

REQUEST FOR EXPRESSIONS OF INTEREST CONSULTING SERVICES

Selection #: RG-T3801-P001

Selection Method: Simplified Competitive Selection

Country: Regional

Sector: Energy (ENE)

Funding – TC #: ATN/TC-18774-RG

Project #: RG- T3801

TC name: Enabling Energy Storage Markets in LAC for a Resilient, Low-Carbon Multisector Coupling

Description of Services: Development of Energy Storage Regulatory Frameworks

Link to TC document: <https://www.iadb.org/en/project/RG-T3801>

The Inter-American Development Bank (IDB) is executing the above mentioned operation. For this operation, the IDB intends to contract consulting services described in this Request for Expressions of Interest. Expressions of interest must be delivered using the IDB Portal for Bank Executed Operations (<http://beo-procurement.iadb.org/home>) by: **June 17, 2022, 5:00 P.M.** (Washington D.C. Time).

The consulting services (“the Services”) include to analyze the regulatory and market barriers that prevent the adoption of ES and define proper compensation schemes that consider all the revenue streams and value of ES in order to access long term financing; and based on the previous analysis, make recommendations on how to update regulatory frameworks and market designs, including a proper ES definition and asset classification (generation, transmission, or independent), to provide an enabling environment to encourage ES participation, greater investment, and power system resilience. It is expected the following outcome and deliverables: (i) Study of Key elements for regulatory framework in LAC; (ii) A proposal of potential ESS Regulatory Frameworks and the Guideline proposal; (iii) Final guideline; and (iv) A guideline application for 3 LAC countries.

Eligible consulting firms will be selected in accordance with the procedures set out in the Inter-American Development Bank: [Policy for the Selection and Contracting of Consulting firms for Bank-executed Operational Work](#) - GN-2765-4. All eligible consulting firms, as defined in the Policy may express an interest. If the Consulting Firm is presented in a Consortium, it will designate one of them as a representative, and the latter will be responsible for the communications, the registration in the portal and for submitting the corresponding documents.

The IDB now invites eligible consulting firms to indicate their interest in providing the services described above in the draft summary of the intended Terms of Reference for the assignment. Interested consulting firms must provide information establishing that they are qualified to perform the Services (brochures, description of similar assignments, experience in similar conditions, availability of appropriate skills among staff, etc.). Eligible consulting firms may associate in a form of a Joint Venture or a sub-consultancy agreement to enhance their qualifications. Such association or Joint Venture shall appoint one of the firms as the representative.

Interested eligible consulting firms may obtain further information during office hours, 09:00 AM to 05:00 PM, (Washington D.C. Time) by sending an email to: edwinma@iadb.org and eboeckdaza@iadb.org

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Development of Energy Storage Regulatory Frameworks

Regional

RG-T3801

ATN/TC-18774-RG

<https://www.iadb.org/en/project/RG-T3801>

Enabling Energy Storage Markets in LAC for a Resilient, Low-Carbon Multisector Coupling

1. Background and Justification

- 1.1.** *The Energy Division (INE/ENE) of the Inter-American Development Bank (IDB) is a functional division of the Infrastructure and Energy Sector (INE/INE), under the Vice Presidency of Sectors and Knowledge (VPS/VPS), which supports and develops knowledge in the energy sector in Latin America and the Caribbean (LAC). INE/ENE is responsible for the development of technical analysis, identification and preparation of programs, projects, technical cooperation, studies, and sectoral notes in the energy sector.*
- 1.2.** *Energy storage (ES) will play a particular role in bridging the gap between instant energy production and energy consumption and will be a key element to shape the future of the energy sector. The capacity of energy storage systems (ESS) to absorb and release electricity on demand, make them a powerful tool to provide such required flexibility to integrate variable renewable energies. In addition, ESS can provide multiple services to the grid along the provision chain, for instance, complementing and compensating solar generation, storing energy during the day, and releasing it during the night, time-shift; relieving congestion problems in power transmission networks; deferring investments in transmission and distribution networks; and frequency regulation, among others. On the other hand, different storage technologies can bring several solutions that need to be explored, both through centralized and decentralized investments.*
- 1.3.** *But at the same time, ES faces multiple market and regulatory barriers that make it difficult to be integrated to electricity markets, such as: (i) the absence of a clear regulatory definition of ES in regulatory frameworks, limits the possibility to deliver and properly compensate multiple services; (ii) Pricing and tariffs schemes without proper hourly price signals make difficult ES compensation; and (iii) the lack of existence of markets for ancillary services, black start or inertia also affects ES deployment.*
- 1.4.** *Public sector plays a key role to overcome ES barriers and to enable ES markets and new business models for private participation, for this it is necessary to assure: (i) a comprehensive understanding of ES operation, technologies and the services ES can provide to the grid, including those from customer sided facilities; (ii) a regulatory frameworks and market rules that clearly define ESS, identify ES economic value; clearly defines ES as a player in power markets and properly compensate ES multiple services; (iii) strengthening energy planning capabilities to incorporate ESS as a flexibility solution in long term power generation and transmission planning; and (iv) and properly sized ES projects from a technical and operative perspective.*
- 1.5.** *The Energy Division (INE/ENE) of the Inter-American Development Bank (IDB) seeks a consultant firm with experience relevant in Energy Storage, specifically in Development Regulatory Frameworks to develop energy storage regulatory frameworks to LAC*

2. Objectives

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- 2.1.** *The objective is to analyze the regulatory and market barriers that prevent the adoption of ES and define proper compensation schemes that consider all the revenue streams and value of ES in order to access long term financing; and based on the previous analysis, make recommendations on how to update regulatory frameworks and market designs, including a proper ES definition and asset classification (generation,*

transmission, or independent), to provide an enabling environment to encourage ES participation, greater investment, and power system resilience

3. Scope of Services

3.1. The scope of the services of this consultancy will be:

- a) *ESS used by power generation and transmission companies, distribution operators, consumers and other players in the power sector. The analyzes should include ESS of all sizes, including those used by small distributed generation systems.*
- b) *Based on the studies developed by the bank, international knowledge and best practices about ESS regulation, the consultancy should make an assessment of LAC specificities (including the availability of human resources, the economics, and the institutional and regulatory framework) to propose a guideline for LAC about energy storage regulatory frameworks.*
- c) *The assessment for Latin America will be carried out from 3 countries to be defined by the IDB, one country with an essentially public system, another country with a public and private system and finally a country with an essentially private system*
- d) *The guideline proposal should include the main technical, economical, and institutional characteristics. It should consider different institutional arrangements and analyses how this could fit with national endowments.*
- e) *Propose a guideline for energy storage regulatory frameworks.*

4. Key Activities

4.1. ESS regulation models analysis

- a) Analyze at least three different ESS regulation schemes that have been implemented (three countries cases) in the world.
- b) Based on the current ESS Regulation models in the world, define the main elements that must be part of a successful regulation model, including, methodological, institutional and governance aspects and among others.
- c) Analyze the main operative and commercial regulations that were affected by ESS regulations (i.e. commercial codes, network codes, ancillary services rules, dispatch rules)
- d) Identify the stakeholders, human resources, and institutional resources necessary for the successful regulation models.
- e) Discuss the feasibility and tradeoffs of the different potential arrangements at least three different ESS regulation schemes selected.
- f) Workshop with main stakeholders (defined by the IDB) with the results of this activity.
- g) Include feedback received in the workshop in the deliverable of this activity.
- h) Elaborate ESS regulation models full report. This report must include all the analyses and results of 4.1.
- i) Didactic ESS regulation Summary Report: Design a didactic summary report to synthesize the main elements to be considered for ESS regulation implementation.

4.2. ESS Business Models Analysis

- a) Based on the current ESS business models (successful model cases), define the main elements that must be part of a successful business model.
- b) Define the main characteristics that a business model should consider, indicating the minimum elements

that must include, methodological, financial, legal, institutional and governance aspects and among others.

- c) Define the stakeholders, human resources, and institutional resources necessary for the successful business model.
- d) Discuss the feasibility and tradeoffs of the different potential arrangements.
- e) Workshop with main stakeholders (defined by the IDB) with the results of this activity.
- f) Include feedback received in the workshop in the deliverable of this activity.
- g) Elaborate ESS business models full report. This report must include all the analyses and results of 4.1.
- h) Didactic ESS business Summary Report: Design a didactic summary report to synthesize the main elements to be considered for ESS business models implementation.

4.3. Proposals of potential ESS Regulatory Frameworks for LAC countries

- a) Propose potential ESS regulation framework to LAC, considering the suggestions obtained in activities 4.1 and 4.2
- b) The ESS regulatory framework proposal should include the requirements, the methodology, the compliance requirement, and the governance to be considered in the regulatory framework. It should also include, how they are going to be handled and what are the verifying mechanisms for compliance. It is also important to discuss what should be carried nationally and regionally (for connected systems).
- c) The regulatory framework proposal should consider and evaluate the different characteristics of LAC countries, i.e. whether the type of electricity generation matrix, current regulation, and specially market structure (single state owned monopoly; competitive markets), market and power system operations.
- d) Include an assessment of the main barriers for the implementation of the framework system determined in the guideline, and recommendations to overcome them considering the existing regulatory tools and the information available in each country of Latin America and Caribbean.
- e) The regulatory framework proposals must differentiate ESS applications (arbitrage, energy shifting; frequency regulation) etc.
- f) Discuss the feasibility and tradeoffs of the different potential arrangements.
- g) Workshop with main stakeholders (defined by the IDB) with the results of this activity.
- h) Include feedback received in the workshop in the deliverable of this activity.
- i) Didactic summary report on the regulatory framework proposal, differentiating by market structures, current regulatory frameworks, or other relevant differentiation criteria.

4.4. ESS Regulatory Framework Implementation Guide

- a) Based on the regulatory frameworks discussed in the 4.3, design an ESS regulatory framework design guide., that allow energy regulators, to design its own ESS regulation that fits its own market scheme and current regulatory framework.
- b) The guide should include at least, but not limited, the next stages: ESS application selection, best ESS framework reference identification and selection; main elements and current norms and regulations to be affected by ESS framework implementation, and final ESS proposal design.
- c) The guide must differentiate ESS applications (arbitrage, energy shifting; frequency regulation) and other relevant classifications.
- d) Participation and presentation in a workshop with the key players of the region (defined by the IDB) for the dissemination of the findings and results of this activity
- e) Include feedback received in the workshop in the final version of the guideline.
- f) Didactic guideline document.

4.5. Final report and data base and Final presentation

- a) Final report with the results of the consultancy and main conclusions and recommendations of steps to follow
- b) Database with the mechanisms and institutions for regulatory framework and a visualization in a suitable format for the Energy HUB
- c) Workshop for presenting the results and dissemination of the main finding with the key players of the region (defined by the IDB).

4.6. Guide application

- a) Based on the final version of the guide, analyze the application of it in 3 LAC countries defined by the IDB
- b) The analysis must consider the recommendations of the Guide and present the necessary changes in each country for its application.
- c) Workshop with main stakeholders (defined by the IDB) with the results of this activity for each country.
- d) Include feedback received in the workshop in the deliverable of this activity.

5. Expected Outcome and Deliverables

5.1. Work plan with schedule and details of activities

5.2. Study of Key elements for regulatory framework in LAC, which included the activities 4.1 and 4.2

5.3. A proposal of potential ESS Regulatory Frameworks and the Guideline proposal, which included the activities 4.3 and 4.4

5.4. Final guideline that included activity 4.5

5.5. A guideline application for 3 LAC countries, that include activity 4.6

6. Project Schedule and Milestones

	Month 1	Month 2	Month 3	Month 4	Month 5	Month 6	Month 7	Month 8	Month 9	Month 10	Month 11	Month 12
Deliverable 1: Work plan												
Deliverable 2: Study of Key elements for regulatory framework in LAC, which included the activities 4.1 and 4.2												
Deliverable 3: A proposal of potential ESS Regulatory Frameworks Proposals and the Guideline proposal, which included the activities 4.3 and 4.4												
Deliverable 4: Final guideline that included activity 4.5												
Deliverable 5: A guideline application for 3 LAC countries, that include activity 4.6												

7. Reporting Requirements

- 7.1. All reports must be submitted in Word, in Spanish and English, in an editable file, including annexes, spreadsheets, and other required material.*
- 7.2. All deliverables will be accompanied by an internal presentation to the Bank. Presentations will be in Spanish and English.*
- 7.3. All reports will be confidential.*
- 7.4. The final version of deliverable 5.4 must have in English, Spanish and Portuguese.*
- 7.5. All summary reports and guides must be didactic using tables, illustrative graphs to ensure an easy understanding.*

8. Acceptance Criteria

- 8.1. The products will be accepted for payment once they have the written approval of the IDB team.*
- 8.2. Partial products or products that are not accepted will not be paid*

9. Other Requirements

- 9.1. Work Team: The consultancy must present a minimum work team in its proposal, considering the following specialties:*
 - a) **Project Manager.** Degree in engineering, economics, or related areas, with specialization, master's or doctorate in related areas. At least 15 years of general experience, 10 years of experience specifies the development of technical and economic feasibility studies for the energy sector, with fluent Spanish language. Relevant experience in the power sector. Experience in Latin America and the Caribbean is desirable.*
 - b) **Specialist in the Power sector.** Degree in engineering or related areas, with a master's or doctorate in power system planning, power sector or related subjects. With specific experience of at least eight (8) years in the power sector. Experience in Latin America and the Caribbean and fluency in Spanish language is desirable.*
 - c) **Specialist in Energy Storage:** Degree in engineering or related areas, with a master's or doctorate in energy planning, energy economics or related subjects. With specific experience of at least eight (8) years in energy storage systems in the power sector, with fluent Spanish language. Experience in Latin America and the Caribbean is desirable*
 - d) **Regulatory Specialist:** Degree in law or economics or related areas with a master's degree or doctorate in law, economic regulation or in subjects related to the object of the consultancy. General experience in advising the energy sector and specific experience of at least eight (8) years in regulatory advice in the energy sector and in participation in the structuring and implementation of public policies, with command of the Spanish language. Experience in Latin America and Caribbean.*
- 9.2. Confidentiality:** All information shared with the consultancy will be considered confidential. The consultancy may not disclose to third parties any product of this consultancy, without the express consent of the IDB, in writing.

10. Supervision and Reporting

10.1. *The consulting firm will work under the supervision of Edwin Antonio Malagon Orjuela, Sector Specialist – Energy (INE/ENE)*

11. Schedule of Payments

11.1. Payments will be made through the approval of the products listed in section 5, according to the conditions mentioned in section 8.

Payment Schedule	
<i>Deliverable</i>	%
1. Deliverable 1: Work plan	20%
2. Deliverable 2: Study of Key elements for regulatory framework in LAC, which included the activities 4.1 and 4.2	20%
3. Deliverable 3: A proposal of potential ESS Regulatory Frameworks Proposal and the Guideline proposal, which included the activities 4.3 and 4.4	20%
4. Deliverable 4: Final guideline that included activity 4.5	20%
5. Deliverable 5: A guideline application for 3 LAC countries, that include activity 4.6	20%
TOTAL	100%