Institutional Strategy 2010-2020: | Productivity and innovation ; Institutional capacity and rule of law; Climate change |

II. Objective and Justification

- 2.1 The objective of this Technical Cooperation (TC) is to support government counterparts and relevant entities including in Argentina, Brazil, Chile, Paraguay and Uruguay to increase their understanding of developments, opportunities and challenges on innovation in the delivery of energy services and energy planning
- 2.2 The pace of digitization in energy is increasing fast and has the potential of breaking down boundaries between energy sectors as well as increasing flexibility and enabling integration across entire systems. It can enable the active participation of consumers from all demand sectors in energy system operations, leading to the democratization of the grid and its resources. Digitization is already having a major impact on transport, buildings and industry. Within the power sector, it has the potential to generate important savings by reducing operation and maintenance costs, improving power plant and network efficiency, reducing unplanned outages and downtime, and extending the operational lifetime of assets. Countries in the southern cone are experiencing an increased interest in assessing alternative transport technologies that in most cases would rely on electricity sources, typically referred to as electro mobility (e-mobility). Similarly, new developments and business models arise in the field of renewables and energy efficiency end-uses across the economy that call for an

improved understanding of policies and regulations that would enable their adoption and further innovation. In addition, acknowledging an increased frequency of extreme natural events in recent years in the region, regulation will play a critical role to provide incentives for investing in enhanced resilience of energy systems.

- 2.3 In planning energy systems, policy makers presently rely on the results of simulations based on outdated modelling tools. As new technologies become part of the energy generation mix, the methodologies and software tools for long-term power system planning are evolving. Traditional tools do not take into consideration features such as location and temporal variability of renewable sources, nor fully capture the multiple benefits that energy storage systems can provide to the grid.
- 2.4 Policy makers have emphasized the need to strengthen their capacities in long term energy planning considering integration at the planning stage. At present, countries develop individual energy expansion plans with no analysis of potential benefits from interconnection with their neighbors. Existing studies show the technical and economic benefits of power system interconnections, such as the case of the Interconnected Electricity System in Central America (SIEPAC). IDB's Grid of the Future study also shows the potential benefits in reduced system costs and greenhouse gas emissions when implementing regional electricity interconnections.

III. Description of Activities and Outputs

- 3.1 To achieve the objectives of this TC, three components are proposed as follows: Component I. Innovation in the delivery of Energy Services (US\$220,000). This component will finance capacity building through workshops, targeted assessments and studies in partnership with specialized organizations including academy, expert consultants and specialized energy agencies on opportunities and challenges in the delivery of energy services such as: i) e-mobility roadmap to shift transportation from the use of fossil fuels and carbon emissions considering multiple dimensions including technical/operational, economic/fiscal, environmental, institutional and regulatory; ii) increased use of digital technologies to improve the performance of energy systems with a focus on distribution, demand response and RE integration; iii) cutting edge RE and EE technologies relevant to LAC; and iv) policies and regulation to promote innovative technologies. Specific assessments with the present situation in selected LAC countries and international practice will be prepared as inputs to the workshops. Component II. Innovation in Energy Planning (US\$120,000). This component will finance capacity building through workshops, targeted assessments and studies in partnership with specialized organizations including academy, expert consultants and relevant energy agencies on modelling tools to improve the integration of variable renewable sources and storage in power systems. A benchmarking exercise using different long-term energy modelling tools will be promoted among interested countries as a basis for analysis. Component III. Dissemination (US\$30,000). This component will finance the dissemination of successful knowledge outputs resulting from this TC through relevant resources, including webinars, online media, blogs, and presentations at regional events.
- 3.2 **Component I: Component I. Innovation in the delivery of Energy Services.** i) e-mobility roadmap to shift transportation from the use of fossil fuels and carbon emissions considering multiple dimensions including technical/operational, economic/fiscal, environmental, institutional and regulatory; ii) increased use of digital technologies to improve the performance of energy systems with a focus on distribution, demand response and RE integration; iii) cutting edge RE and EE technologies; iv) policies and regulation to promote innovative technologies.
- 3.3 **Component II: Component II. Innovation in Energy Planning.** This component will finance capacity building through workshops, targeted assessments and studies in partnership with specialized organizations including academy, expert consultants and

relevant energy agencies on modelling tools to improve the integration of variable renewable sources and storage in power systems. A benchmarking exercise using different long-term energy modelling tools will be promoted among interested countries as a basis for analysis.

- 3.4 **Component III: Component III. Dissemination.** This component will finance the dissemination of successful knowledge outputs resulting from this TC through relevant resources, including webinars, online media, blogs, and presentations at regional events.

IV. Budget

Indicative Budget

| Activity/Component | IDB/Fund Funding | Counterpart Funding | Total Funding |
|--|------------------|---------------------|---------------|
| Component I. Innovation in the delivery of Energy Services | \$ 220,000.00 | \$ 0.00 | \$ 220,000.00 |
| Component II. Innovation in Energy Planning | \$ 120,000.00 | \$ 0.00 | \$ 120,000.00 |
| Component III. Dissemination | \$ 30,000.00 | \$ 0.00 | \$ 30,000.00 |

V. Executing Agency and Execution Structure

- 5.1 The Energy Division (INE/ENE) will be the Executing Agency of this TC to facilitate the coordination between the entities. The Bank will contract individual consultants, consulting firms, and non-consulting services in accordance with the Bank's current procurement policies and procures. The TC will follow IDB governing policies and procedures that are applicable for the procurement of goods, works and services as well as all IDB governing policies and procedures that are applicable for selecting and contracting consultants and consulting firm for technical cooperation. Intellectual property of the products will belong to the Bank. In compliance with the Operational Guidelines for Technical Cooperation Products-Revised version (GN-2629-1), this TC is classified as Research and Dissemination. The technical responsibility will be in charge of INE/ENE. The focal points designated and sector specialist responsible for executing this TC will be the Energy Specialist based in Asuncion, Paraguay, who will work in collaboration with ENE's Thematic Groups, the Transport and Climate Change Divisions, and IDB Invest.
- 5.2 This is a Regional Research and Dissemination technical cooperation and the Energy Division (INE/ENE) will be the Executing Agency of this TC to facilitate the coordination between the entities.

VI. Project Risks and Issues

- 6.1 The main risks to be considered for the execution of this TC is the possible lack of interest by some energy agencies to collaborate with the proposed activities. To mitigate this risk, INE/ENE is already partnering with specialized agencies such as International Energy Agency, International Renewable Energy Agency, National Renewable Energy Laboratory and CCEE, and so far is having excellent collaboration. Another risk is the weak government engagement in the activities of the TC; however, countries have already expressed interest in increasing their capacities in these areas.

VII. Environmental and Social Classification

- 7.1 The ESG classification for this operation is "C".