

Piloting Energy Efficiency and Solar Micro Grid for Cambodia's Clean Energy Future.

Background and objectives

The Ministry of Mines and Energy (MME) is implementing a project entitled “Piloting Energy Efficiency and Solar Micro Grids for Cambodia's Clean Energy Future” funded by the Cambodia Climate Change Alliance - Phase 3 (CCCA-3), a multi-donor initiative funded by the European Union, Sweden and UNDP with a comprehensive and innovative approach to address climate change in Cambodia. The project supports the implementation of Cambodia's climate change response, contributing to a greener, low carbon, climate-resilient, equitable, sustainable and knowledge-based society. It is two-year project with addressing the issue of carbon emissions from increasing energy consumption growth in Cambodia. The first project's key element in addressing the energy demand growth is through the promotion of energy efficiency and conservation in public buildings. The other component focuses on the energy access by piloting a new clean energy model through solar DC or AC microgrid for electrification in remote areas of the country.

The **overall objective** is to showcase the feasibility of energy efficiency and building energy management in the government building (Phnom Penh) and pilot sustainable operation model of solar micro-grid in one remote village. The specific objective is to contribute to the implementation of the Cambodia Climate Change Strategic Plan 2014-2023.

Outcome:

- Outcome 1: Building Energy Management (BEM) is piloted.
- Outcome 2: Pilot sustainable operation model for Solar Micro-grids
- Outcome 3: Dissemination of results and policy recommendations

Approaches and technology used

The **qualitative and quantitative** approaches will be used to achieved the project outcome including the pilot energy efficiency in Government building and another is the pilot solar DC or AC microgrid for the remote village.

Qualitative approach:

- Observation
- Interview
- Surveys
- Monitoring
- Secondary research
- Capacity building (Training, workshop, seminar, and etc.)
- Consultations with MME , EAC and other relevant stakeholders

Quantitative approach:

- Walk-through audit
- Designing Solar DC or AC micro-grid
- Installation of a smart energy monitoring system
- Site assessment

Results

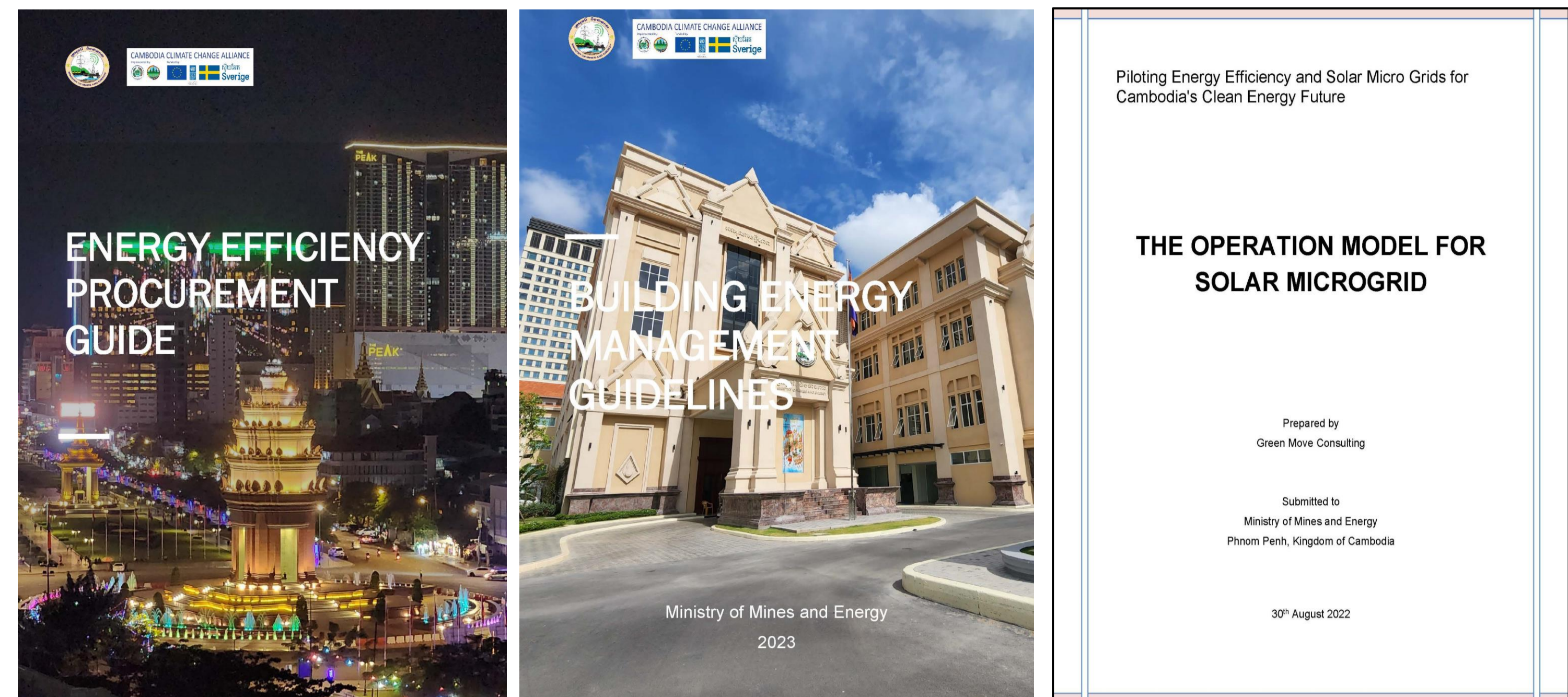


Figure 1: EE Procurement Guide, Building Energy Management Guideline, Operational Model for Solar Micro grid.

No.	Description	Quantity
1	Total Households	85 HHs
2	Total Villager	537 People (Woman = 281)
3	Total Poor family	61 Families



Figure 2: Solar Micro grid system with total installed capacity 48 KWp and Battery capacity 150 KWh at Koh Kantheay Village, Prek Dach Commune, Leuk Daek District, Kandal Province.

Scale up plan

A. Scale-Up Action Plan for Energy Efficiency in Government Buildings

Objective: To expand the successful energy efficiency practices in government buildings to additional regions in Cambodia, promoting sustainability and reducing energy consumption. There are few activities to be expand such as: 1. Knowledge and Experience Sharing; 2. Monitoring and Evaluation Framework, 3. Sustainability Planning, 4. Stakeholder Engagement Strategy, 5. Dissemination and Awareness Campaign and 6. Capacity Building and Trainings.

B. Scale-Up Action Plan for Solar Microgrid Systems

Objective: To replicate the successful implementation of solar microgrid systems in additional rural areas in Cambodia, increasing access to clean and reliable energy. There are few activities to be expand such as: 1. Feasibility Study, Site Assessment and Selection for Solar Micro Grids System Replicating, 2. Replication Strategy through Stakeholder Collaboration and Engagement, 3. Community Engagement, 4. Infrastructure and Equipment Procurement, 5. Replication and Scaling, Installation and Commissioning, 6. Capacity Building, 7. Monitoring and Evaluation and 8. Sustainability Planning.