

2.2.11 Possible Complications/ Challenges

Residents have limited interest in paying huge amounts of money for the insulation of heat meters in their buildings. When the heating expenditure is calculated based on the area of the apartment, heating costs will not decrease as a result of better insulation.

Precast panel buildings are all privatized. Even though the residents have interest in insulating their buildings, they do not have the financial resources to pay for the investment cost. Public financing is also difficult. Insulation of these old precast panel buildings is very expensive requiring huge amount of capital expenditures.

2.2.12 Responsibilities and Coordination

The city government could manage the implementation of the project coordinating with international financial organizations, government and private companies

2.3 Replacement of 500000 incandescent light bulbs by energy-efficient compact fluorescent lamps in urban households

2.3.1 Introduction / Background

The efficiency of electricity use in the residential and commercial sector is still low. One prioritized technology for the residential and commercial sector is promoting the use of energy-efficient compact fluorescent lamps (CFL) to replace inefficient incandescent light bulbs (ILB). CFLs provide the same level of illumination as an incandescent lamp but use roughly 70% less electricity. Although CFLs are more expensive than ILBs, they are more economical on a life-cycle basis due to savings in electricity costs. Currently, most households and about 30% of service and commercial buildings use incandescent bulb lamps and the rest use fluorescent bulbs

The first phase implementation plan of the National Action Program on Climate Change approved by the government committed to limit incandescent light bulb usage during the period 2012-2016.

The Mongolia Nationally Appropriated Mitigation Actions (NAMA) to the UNFCCC secretariat also includes measures such as lighting efficiency in buildings.

2.3.2 Objectives

The objective of this project is:

- To promote reduction of electricity consumption for lighting of by replacing incandescent light bulb by energy efficient CFL lamps.
- To reduce the peak demand of central grid.

2.3.3 What are the outputs and are they measurable?

- Changing 500000 incandescent light bulbs (ILB) by compact fluorescent lamp (CFL);
- Reduction of the peak demand for central grid by 40 MW;
- Reduction of CO2 emissions by 90,000 tons/year.

2.3.4 Relationship to the country's sustainable development priorities

- Reduce coal consumption in power and heat plants
- Increase reliability of the country's energy supply
- Introduce advanced technologies in the residential sector
- Reduce the negative impact of energy on the environment.
- Reduce greenhouse gas emissions from the energy sector
- Reduced air pollutions in cities
- Increase the disposable financial income of the residents

2.3.5 Project Deliverables

Main deliverables are replacing 500000 incandescent light bulbs (ILB) by compact fluorescent lamp (CFL) in urban households mostly in Ulaanbaatar.

2.3.6 Project scope and possible implementation

The project covers the area of rural households of Ulaanbaatar and Darkhan cities.

2.3.7 Project activities

- To conduct pre-feasibility study on the implementation of efficient lighting technology;
- To design implementation scheme for efficient lighting technology in urban household
- To prepare project design document for reduction of CO₂ emissions
- To call for tenders for implementation of efficient lighting technology;
- To contract an investor that will implement the efficient lighting technology;
- To implement the efficient lighting technology

2.3.8 Project Timeline

The time line for changing 500000 incandescent light bulbs (ILB) by compact fluorescent lamp (CFL) is 3 years starting from 2015.

- To change 100000 ILB by CFL in 2015
- To change 200000 ILB by CFL in 2016
- To change 200000 ILB by CFL in 2017

2.3.9 Budget/Resource requirements

The total requested budget for implementing this project is 2.5 million USD.

The project can be implemented by domestic or international funding sources.

2.3.10 Measurement/Evaluation

The main output is the reduction of electricity consumption in household sector. These outputs will be measured by the electricity meters installed in households and reflected in the electricity balance distributed from Ulaanbaatar electricity Distribution company.

The proposed project can reduce greenhouse gas emissions by avoiding CO₂ emissions from electricity generation by fossil fuel power plants that supply the Central Energy System of Mongolia. The CO₂ emission reductions will be determined, not measured, based on UNFCCC CDM Methodologies and available Grid Emission Factor developed already for central grid of Mongolia.

The reduction of peak demand will be measured at by power meter at the National Dispatching Center.

2.3.11 Possible Complications/Challenges

The possible complications/challenges for implementation of the efficient lighting technology are:

- low electricity tariff;
- lack of management for implementation of the technology
- low quality of CFLs have entered the Mongolian market;
- lack of awareness of energy efficient lighting;
- lack of legal regulation to implement energy efficient technology.

2.3.12 Responsibilities and Coordination

The project can be implemented through encouraging consumers to switch from incandescent bulbs to more energy efficient CFL lamps by providing them with some incentives originated by the Certified Emission Reductions (CERs) revenue through registering the project as a Clean Development Mechanism Project. The proposed project can reduce greenhouse gas emissions by avoiding CO₂ emissions from electricity generation by fossil fuel power plants that supply the Central Energy System of Mongolia. Most of the CER revenue acquired by this project activity can be designed to be distributed to CFLs buyers in the form of economic incentive.