

Scope of Work

Demonstrating Eco-power Meters in the Commercial and Industrial Sector

BACKGROUND

As Vietnam experiences steep increases in energy demand and rising air pollution challenges, there is growing recognition that cleaner, more reliable sources of energy are needed and greater capital investment is necessary. USAID Vietnam Urban Energy Security project works closely with target cities (Da Nang and Ho Chi Minh City - HCMC) to improve enabling frameworks, mobilize investment, and increase the adoption of innovative solutions for advanced, distributed energy.

The overall goal of the project is “advanced, distributed energy solutions deployed to improve urban energy resilience and energy security” in Vietnam. At its completion, USAID Vietnam Urban Energy Security must achieve the following high-level expected results:

1. At least 400 megawatts (MW) of advanced, distributed energy systems deployed in the selected cities.
2. At least \$600 million in public and private investment mobilized for advanced, distributed urban energy systems.
3. At least 20 innovative solutions to address urban energy and environment issues demonstrated and/or commercialized.

In recent years, electricity demand in Vietnam has been increasing at an annual rate of around 10% while electricity demand in the industrial sector has been growing at 11%, and the commercial sector at 12%¹. With 54% of overall electricity consumption by the industrial sector and 6% by the commercial sector, the Commercial and Industrial (C&I) sector represent the largest energy consumer in Vietnam.

To promote implementation of the energy efficiency and conservation (EE&C) law, in 2019 the Government of Vietnam (GVN) approved the Vietnam National Energy Efficiency Plan 2019 – 2030 (VNEEP3). VNEEP3 proposes a range of ambitions, including a reduction in consumption by intensive energy consuming sector; 100% designated energy users (DEUs) set up energy management system (EnMS), the establishment and piloting of an Energy Efficiency Fund; a demonstration of financing mobilization, the certification of Energy Efficient solutions; operationalizing the energy service company (ESCO) model; promoting the adoption of energy efficient solutions in the industrial sector; increasing awareness of energy issues and capacity building. In response to VNEEP3, cities including Da Nang have developed their own Energy Efficiency Action Plans (EEAP) with defined activities and energy efficiency targets.

Based on a technical review, the USAID Vietnam Urban Energy Security (the Project) Technical team has identified a number of innovative solutions that could potentially contribute to achieving energy efficiency targets if scaled in Vietnam.

The Eco-power meter aims to maximize energy efficiency through visualizing energy consumption. It is a systematic energy management system with the goal of improving energy efficiency through a reduction in use and cost of energy, and greenhouse gas emissions. Eco-power meters can be installed in lighting equipment, air conditioners, and production equipment in facilities such as buildings, industrial zones, shopping malls, schools, hospitals etc. to measure power consumption. Afterwards, with specific targets in place, the implementation and management of an energy savings plan is quick and simple. Visualizing

¹ Vietnam Annual Energy Report, MoIT, 2019

progress towards targets improves the energy usage cycle and allows for changes to be made to maximize efficiency.

The Eco-power meter measures energy usage on up to 99 different devices and at intervals from anywhere between 1 second and 60 minutes. The data can then be uploaded to a server and is accessible via PC when required, allowing for easy analysis, visualization, and the development of an energy savings plan.

In Vietnam, there are many general meter suppliers; however, the Eco-power meter is innovative in that it sends information back to the supplier. It also provides a useful service to the customer by generating electricity usage reports, presenting data in graphs, raising alarms when electricity consumption is reaching a defined threshold, etc. The belief is that this innovative solution can save on energy consumption and therefore costs, but scaling of the solution has been slow due to:

- a need to further demonstrate the solution in appropriate C&I facilities;
- a need to further document evidence of the solution's costs and benefits;
- a lack of clarity by enterprises/ facilities (customers) about the potential energy and cost savings generated by the solution;
- a lack of understanding by customers that the Eco-Power meter can help them comply with the EEAP, which states 100% of enterprises should have an Energy Management System;
- lack of business models (e.g., Energy Performance Contracts/ESCO models); and
- limited marketing and sale skills by suppliers to approach C&I facilities in Da Nang and HCMC.

To support the implementation of city Energy Efficiency Action Plans (EEAPs) and achieve associated energy efficiency targets in both cities, the Project seeks a service provider to demonstrate this innovation at a suitable location in Da Nang or HCMC, preferably the former.

OBJECTIVES

The objective is to demonstrate the Eco-power meter, to document achievements and challenges and to share findings. The solution will be demonstrated in one location in either Da Nang or HCMC, preferably the former, that is representative of other potential sites.

The demonstration aims to:

- show that Eco-power meters can result in energy savings;
- outline the steps involved for suppliers, detailing the challenges and how to overcome them.

The implementation process, lessons, achievements, and challenges will be documented through 1) an independent Monitoring, Evaluation and Learning service provider, as well as 2) progress and final reports prepared by the supplier.

The supplier will work with the Project team to share findings with appropriate stakeholders, including local authorities and potential customers. If the innovation is deemed to be appropriate for scaling and commercialization, then Project staff will lead this through a separate process.

ANTICIPATED ACTIVITIES

The selected firm will carry out the following activities:

- Through desk research, on-site data collection and analysis, develop a list (minimum three) of appropriate C&I facilities in which the solution could be applicable. This will be conducted with the concurrence of the Project and findings will be presented in a report format.

- Select one site in either Da Nang or HCMC, preferably the former, where the solution will be demonstrated and agree terms and conditions with owner of the site. The final site location should:
 - be representative of other locations (e.g. DEUs) that are likely to benefit from the solution in the future;
 - be capable of achieving energy savings through the demonstration.
- Develop a technical proposal with cost/benefit analysis toward Energy Performance Contract (EPC) model or appropriate models.
- Complete commissioning the solution with the owner of the demonstration site.
- Document lessons and results, including successes and challenges.
- Monitor and report against a set of key performance indicators related to energy savings (indicators to be agreed in a Monitoring & Evaluation plan with the Project).
- Support the Project to share the findings of the demonstration with relevant stakeholders through a limited number of workshops and exchange visits. Stakeholders are likely to include GVN and local government representatives, potential customers of the technology, Vietnam Energy Efficiency Program (VNEEP) and Departments of Industry and Trade (DOITs) from Da Nang and HCMC.
- On an as-needed basis, provide inputs to the preparation of communications materials developed by the Project team.

TARGET BENEFICIARIES

The demonstration aims to directly benefit C&I facilities in cities that intensively consume energy, for example at least 300 tons of oil equivalent (TOE) per year.

If proven to be a viable solution for scaling/ commercialization then the target cities will benefit: adopters in the C&I sector will achieve greater energy efficiency and will contribute to achieving City EEAP targets.

EXPECTED TIMELINE AND DELIVERABLES

Implementation is expected to start in August 2021, for a maximum period of up to six months. The offeror should propose a timeline and sequence of activities that aligns with the proposed technical approach. Deliverables will include:

- A report documenting the results/ analysis of survey findings (related to identification of potential demonstration site(s)).
- A clear agreement, detailing the terms and conditions with the owner of the demonstration site.
- The installation and commissioning at one appropriate location.
- Bi-monthly progress narrative and financial progress reports as per an agreed template and in English (number and timing of reports to be agreed with the Project).
- Completion report documenting activities, successes, lessons as per an agreed template, and in English.
- A guide / manual (in English and Vietnamese) for suppliers (and their agents) to promote and scale the technology in the future. This manual will detail the steps involved, the challenges and ways to resolve these challenges (based on experience with the demonstration).