

2.2 Action Plan for Efficient lighting

2.2.1 Description of the technology

Compact Fluorescent Lamp (CFL) technology provides an energy efficient lighting service through using a compact fluorescent light bulb to replace the normal incandescent light bulb (ILB). Still, there is different sorts of CFLs, from ordinary incandescent tungsten filament bulbs to Tungsten Halogen, Halogen infrared reflecting, Mercury vapor lamps, Compact fluorescent lamps, linear fluorescent, metal halide, compact metal halide, high pressure sodium (High Intensity Discharge lamp) and Light Emitting Diodes.

The higher up-front cost could be a barrier for their implementation, but calculations show that CFLs pay back the initial investment within 900 hours of operation and also contribute to a reduction in the electricity bill over the lifetime of the bulb. The savings can be in the order of 10-20 times the initial cost over the life of the bulb (<http://climatetechwiki.org/technology/cfl>).

Significant energy savings will help to free up energy resources that can be spent on other national, social and human development goals.

The lighting service improvement technology can reduce electricity generation in power plants and save a significant amount of fossil fuels for electricity generation and for transport of coal from coal mines to power plants.

The lighting service improvement technology can reduce air pollution in big cities.

2.2.2 Target for technology transfer and diffusion

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.

After stakeholder consultation, it is assumed that by 2020, 60% of the households in Ulaanbaatar will be supplied by CFLs as the preliminary target of efficient lighting technology transfer and diffusion.

2.2.3 Barriers to the technology's diffusion

Table 74 : Barriers to the technology's diffusion

Key barriers identified		Enabling measures
Category	Barriers	
Economic and financial	Inappropriate financial incentives	It is important to increase electricity tariffs and implement measures to eliminate the outdated technology in the market. The Government should continue the planned energy pricing reform. The tariff level should be high enough to cover the electricity supply cost and the cross subsidies should be removed.
	High capital cost	The Government should examine the possibilities of introducing tax incentives for energy efficiency projects. The Government should continue its efforts in attracting Clean Development Mechanism (CDM) financing for energy efficiency projects including efficient lighting technology.
Policy, legal and regulatory	Insufficient legal and regulatory framework	Need legal environment for implementation of policies on energy efficiency. The Government should finalise the Energy Conservation Law as soon as possible. Enforcement of the Energy Conservation Law should send a strong signal to energy stakeholders and the wider public about the importance of energy efficiency. The Government should reinforce cooperation with all relevant Governmental institutions and other stakeholders in drafting the Energy Conservation Law. Upon the adoption of the Energy Conservation Law the Government should proceed with the development of secondary legislation and regulations in different sectors, in close cooperation with relevant actors
Technical	Product no reliable	Special attention should be given for importing energy efficient equipment which meets specific quality standard. Quality standards should be approved and strictly enforced
Institutional and organizational capacity	Lack of specialized ESCOs	It is important to establish the planning level and operational level Energy Service Companies (ESCOs). One of the assignments for the high level decision makers is to organise a knowledge base by compiling information regarding energy efficiency projects (including donor financed projects), including lessons learned. This could assist the Government in developing a strategy and prioritising future donor financing of energy efficiency projects.
Information and awareness	Lack of awareness about climate technologies	Cooperation between the Ministry for Energy and other relevant Governmental institutions should be enhanced. Cooperation with other actors such as NGOs, donor organisations, and private actors should also be improved. The Government should promote energy efficiency awareness raising and training for Government officials and the wider public at local, regional and national level.

2.2.4 Proposed action plans for efficient lighting

Table 75: Proposed action plans for efficient lighting

Measures	Actions	Why need to take these actions?	Responsible organization	Time frame	Expected budget, 1000USD	How can be fund
Policy, legal and regulatory, institutional measures						
Law on energy efficiency and energy conservation	To issue law on energy efficiency and energy conservation	There is no legal regulation on energy efficiency and conservation	Government, Ministry of Energy	1 year	30.0	State budget
R&D centers/ESCOs	Establish R&D centers/ESCOs including hardware, personnel and programs	There is no ESCO for implementation of energy efficiency measures	Government, Ministry of Energy	2 years	10000	State budget/ donor support
Economic and financial measures						
Increase electricity tariff	to increase electricity tariffs for consumers	The tariff should cover the level of electricity prices and the cross subsidies should be removed	Energy regulatory committee	1 year	No need	-
Tax incentives	To exempt custom duties and taxes for efficient electric lighting devices	There is no tax exemption for energy efficient technologies. Recently, the custom tax is 5%, VAT- 10%.	Government Ministry of Economic Development; Ministry of Finance	2 year	No need	-
Technical						
Quality standard	To issue quality standard for electric lighting	To prevent the outdated electric lighting technology in the market	Mongolian Agency for Standardization and Metrology	1.5 year	50.0	State budget
Network						
Network vendors and NGOs with R&D for awareness raising and service quality improvement	Initiate free consulting service	Improve awareness and service quality of sellers and installers	State agencies and international financial organizations	2 year	100.0	State budget