

Selection process # UR-T1334– XXX

TERMS OF REFERENCE #1

Evaluation of smart meters and dynamic tariff structures in electricity

Uruguay

ATN/CN

UR-T1334

Evaluation of smart meters and dynamic tariff structures in electricity

1. Background and Justification

- 1.1. Established in 1959, the Inter-American Development Bank Group (“IDBG” or “Bank”) is the main source of financing for economic, social, and institutional development in Latin America and the Caribbean. It provides loans, grants, guarantees, policy advice and technical assistance to the public and private sectors of its borrowing countries.
- 1.2. The IDB has worked both regionally and at a country level for many years on issues directly and indirectly related to electricity markets regulations. The proper regulation of electricity markets is essential for the energy transition. Electricity accounts for approximately 30% of energy greenhouse gas (GHG) emissions. Moreover, a key element of economy-wide decarbonization is the electrification of energy consumption: a shift from fossil fuels to clean-based electricity within the transportation, industrial, commercial, and residential sectors, contributing considerably to the remaining 70% of energy GHG emissions.
- 1.3. Integrating smart meters and dynamic tariff structures presents a promising solution within the energy transition context. Indeed, they could contribute to enhancing the system's flexibility by making it possible to manage demand and enabling better use of renewable energy. Enabling better demand-side management facilitates electricity use when it is cheaper (i.e. when there is plenty of renewable-based electricity available), which would consequently encourage the electrification of energy consumption. Therefore, deploying smart meters, providing households with granular (e.g., hourly) consumption information, and implementing dynamic tariff structures could be crucial for a successful energy transition.
- 1.4. However, smart meter penetration in Latin America and the Caribbean (LAC) countries is still low, with a coverage of less than 5% of households. Uruguay stands out, as UTE's nationwide installation of smart meters is in its final stages and is expected to reach 100% coverage by 2024. In addition to smart meters, the country has also introduced new dynamic tariff structures offering residential consumers significant flexibility, a tariff scheme still unusual in the region. An evaluation of this policy would not only be helpful to assess the program's results but would also provide valuable insights for other countries in the region for implementing smart meters and more dynamic tariff schemes, as most of them are in much earlier stages than Uruguay.
- 1.5. Based on non-experimental policy evaluation methods, the energy knowledge team will exploit temporal and spatial variation in deploying smart meters and dynamic pricing structures to recover the effect of both policy components outcomes such as electricity consumption patterns, household electricity expenditure, operational costs, and utility electricity losses.

2. Objective and Scope of Services

- 2.1. The objective of this consultancy is to generate primary data for an in-depth analysis of pricing dynamics in the distribution electricity market. It aims to collect valuable data on electricity consumption, including electricity consumption patterns, household electricity expenditure, operational costs, and utility electricity losses. This data will be fundamental for diagnosing the sector's performance, understanding challenges, and providing recommendations to improve the efficiency and equity of electricity markets in an era of new paradigms.

2.2. Activities in this consultancy include the collection, homogenization, and systematization of information on some of the following topics: a) household spending on electricity, including electricity daily consumption at the household level, tariff structure (fixed charge and price per kWh, and whether the structure is dynamic), house electricity expenditure, location of household, type of meter (conventional or smart); b) wholesale electricity data such as short term electricity prices, contracts electricity prices and electricity generated; and 3) operational data of distribution utilizes such as operational costs, electricity losses.

3. Key Activities

- 3.1. Develop workplan
- 3.2. Identify data on electricity market operations across distribution and commercialization market segments from Uruguay.
- 3.3. Create databases: databases will have the quantitative and qualitative data gathered.

4. Expected Outcome and Deliverables

- 4.1. Completed workplan.
- 4.2. Completed and accepted data collection methodology.
- 4.3. First draft of databases.
- 4.4. Completed and accepted databases.

5. Project Schedule and Milestones

- 5.1. Submit workplan 1 week from signing of contract.
- 5.2. Submit data collection methodology 30 days from signing of contract.
- 5.3. Submit first draft of databases 90 days from signing of contract.
- 5.4. Submit final databases 180 days from signing the contract.

6. Reporting Requirements

- 6.1. The data needs to be delivered in Stata (dta) or Excel format, including metadata with a description of variables, which should be written in English.

7. Acceptance Criteria

- 7.1. Report should be in Word format, with any graphs, tables, and related data in Excel format. All methodologies, assumptions, and data sources used should be clearly outlined.

8. Other Requirements

- 8.1. N/A

9. Supervision and Reporting

- 9.1. Division Leader or Coordinator:

10. Supervision and Reporting

- 10.1. Payment terms will be based on project milestones or deliverables. The Bank does not expect to make advance payments under consulting contracts unless a significant amount of travel is required. The Bank wishes to receive the most competitive cost proposal for the services described herein.
- 10.2. The IDB Official Exchange Rate indicated in the RFP will be applied for necessary conversions of local currency payments.

Payment Schedule	
<i>Deliverable</i>	%

1. Workplan	10%
2. Methodology	20%
3. First Draft of Databases	30%
4. Final database	40%
TOTAL	100%

TERMS OF REFERENCE #2

Evaluation of smart meters and dynamic tariff structures in electricity

Uruguay

ATN/CN

UR-T1334

Evaluation of smart meters and dynamic tariff structures in electricity

1. Background and Justification

- 1.1. Established in 1959, the Inter-American Development Bank Group (“IDBG” or “Bank”) is the main source of financing for economic, social, and institutional development in Latin America and the Caribbean. It provides loans, grants, guarantees, policy advice and technical assistance to the public and private sectors of its borrowing countries.
- 1.2. The IDB has worked both regionally and at a country level for many years on issues directly and indirectly related to electricity markets regulations. The proper regulation of electricity markets is essential for the energy transition. Electricity accounts for approximately 30% of energy greenhouse gas (GHG) emissions. Moreover, a key element of economy-wide decarbonization is the electrification of energy consumption: a shift from fossil fuels to clean-based electricity within the transportation, industrial, commercial, and residential sectors, contributing considerably to the remaining 70% of energy GHG emissions.
- 1.3. Integrating smart meters and dynamic tariff structures presents a promising solution within the energy transition context. Indeed, they could contribute to enhancing the system's flexibility by making it possible to manage demand and enabling better use of renewable energy. Enabling better demand-side management facilitates electricity use when it is cheaper (i.e. when there is plenty of renewable-based electricity available), which would consequently encourage the electrification of energy consumption. Therefore, deploying smart meters, providing households with granular (e.g., hourly) consumption information, and implementing dynamic tariff structures could be crucial for a successful energy transition.
- 1.4. However, smart meter penetration in Latin America and the Caribbean (LAC) countries is still low, with a coverage of less than 5% of households. Uruguay stands out, as UTE's nationwide installation of smart meters is in its final stages and is expected to reach 100% coverage by 2024. In addition to smart meters, the country has also introduced new dynamic tariff structures offering residential consumers significant flexibility, a tariff scheme still unusual in the region. An evaluation of this policy would not only be helpful to assess the program's results but would also provide valuable insights for other countries in the region for implementing smart meters and more dynamic tariff schemes, as most of them are in much earlier stages than Uruguay.
- 1.5. Based on non-experimental policy evaluation methods, the energy knowledge team will exploit temporal and spatial variation in deploying smart meters and dynamic pricing structures to recover the effect of both policy components outcomes such as electricity consumption patterns, household electricity expenditure, operational costs, and utility electricity losses.

2. Objective and Scope of Services

- 2.1. The primary objective of this consultancy is to analyze the impact of introducing dynamic electricity tariffs on households' electricity consumption. The project also focuses on evaluating electricity provision's effects on supply and demand. It aims to develop policy recommendations that suggest alternative pricing and tariff schemes to facilitate the integration of renewable energy sources, such as solar and wind.

Furthermore, the consultancy will evaluate the feasibility of implementing these new pricing models within the regional economic context.

3. Key Activities

- 3.1. Develop a work plan.
- 3.2. Conduct an analytical review of academic literature to identify research gaps and priorities.
- 3.3. Perform an analytical review of global and regional best policies and practices related to electricity markets reforms.
- 3.4. Compare the best global policies and practices with Uruguay's practices.
- 3.5. Draft a report summarizing the conclusions from the literature review and the comparison of best practices.

4. Expected Outcome and Deliverables

- 4.1. Completed workplan.
- 4.2. First draft of report with preliminary results
- 4.3. Completed and accepted final report.

5. Project Schedule and Milestones

- 5.1. Submit workplan 1 week from signing of contract.
- 5.2. Submit first draft 60 days from signing of contract.
- 5.3. Submit final report and presentation of results 90 days from signing the contract.

6. Reporting Requirements

- 6.1. Deliverables should be provided in Word, Excel, PowerPoint, or STATA format, as agreed upon by both parties for each specific product.
- 6.2. All deliverables must be written in English.
- 6.3. All methodologies, assumptions, and data sources used must be clearly detailed, including a comprehensive list of bibliographic references.
- 6.4. Throughout the execution of this work, recurring meetings will be held to monitor progress. The frequency of these meetings will be determined by the IDB team and the consultancy team during the project's kick-off meeting.

7. Acceptance Criteria

- 7.1. The IDB team responsible for this project will deem each deliverable as acceptable or not. In the latter case, the team will provide clear guidelines to the consulting firm on specific revisions to be made.
- 7.2. The delivery of the products must be made in English, through the official email address of the selected candidate. Delays in delivery must be communicated to the Bank and duly approved.

8. Other Requirements

- 8.1. N/A

9. Supervision and Reporting

- 9.1. Division Leader or Coordinator:

10. Supervision and Reporting

- 10.1. Payment terms will be based on project milestones or deliverables. The Bank does not expect to make advance payments under consulting contracts unless a significant amount of travel is required. The Bank wishes to receive the most competitive cost proposal for the services described herein.

10.2. The IDB Official Exchange Rate indicated in the RFP will be applied for necessary conversions of local currency payments.

Payment Schedule	
<i>Deliverable</i>	%
Detailed work plan	30%
Intermediary report with preliminary advances	40%
Final report	30%
TOTAL	100%