REQUEST FOR PROPOSALS

Cambodia Australia Partnership for Resilient Economic Development (CAPRED) Program	
RFP Number	**RFP25-045**
Project Name	**Pilot of solar energy forecast system**
Domain Name	**Infrastructure**
Application Closing Date	**5 pm (Cambodia Time), 30 April 2025**
Assignment Duration	**May - October 2025**

1. Background

1.1. CAPRED

The CAPRED Facility is Australia's flagship bilateral economic development program in Cambodia, focusing on economic recovery and resilience over the next five years, with a possible three-year extension. The Facility supports Cambodia in implementing a range of important economic reforms to support the country's economic transition. These interventions and reforms aim to encourage more productive and inclusive public and private investment, promoting a resilient, inclusive, and sustainable economy (RISE). CAPRED interventions fall under three technical components including: Agriculture and Agro-processing; Trade, Investment and Enterprise Development and Infrastructure Development; and three Cross-Cutting components: Gender Equality, Disability and Social Inclusion (GEDSI); Climate Resilient initiatives, and policy support.

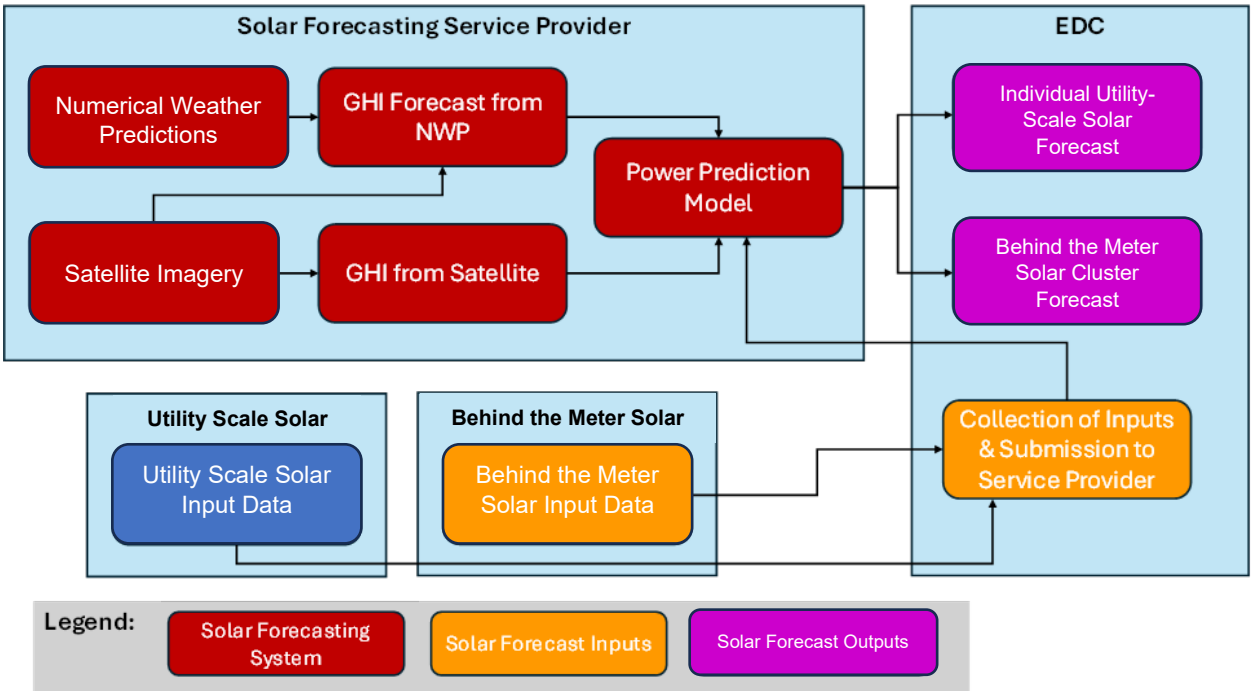
1.2. About the pilot project

Australia, through CAPRED, supports Cambodia's efforts in green energy transition. With the endorsement of the Ministry of Mines and Energy (MME), CAPRED is closely collaborating with the EDC (the public energy utility) to identify and implement a suitable weather forecast system to predict solar energy outputs.

The forecast system is aimed at supporting EDC to more accurately forecast solar energy outputs from both utility scales and behind the meter solar systems. More accurate forecasts are a key milestone for the management of Variable Renewable Energy (VRE) integration into the national grid and thus enhancing more adoption of VRE.

There are various approaches to estimate solar energy output through weather forecasts. Through a scoping study, CAPRED has identified a preferred approach (See Figure 1).

Figure 1: Preferred approach for weather forecast system for solar energy



2. Purpose

In close collaboration with EDC, CAPRED seeks to engage **three** Solar Forecasting Service Providers (SFSPs) to participate in a pilot project to demonstrate this preferred approach (See Figure 1). SFSPs are requested to respond with a technical and financial proposal for this pilot demonstration (See Section III for further details). For this pilot demonstration phase, the three highest rated SFSPs based on technical and financial propositions will be awarded contracts with CAPRED.

Through this pilot project, CAPRED and EDC will identify the SFSP that delivers the highest value for money based on forecast accuracy and cost-benefit analysis.

This pilot will cover the following key activities:

Activity 1: Forecast system testing to identify performance on prediction accuracy and cost-benefit:

- CAPRED requests for proposals from SFSPs interested in participating in this pilot and will award contracts to three SFSPs.
- The selected SFPFs perform forecasting of solar energy to be produced for 5 behind the meter clusters, and 5 utility-scale solar locations.
- SFPFs works closely with CAPRED and EDC to demonstrate the performance of their forecast services.
- Each SFPF will provide training for EDC staff on their forecast service. EDC staff must be able to understand the conceptual and technical framework of the forecast service, how to interpret the forecast data, limitations, etc.

Activity 2: Simulation of the existing energy management system with the forecast data to identify optimal operations:

- Upon receipt of the forecast data from the SFSPs, CAPRED and EDC, with support from a consulting firm, will develop a simulation model to run the forecast data with different energy management systems to:
  - Identify optimal generation energy dispatch scheduling
  - Optimise the requirements of energy reserve margins
  - Identify optimal procurement of different energy sources
  - Measure the costs and benefits of different energy management systems
- CAPRED and EDC will work closely with each SFPS to obtain data in a complete and timely manner to develop and run the simulation model.
- The consulting firm provides capacity building to relevant EDC staff to understand simulation models, interpret the simulated data, finetune the simulation model, limitations, etc.

Activity 3: Comparison of performances

- CAPRED and EDC will evaluate the technical performance of three SFPFs based on accuracy level, granularity of forecast ability, flexibility and compatibility with Cambodia's energy system, etc.
- CAPRED and EDC will conduct implementation cost comparison of different SFPFs over 5- and 10-year horizon.

Note that in activities 1 and 2, capacity building of relevant EDC staff who are going to be the main users of the forecast data is essential to ensure that they comprehensively understand the concept and process to generate the forecasted and simulated data.

3. Scope of the Pilot

3.1. Key Tasks and Activities

Three qualified SFSPs will be selected to participate in the pilot project.
Below are detailed activities to be implemented by selected SFSPs during the pilot stage:

Key Tasks and expected timeline	Detailed Activities
Introduction to the Pilot Program Within one week after signing the contract	- Selected SFSPs will be briefed on the project objectives and scope.
Communication and Data Access Within a month after signing the contract.	- Each SFSP will be provided with necessary data inputs to enable them to implement their forecast system to estimate solar energy of utility scale and behind the meter solar. - EDC will coordinate with five Independent Power Producers who operate utility scale solar in five different locations and obtain data behind the meter solar in five clusters selected to participate in this pilot program.
Forecasting Implementation Within two months after signing the contract for the period	**Backward forecast**: - SFSPs will estimate solar energy output for the past year for utility scale and behind the meter solar in five locations each. - CAPRED and EDC will compare back testing estimation with actual data. **Forward forecast**

Key Tasks and expected timeline	Detailed Activities
of three months minimum.	- SFSPs will forecast solar energy output for the selected utility scale and behind the meter solar for the period of three months. - SFSPs will provide forecast data in formats or with additional information that they think best reflects the accuracy level of their forecast. Forecast data formats include but are not limited to: • Number of days ahead, update frequency and temporal resolution • Treatment of aerosols or other elements that may affect forecast accuracy • Different levels of probabilistic forecasting parameters including P10 and P90, or P95 if available • Possible forecast scenarios - SFSPs will collaborate with CAPRED's simulation consulting firm who will use the forecast data to simulate EDC's energy management system. The simulation work is expected to run in parallel with the forward forecast work. The collaboration will include but is not limited to: • ensuring that the data provided is complete, • supporting data interpretation under different scenarios, • providing clarification where there are questions, • adjusting data format where necessary to support successful data simulation work.
Capacity Building for EDC Staff (Within three months after signing the contract, expected to be implemented in parallel with the forward forecast work or soon after)	**SFSPs will train EDC staff on**: - How the forecast system works - How to interpret forecast data for energy management - Strengths and weaknesses of different forecasting models - How the system responds to extreme weather or anomalies - Cost-benefit analysis for long-term adoption

4. Qualifications, knowledge, and experience required

Applications are open to all Cambodia/ international-based companies that meet the following criteria.

Technical qualifications:

- The company is legally registered, either in Cambodia or another jurisdiction.
- The company has a solar energy forecast system that can predict the energy output produced by the utility scale and behind the meter solar systems.
- The company has a proven track record of successfully providing the service to energy supply operators, utility scale solar operators, behind the meter solar installers, etc.
- The company can provide a full-services package including weather data collection, forecasting service for utility scales and behind the meter solar energy, and capacity building for potential users.

- The company is committed to embracing gender equality, disability, and social inclusion (GEDSI) in business management will be prioritised.
- The women-led company will be prioritised.
- The key personnel(s) assigned to the project must:
    - have strong expertise in weather forecasting, behind the meter solar energy and utilities scale systems,
    - demonstrate a good understanding of the company's solar energy forecast algorithm and can interpret and explain the outputs of the algorithm under different scenarios,
    - have good communication skills,
    - can provide capacity building or training to potential users to ensure effective interpretation and use of the forecast data for their energy operation.

Other *competencies and Compliance:*

- Demonstrating integrity and high ethical standards.
- Displaying sensitivity and adaptability to cultural, gender, religious, racial, national, and age differences.
- Fulfilling obligations to GEDSI sensitivity and maintaining a zero-tolerance policy for sexual harassment.
- Strictly complies with the DFAT and Cowater policies, guidelines, and regulation, including Child Protection Code of Conduct and policy, Code of Conducts, the PSEAH policies, Fraud and Corruption Control Policies (e.g., requiring all staff and engaged partners to report suspected non-compliant behavior), and considerations of the Value for Money for the works
- Complying with Cambodia and DFAT's policies, including climate/environmental protection safeguards policies.
- Teams with an appropriate gender balance are strongly encouraged to apply.

5. Evaluation criteria

CAPRED will use an objective and reliable process to evaluate each application. The applications will be evaluated on the following criteria (in no particular order):

- Compliance with this Request for Proposal.
- Understanding and ability to meet the qualifications, knowledge, and experience required
- The applicant's business contributes to GEDSI (gender equality, disability, and social inclusion), sustainability, and/or the environment.

6. How to Apply

The proposals including the Technical and Financial Response Forms must be submitted no later than 5pm **(Phnom Penh Time) 30 April 2025** by email to procurement@capred.org with "Pilot of solar energy forecast system" in the subject line. Any proposals submitted after this time and date will not be considered.

The program will host a Q&A session on **10 April 2025.** Interested SFSPs can register to join the briefing via procurement@capred.org by **9 April 2025. A link will be provided for those wishing to attend online.**

CAPRED is available to answer questions or provide more details on the scope of work. Please email: procurement@capred.org with "Pilot of solar energy forecast system - Enquiry" in the subject line.

Attachments:

- Technical Response Form
- Financial Response Form

Cowater International is an equal opportunity employer, basing employment on merit and qualifications as they relate to professional experience and position expectations. Cowater does not discriminate against any employee or applicant on the basis of race, religion, sex, gender identity, disability, age, or any other basis protected by law. CAPRED aims to have a diverse workforce and a workplace that is supportive of gender equality, disability, and social inclusion. Women, people with disabilities, and other minorities are highly encouraged to apply.