**Request for Quote/Proposal (RFQ/RFP)**

<table>
<thead>
<tr>
<th>Commodity/Service Required:</th>
<th>Study regarding Detecting Anti-Competitive Behavior in the Wholesale Electricity Spot Market (WESM)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Type of Procurement:</td>
<td>Fixed-Price with Payment Milestones</td>
</tr>
<tr>
<td>Type of Contract:</td>
<td>Purchase Order</td>
</tr>
<tr>
<td>Term of Contract:</td>
<td>34 weeks including presentation to DOE, consulting services, and milestones delivery</td>
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<tr>
<td>Contract Funding:</td>
<td>United States Agency for International Development</td>
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<tr>
<td>This Procurement supports:</td>
<td>Energy Secure Philippines Activity</td>
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<tr>
<td>Submit Proposal to:</td>
<td>Jan Ranizen Vitan, <a href="mailto:jvitan@energysecure.ph">jvitan@energysecure.ph</a></td>
</tr>
<tr>
<td>Date of Issue of RFP:</td>
<td>June 26, 2023 (Philippine Standard Time)</td>
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<tr>
<td>Date Questions from Supplier Due:</td>
<td>June 30, 2023 (Philippine Standard Time)</td>
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<tr>
<td><strong>Date Proposal Due:</strong></td>
<td><strong>July 3, 2023 (Philippine Standard Time)</strong></td>
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<tr>
<td>Approximate Date Purchase Order Issued to Successful Bidder(s):</td>
<td>July 3 - 7, 2023 (Philippine Standard Time)</td>
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**Method of Submittal:**

**Email to:**

Respond via e-mail with attached document in MS Word / pdf format.

The Bidder/Seller agrees to hold the prices in its offer firm for **90 days** from the date specified for the receipt of offers, unless another time is specified in the addendum of the RFP/RFQ.

**Solicitation Number:** ESP-RFQ-2023-178

**Attachments to RFP:**

1. Attachment “A” – Commodity Specifications
2. Attachment “B” – Instructions to Bidders/Sellers
3. All PO Terms and Conditions are listed on our website at forth at:  
   - [http://www.rti.org/files/PO_FAR_Clauses.pdf](http://www.rti.org/files/PO_FAR_Clauses.pdf) or for commercial items:  

Supplier’s delivery of products, performance of services, or issuance of invoices in connection with this purchase order establishes Supplier’s agreement to the Terms. The Terms may only be modified in writing signed by both parties.

All bidders/sellers are responsible to carefully review each attachment and follow any instructions that may be relevant to this procurement.
Attachment A

Commodity Specifications or Statement of Work

Statement of Work

Indicate a description of the activity/service that is expected from the supplier. Provide product specifications or service expectations (both if applicable). Include deliverables, timelines, and any special terms and conditions.

Description of Activity/Service:

RTI is an implementing contractor of the United States Agency for International Development (USAID) for Energy Secure Philippines (ESP), a five (5) year project. Energy Secure Philippines (ESP) will assist the Philippines energy sector to mobilize investment, deploy modern energy technology, and support policy reforms for a more competitive energy sector that can drive future economic growth and social development. ESP aims to promote development, implementation of, and adherence to existing laws related to competitive and transparent processes that will (a) incentivize private investment; (b) boost the utilization of new advanced energy technologies; (c) increase resilience to natural and human induced shocks; and (d) promote a secure, stable, diversified, and modern towards a more self-reliant Philippine energy sector.

The Philippines faces unique challenges in its energy sector due to regional differences in daily energy utilization and underdeveloped power grid infrastructure. With a diverse energy mix, accurate forecasting of daily electricity usage is crucial to understanding supply and demand dynamics in the country’s electricity spot market. This proposal outlines a data-driven approach to create a predictive model for daily electricity utilization, analyze how supply and demand drive spot market prices, and develop a metric to detect potential anti-competitive behavior. The findings will offer valuable insights into the energy sector in the Philippines and support regulatory policies in preventing anti-competitive behavior.

The Philippines, an archipelagic country comprising 7,641 islands, faces unique electricity generation and distribution challenges. With a total energy consumption of around 78 billion kWh per year and an average per capita consumption of 688 kWh, the country relies heavily on coal energy (58%) and renewable energy sources (23%) [DOE, 2021]. While projections indicate the potential for energy self-sufficiency by 2030, regional differences in daily energy utilization must be considered, as spot pricing is influenced by local supply and demand. This creates opportunities for market operators to manipulate prices through tactics such as artificially inflating demand or deliberately reducing supply.
Product or Service Expectations (both if applicable):

The study intends to achieve the following:

1. Develop a data-driven model to simulate daily electricity utilization in the Philippines, focusing on the three primary island groups, accounting for population trends, economic growth, and other compounding variables.
2. Employ AI or data science methods to analyze the relationship between supply, demand, and the electricity spot market price based on the forecasted daily electricity utilization.
3. Create a metric to differentiate between normal patterns and pattern-breaking behavior concerning spot prices and projected supply and demand for electricity.

Methodology and Deliverables:

This study will employ a mixed-methods approach to develop a model for energy utilization trends in the Philippines and establish a metric that identifies potential anti-competitive behavior based on supply and demand patterns.

1. Energy Demand Model: The construction of the energy demand model will occur in two phases:

   Phase 1: Develop a baseline using traditional statistical methods such as ARIMA and Bayesian-based forecasts (Box et al., 2016; Gelman et al., 2013).

   Phase 2: Implement advanced AI techniques, including gradient boosting methods, Long-Short-Term Memory (LSTM), other Recurrent Neural Network (RNN) variants, and transformers, to capture trends and long-term behavior of critical drivers of energy consumption (Goodfellow et al., 2016).

2. Energy Supply Model: Data from the Independent Electricity Market Operator of the Philippines (IEMOP) will be analyzed to assess key players’ actual and projected energy generation. This analysis will include interval data for each generator, wholesale and retail loads, and billing summaries.

3. Metric for Identifying Pattern-Breaking Phenomena: The normal dynamics of the Spot Price Market will be established by calibrating the energy demand model of item 1 with the energy supply model of item 2. A metric will be developed that quantifies the deviation of spot electricity prices from the expected supply-demand relationship.

Deliverables, Timelines, Special Terms and Conditions:

<table>
<thead>
<tr>
<th>Activities/Deliverables</th>
<th>Submission timeframe (estimated)</th>
<th>Payment, % of Total</th>
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<tbody>
<tr>
<td>Project commencement</td>
<td>Upon submission of an inception report</td>
<td>10%</td>
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<tr>
<td>Data exploration, feature engineering, and model building.</td>
<td>Within the 14 weeks of engagement</td>
<td>35%</td>
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include developing an energy demand model (Deliverable 1) and an Energy Supply Model (Deliverable 2) to identify patterns and features that will be fed in identifying the metric for pattern-breaking phenomena.

Milestone 1: Presentation to DOE Secretary and team

Model development and creation of a metric that will flag potential *anti-competitive behavior* (Deliverable 3). This involves selecting appropriate data science algorithms, especially AI, building the model, and testing it on the available data.

Milestone 2: Presentation to DOE Secretary and team

Model refinement and validation that includes:
- Fine-tuning the model.
- Optimizing its parameters.
- Testing its robustness to ensure its accuracy and reliability.

Milestone 3: Presentation to DOE Secretary and team and a complete report and documentation.

The report will comprehensively analyze current energy utilization trends and future projections based on population and economic growth. It will also examine the generation patterns of electricity production in the country. Most importantly, the study aims to develop a metric that measures the deviation of spot electricity pricing from supply-demand dynamics. This research will offer valuable insights into current and future energy utilization trends, challenges, and opportunities for the Philippine energy sector. Furthermore, the study's findings will complement existing regulatory policies preventing anti-competitive behavior.

The project will run for **34 weeks**.

**Pricing**
<table>
<thead>
<tr>
<th>Item #</th>
<th>Quantity to be Purchased</th>
<th>Description of Preferred Commodity or Services Specifications</th>
<th>Unit of Measure</th>
<th>Unit Fixed Price (Each)</th>
<th>Total Fixed Price (Each)</th>
<th>Lead Time Availability (Number of days for delivery after the contract is signed)</th>
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**Total Value**

Additional Information for Delivery Schedule:

By signing this attachment, the bidder confirms he has a complete understanding of the specifications and fully intends to deliver items that comply with the above listed specifications.

<table>
<thead>
<tr>
<th>Signature:</th>
</tr>
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<tbody>
<tr>
<td>Title:</td>
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<td>Date:</td>
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</table>
Attachment “B”
Instructions to Bidders/Sellers

1. **Procurement Narrative Description**: The Buyer (RTI) intends to purchase commodities and/or services identified in Attachment A. The Buyer intends to purchase the quantities (for commodities) and/or services (based on deliverables identified in a Statement of Work). The term of the Ordering Agreement shall be from Award Date to the Delivery date of the Offeror unless extended by mutual agreement of the parties. The Buyer intends to award to a single “approved” supplier based on conformance to the listed specifications, the ability to service this contract, and selling price. We reserve the right to award to more than one bidder. If an Ordering Agreement is established as a result of this RFQ/RFP, supplier understands that quantities indicated in the specifications (Attachment A) are an estimate only and RTI does not guarantee the purchase quantity of any item listed.

2. **Procuring Activity**: This procurement will be made by **Research Triangle Institute (RTI International)**, located at

```
RTI International
Unit 1410 One Park Drive, 9th corner 11th Drive, Bonifacio Global City, Taguig City, Philippines
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(insert full address of the office)

who has a purchase requirement in support of a project funded by

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USAID Energy Secure Philippines Activity
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(insert client’s name)

RTI shall award the initial quantities and/or services and any option quantities (if exercised by RTI) to Seller by a properly executed Purchase Order as set forth within the terms of this properly executed agreement.

3. **Proposal Requirements**. All Sellers will submit a quote/proposal which contains offers for all items and options included in this RFQ/RFP. All information presented in the Sellers quote/proposal will be considered during RTI’s evaluation. Failure to submit the information required in this RFQ/RFP may result in Seller’s offer being deemed non-responsive. Sellers are responsible for submitting offers, and any modifications, revisions, or withdrawals, so as to reach RTI’s office designated in the RFQ/RFP by the time and date specified in the RFQ/RFP. Any offer, modification, revision, or withdrawal of an offer received at the RTI office designated in the RFQ/RFP after the exact time specified for receipt of offers is “late” and may not be considered at the discretion of the RTI Procurement Officer. The Seller’s proposal shall include the following:

(a) The solicitation number:

(b) The date and time submitted:

(c) The name, address, and telephone number of the seller (bidder) and authorized signature of same:

(d) Validity period of Quote:
(e) A technical description of the items being offered in sufficient detail to evaluate compliance with the requirements in the solicitation. This may include product literature, or other documents, if necessary.

(f) If RTI informs Seller that the Commodity is intended for export and the Commodity is not classified for export under Export Classification Control Number (ECCN) “EAR99” of the U.S. Department of Commerce Export Administration Regulations (EAR), then Seller must provide RTI the correct ECCN and the name of Seller’s representative responsible for Trade Compliance who can confirm the export classification.

(g) Lead Time Availability of the Commodity/Service.

(h) Terms of warranty describing what and how the warranties will be serviced.

(i) Special pricing instructions: Price and any discount terms or special requirements or terms (special note: pricing must include guaranteed firm fixed prices for items requested.

(j) Payment address or instructions (if different from mailing address)

(k) Acknowledgment of solicitation amendments (if any)

(l) Past performance information, when included as an evaluation factor, to include recent and relevant contracts for the same or similar items and other references (including points of contact with telephone numbers, and other relevant information)

(m) Special Note: The Seller, by his response to this RFQ/RFP and accompanying signatures, confirms that the terms and conditions associated with this RFQ/RFP document have been agreed to and all of its attachments have been carefully read and understood and all related questions answered.

4. Forms: Sellers (potential bidders or suppliers) must record their pricing utilizing the format found on Attachment “A”. Sellers must sign the single hardcopy submitted and send to address listed on the cover page of this RFQ/RFP.

5. Questions Concerning the Procurement. All questions in regards to this RFQ/RFP to be directed to

Jan Ranizen Vitan
(insert name of procurement officer)

at this email address:

jvitan@energysecure.ph
(insert email address of the procurement officer).

The cut-off date for questions is (insert date).

June 30, 2023
6. **Notifications and Deliveries**: Time is of the essence for this procurement. Seller shall deliver the items or services no later than the dates set forth in the contract that will be agreed by both parties as a result of this RFQ/RFP. The Seller shall immediately contact the Buyer’s Procurement Officer if the specifications, availability, or the delivery schedule(s) changes. Exceptional delays will result in financial penalties being imposed of Seller.

7. **Documentation**: The following documents will be required for payment for each item:
   (a) A detailed invoice listing Purchase Order Number, Bank information with wiring instructions (when applicable)
   (b) Packing List
   (c) All relevant product/service documentation (manuals, warranty doc, certificate of analysis, etc.)


9. **Alternative Proposals**: Sellers are permitted to offer "alternatives" should they not be able to meet the listed requirements. Any alternative proposals shall still satisfy the minimum requirements set forth in Attachment A Specifications.

10. **Inspection Process**: Each item shall be inspected prior to final acceptance of the item. All significant discrepancies, shortages, and/or faults must be satisfactorily corrected and satisfactorily documented prior to delivery and release of payment.

11. **Evaluation and Award Process**: The RTI Procurement Officer will award an agreement contract resulting from this solicitation to the responsible Seller (bidder) whose offer conforms to the RFQ/RFP will be most advantageous to RTI, price and other factors considered. The award will be made to the Seller representing the best value to the project and to RTI. For the purpose of this RFQ/RFP, price, delivery, technical and past performance are of equal importance for the purposes of evaluating, and selecting the "best value" awardee. RTI intends to evaluate offers and award an Agreement without discussions with Sellers. Therefore, the Seller’s initial offer should contain the Seller’s best terms from a price and technical standpoint. However, RTI reserves the right to conduct discussions if later determined by the RTI Procurement Officer to be necessary.

The evaluation factors will be comprised of the following criteria:
   (a) **PRICE**. Lowest evaluated ceiling price (inclusive of option quantities).
   (b) **DELIVERY**. Seller provides the most advantageous delivery schedule.
   (c) **TECHNICAL**. Items/Services shall satisfy or exceed the specifications described in RFQ/RFP Attachment A.
   (d) **PAST PERFORMANCE**. - Seller can demonstrate his/her capability and resources to provide the items/services requested in this solicitation in a timely and responsive manner.

(e) **OTHER EVALUATION CRITERIA**.

| Warranty and Payment Terms |
12. **Award Notice.** A written notice of award or acceptance of an offer, mailed or otherwise furnished to the successful supplier within the time acceptance specified in the offer, shall result in a binding contract without further action by either party.

13. **Validity of Offer.** This RFP in no way obligates RTI to make an award, nor does it commit RTI to pay any costs incurred by the Seller in the preparation and submission of a proposal or amendments to a proposal. Your proposal shall be considered valid for 90 days after submission.

14. **Representations and Certifications.** Winning suppliers under a US Federal Contract are required to complete and sign as part of your offer RTI Representations and Certifications for values over $10,000.

15. **Anti-Kick Back Act of 1986.** Anti-Kickback Act of 1986 as referenced in FAR 52.203-7 is hereby incorporated into this Request for Proposal as a condition of acceptance. If you have reasonable grounds to believe that a violation, as described in Paragraph (b) of FAR 52.203-7 may have occurred, you should report this suspected violation to the RTI's Ethics Hotline at 1-877-212-7220 or by sending an e-mail to ethics@rti.org. You may report a suspected violation anonymously.

16. **The John S. McCain National Defense Authorization Act for fiscal year 2019 - section 889.** RTI cannot use any equipment or services from specific companies, or their subsidiaries and affiliates, including Huawei Technologies Company, ZTE Corporation, Hytera Communications Corporation, Hangzhou Hikvision Digital Technology Company, and Dahua Technology Company (“Covered Technology”). In response to this request for proposal, please do not provide a quote which includes any Covered Technology. Any quote which includes Covered Technology will be deemed non-responsive. Additionally, if the United States Government is the source of funds for this RFP, the resulting Supplier shall not provide any equipment, system, or service that uses Covered Technology as a substantial or essential component

**Acceptance:**

Seller agrees, as evidenced by signature below, that the seller’s completed and signed solicitation, seller’s proposal including all required submissions and the negotiated terms contained herein, constitute the entire agreement for the services described herein.

By: *(Seller Company Name)*

Signature: ______________________________________________

Title: ____________________________

Date: ____________________________