



USAID Vietnam Urban Energy Security

Scope of Work

Demonstrating a Business Model for Electric Bicycles Rental

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 (the Project) works closely with target cities (Danang 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, the Project expects to achieve the following high-level 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.

To achieve the third high-level expected result, the Project is implementing a range of activities: innovative pilots/ demonstrations are being funded through a competitive Innovation Challenge Fund (ICF); innovative solutions are being identified and piloted/ demonstrated outside the ICF process through discussions with city-level private and government stakeholders and research by the Project’s technical team; and selected innovators will receive tailored support to scale and/ or commercialize.

Innovators registered in Vietnam with solutions in the form of new technologies, practices, and business or financing models are being supported through the above activities. Solutions fall within the following categories: transportation, building efficiency, electricity generation, electricity delivery and management, and water efficiency. They must be piloted/ demonstrated in Danang and/ or HCMC.

ELECTRIC BICYCLES – THE POTENTIAL

The transport sector is the largest polluter in Vietnam. It represents 80.47% of all greenhouse gas (GHG) emissions. Transitioning the sector to a much greater reliance on green energy is crucial if the country is to achieve green growth goals such as net zero emissions by 2050, as committed to during COP26. The Government issued the Directive No. 03/CT-TTg on enhancing air pollution control in January 2021. This Directive requires many government agencies to take actions and establish collaborations to control air pollution and reduce its impact on the environment and on the population’s health. To this end, the Ministry of Transport is required to create national programs on the development of environmentally friendly transport modes, including electric vehicles, and on the encouragement of their use.

There are approximately 46 million motorbikes on Vietnam’s roads, with around 5.14 million motorbikes being registered annually between 2014-2020. Electrification of two-wheelers is a promising

approach to reducing two-wheelers' emissions. In addition, the number of electric two-wheelers (e2Ws) in the country is on the rise. In 2020, e2Ws accounted for 8.3% of total two-wheeler sales compared to 4.9% in 2019, demonstrating momentum for electrification of the two-wheeler fleet in the country. Shifting from internal combustion engine (ICE) two-wheelers to e2Ws could also play an essential role in cutting GHG emissions, reducing air and noise pollution, mitigating climate change effects, meeting the net-zero emission target by 2050, and building a more sustainable transport system in Vietnam.

The term “two-wheelers” in Vietnam commonly refers to bicycles and motorcycles. As defined in Circular No. 66/2015/TT-BGTVT, electric bicycles are two-wheeled bicycles operated with an electric motor or with a pedal mechanism assisted by an electric motor, with maximum motor power of 250 W, maximum design speed (when operated by electric motor) of 25 km/h, and maximum vehicle weight (including the battery) of 40 kg. The demand for electric bicycles is increasing in urban areas for transport over relatively short distances and for exercise. Electric bicycles may also be of interest to the tourism sector e.g. hotels or companies offering short-term bicycle rentals in tourist locations. As cycling becomes more popular in Vietnam, the market potential for E-bicycles will increase.

Electric bicycles are an environmentally friendly transportation because they are being powered by lithium batteries, which have a longer life, are lighter and reduce emissions. Electric bicycles are being developed continuously which helps to control their performance easily and effectively. The ride becomes extremely comfortable and safe for riders, allowing them to feel they are on a normal bicycle.

The belief is that the demonstration of a business model for e-bike is an innovative solution and it can offer an alternative means of clean transport for city dwellers and tourists and can reduce the use of fossil fuels and emissions, but scaling has been slow because:

- There is a need to demonstrate the solution to assess its performance, for example in relation to the E-bicycles' durability and the performance of the battery and smart application for better management and more convenience for customers.
- There is a need to further document evidence of the solution's cost and benefit for e-bike business model (business to customer – B2C, business to business - B2B).
- There is a need to showcase/ demonstrate and promote the solution for the market.

To support HCMC and Danang achieve their energy efficiency targets, the Project seeks an offeror to demonstrate this innovative solution in HCMC or Danang.

OBJECTIVES

The Project seeks an offeror to demonstrate a business model for rental of Electric Bicycles.

The demonstration will comprise rental stations in either Danang and/ or HCMC at appropriate locations, with 100 e-bicycles for rent. The locations are likely to be in tourist spots and/ or areas with the potential for rentals, either short (hourly) or long term (e.g. weekly, monthly). These locations shall be representative of other locations where the solution could be rolled out in the future.

The demonstration will be of interest to multiple stakeholders including local government and the private sector e.g. organizations potentially interested in buying and then renting the E-bicycles. The demonstration of the solution aims to:

- Demonstrate that E-bicycle is an attractive form of transport for tourists and/or for city dwellers seeking an alternative form of transport (either for short term or longer-term use).
- Demonstrate that the solution (bicycle, battery, App, management software) works effectively.

- Demonstrate that the business model B2C (Business to Customer) and/or B2B (Business to Business) is workable.
- Demonstrate that rental stations can attract sufficient customers to represent a good investment.

Performance of the E-bicycles, management software(s) and app for end users will be tested. The implementation process, the business model, lessons, achievements, and challenges will be documented. The findings will be shared with appropriate stakeholders, including local authorities and potential customers. If the innovation is deemed to be appropriate for scaling and commercialization, the Project will support this through a separate process.

ANTICIPATED ACTIVITIES

The selected offeror is expected to carry out the following activities:

- Through research (desk research, in-person visits, meetings with site owners), develop a list of potential sites (minimum of five) in either Danang and/or HCMC.
- Based on the proposed list, select a potential site either in Danang and/or HCMC where the solution will be demonstrated, and agree terms and conditions with the site owners.
- Develop a technical proposal (see 'deliverables' for details)
- Demonstrate E-bicycles for rent and develop management software(s) and an app for end users that is integrated with smart phones.
- Advertise E-bicycle services on offer at the demonstration sites e.g. by targeting tourists and tourism companies.
- Collect data, monitor and report against a set of key performance indicators e.g. related to rental income and costs, emissions saved, performance of the technology etc. The indicators will be agreed with the Project and will be reflected in a Monitoring & Evaluation plan.
- Document lessons and results, including successes and challenges.
- Support the Project's independent MEL firm¹ and share information with the Project to document the implementation process, lessons, achievements, and challenges. Prepare progress and final reports.
- Support the Project to share the findings of the demonstration with relevant stakeholders e.g. by featuring in promotional materials and attending a number of workshops and exchange visits. Stakeholders at workshops are likely to include USAID, GVN, DOT and DOITs, and potential customers of the technology from HCMC and Danang.
- On an as-needed basis, provide inputs to the preparation of communications materials developed by the Project team, and organize site visits for high-level stakeholders and at the request of the Project.

TARGET BENEFICIARIES

The demonstration aims to benefit the following stakeholders:

- Department of Transport – mandated with promoting and finding alternative, clean transport options for citizens.
- Department of Industry and Trade – mandated with reducing city emissions.

¹ |) an independent Monitoring, Evaluation and Learning service provider



- Potential companies interested in renting E-bicycles.
- Tourists and urban citizens looking for affordable, environmentally friendly transportation options.

EXPECTED TIMELINE AND DELIVERABLES

Implementation is expected to start in May 2023, for a maximum period of up to six (6) months subject to the Project extension by USAID. The offeror should propose a timeline and sequence of activities that aligns with their proposed technical approach. Deliverables will include:

- A report documenting the results/ analysis of survey findings related to identification of potential demonstration sites.
- A technical proposal that includes an executive summary, a need statement, i.e. what is the issue being addressed and why it matters, activities, methodology and expected outcomes i.e. financial of business model (IRR, NPV over 5 years), energy savings, emissions reductions; evaluation plan; and budget.
- A clear agreement detailing the terms and conditions with the site owners (and city authority, if any and if required) of the demonstration site (including but not limited to a description of the demonstration, the demonstration activities with tentative implementation timeline).
- At least 100 E-bicycles deployed for rent, an app for end users that is integrated with smart phones having functions such as activate/lock/GPS tracking, payment and operation instructions (in English and Vietnamese), etc. and management software(s) to demonstrate the business model (B2C and/or B2B).
- Bi-monthly progress narrative and financial progress reports as per an agreed template (number and timing of reports to be agreed with the Project).
- A completion report documenting activities, business model analysis, successes, lessons as per an agreed template.

All documents will be in English. If the agreement with the owners (and city authority, if any) of the demonstration site is in Vietnamese, the main body of the agreement must be translated into English.