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Related documents: CC 401, CC 407
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**DECISION OF THE ENERGY CHARTER CONFERENCE**

**Subject:      Recommendations on the In-depth Review of Energy Efficiency Policies and Programmes of Mongolia**

The summary and the recommendation on the In-Depth Energy Efficiency Review of Mongolia, circulated to the Delegations as document CC 401, were presented to the Energy Charter Conference by the Secretariat's Director for Energy Efficiency and Investment and by the Mongolian Delegation.

[The Conference at its 21<sup>st</sup> Meeting held on 24<sup>th</sup> November 2010] *adopted* the Recommendation on the In-Depth Energy Efficiency Review of Mongolia, proposed by the PEEREA Working Group, as contained in document CC 401. [The text of the recommendations is attached at Annex.]

Keywords:      In-depth Review of Energy Efficiency Policies and Programmes, PEEREA, Recommendations, Mongolia

## **Executive summary and recommendations on the In-depth Review of the Energy Efficiency Policy of Mongolia, 2010**

as adopted by the Energy Charter Conference  
at its 21<sup>st</sup> Meeting on 24<sup>th</sup> November 2010

### **Background**

Mongolia has ratified the Energy Charter Treaty (ECT) and the Protocol on Energy Efficiency and Related Environmental Aspects (PEEREA) in 1999. In fulfilling its commitments under PEEREA Mongolia has presented a regular review of its energy efficiency policies in 2003. The current in-depth energy efficiency review is first for the country.

Mongolia is a landlocked country in the North-East of Asia between Russia and China. With some 2.6 million people and a population density of 1.6 inhabitants per square kilometre, it is one of the most sparsely inhabited countries in the world. Mongolia is characterised by harsh natural conditions. During the eight-month winter season temperatures range between minus 20 °C and minus 40 °C. Nowadays 60% of the population live in urban areas. Cities and settlements have expanded. The population of Ulaanbaatar has nearly doubled since 1995, and the city is now home to more than one million inhabitants (about 40% of the country population). This has contributed to serious transportation problems and sharp increase of energy demand with a tendency of further growth. As a result, air pollution in Ulaanbaatar, one of the coldest capitals in the world, has become extremely severe, reaching about seven times World Health Organization target values in the most polluted parts of the city in winter time.

Among transition economies, and more broadly among lower gross domestic product (GDP) per capita countries, Mongolia has achieved remarkable progress in setting the foundations for a democratic, open-market economy. Since 1990, the country has implemented broad economic and political reforms with a programme of privatisation, trade and investment liberalisation. Today, Mongolia's private sector produces more than 70 percent of the country's total output. GDP growth averaged nearly 5 % per year in the period 2000-2004 and has increased up to 9.2 % annually during 2005-08. In 2009 the sustained period of rapid economic growth, driven by high mineral prices and strong global demand, gave way to an abrupt and steep downturn in Mongolia's economy. Mongolia has emerged as one of the East Asian countries hardest hit by the global economic crisis.

Mongolia's energy needs are met mainly by domestic generation in seven coal fired power plants, thirteen hydro power plants and small size solar and diesel generators. About 13% of the electricity – mostly peak demand - is imported from Russia. With the high increase of the final energy consumption in the recent years and the projections for further increase, there are expectations that the future electricity demand will not be met with the existing generation capacity. Mongolia is 100% dependent on imported petroleum products.

The transition period until 1995 is characterised by significant decrease of energy supply and final consumption in the country, followed by a period of modest increase of the supply and demand levels till 2005 (ranging 1.8 – 2.4 % annually) with a more accelerated rise reaching 8.9% annual increase of final consumption for the period 2005-2008. Some

estimations show that by the end of 2010 the levels of final energy consumption from 1990 will be reached and government expectations are that they will continue to increase by 4% per annum.

Because of the long winter and winter temperatures which routinely fall below minus 20°C to minus 40 °C, heat access is a matter of human survival for Mongolia's citizens. There are three main sources of space heating in Mongolia:

- (i) combined heat and power plants, which provide electricity, heat, and hot water to the urban centres in Ulaanbaatar and a few other cities
- (ii) heat-only boilers, which meet the heating and hot water needs of a small central network of several buildings, and
- (iii) individual heat stoves, which burn coal and/or wood to meet residential heating needs in ger areas.

### **Energy and energy efficiency policy**

The Energy Law of Mongolia came into force on 1 February 2001 and provided the legal framework to allow the energy sector to be restructured from being centrally planned to market-based. This law authorized the creation of an independent energy regulator and gives powers and responsibilities to key institutions involved in managing and operating the energy sector.

Mongolia's Strategy for Sustainable Development of the Energy Sector 2002-10 has been approved by the cabinet in July 2002 and revised in 2004. The aims of the Strategy include: sustainable development of the energy sector, reduced poverty and increased involvement of the private sector and public interest in the sector through a more secure energy supply. Moreover, Mongolia's energy sector should be developed within the regional energy context, while at the same time taking advantage of new technologies and sources of energy that might further promote economic efficiency and environmental sustainability.

Mongolia's energy sector has overcome a transition from a centralised, command-based system to a market-oriented one. Currently, within the Central Energy System (CES), electricity is traded through the main market – the “single buyer model” (SBM) – and two other accompanying markets: spot and competitive

Since 2001, regulated energy tariffs have been increased 5 times, but they are still heavily subsidised with current level of subsidies for the end use price 72 % on average for residential users and 58% for industrial consumers. However, there is general understanding among officials of the need to continue gradually to remove subsidies and the end-user price for electricity should be increased to reach level of 8 US cents/kWh in 2013, which ought to be cost-covering for electricity generators. After reaching cost-recovery tariffs, cross subsidies currently existing between industry and residential tariffs are planned to be removed. Other forms of subsidy are debt repayment waivers or deferrals granted by the Government to various energy sector companies.

Currently, there are no formally adopted energy efficiency priorities and policies by the Mongolian government. Two draft laws on energy efficiency were prepared in 2003, one by the former Ministry of Infrastructure, another one by the United States Agency for International Development (USAID) consultants. The Ministry's draft was discussed at the cabinet, but was not endorsed for submission to parliament. No progress was made from 2003 till recently for the development and approval of energy efficiency legislation,

probably due to frequent changes of governments and restructuring of Ministries and low priority given to energy efficiency activities.

In July 2010 with the financial support of Asian Development Bank (ADB) the development of a new Draft Energy Conservation Law has been initiated as well as the development of a Medium and Long term Energy Efficiency Action Plan for Mongolia. Both documents are supposed to be finalised by November 2010 and submitted to government and Parliament for approval in the beginning of 2011.

The current Building Law, Housing Law, and Urban Planning Law of Mongolia provide the necessary legal basis for the updating of the Mongolian building code energy efficiency provisions systems and in 2010 in the framework of the Building Energy Efficiency Project, **BNbD 23-02-2009 “Buildings Thermal Performance”** was developed and adopted.

There is no agency in the country formally mandated to develop and implement the national and sectoral energy efficiency policies and programs. Different Ministries and some other organisations are involved in a number of activities, but very often the activities between different stakeholders are not coordinated and no information is available for what has been already been initiated or implemented in certain areas.

Major sources of financing of energy efficiency activities in Mongolia are provided through international co-operation with a number of multilateral institutions such as the World Bank (WB), ADB, the European Union (EU) and the United Nations Development Programme (UNDP), as well as with foreign partners as the USAID, the Japan International Cooperation Agency (JICA), the German, Norwegian and other Governments. Mongolian government participates with co-financing (including in-kind) in a number of projects, but there is no national budget allocated so far for energy efficiency activities.

### **Renewable energy policy**

Mongolia has very high solar radiation values as well as, in places, good water and wind-power resources. High comparative costs in energy supply, an extremely low population density and excellent renewable energy resources all translate into a high potential for utilising renewable energies.

In June 2005, the Mongolian Parliament approved the National Renewable Energy Program which sets ambitious goals for broad-based renewable energy development increasing the share of renewable energy in total energy supply from 0.9% in 2005 to 3-5% by 2010 and to 20-25% by 2020.

The Renewable Energy Law of Mongolia came into force on 11 January 2007 and regulates the generation and supply of energy from renewable energy sources. The Law also sets out the tariffs for energy generated and delivered from renewable energy sources, which are valid for a period of minimum 10 years from entry into force of the Law.

The Government is seeking active engagements of donors and local and foreign private investors for the development of Mongolia's large renewable potential for utilizing solar, wind, hydro and geothermal energy resources.

## **Overall assessment of progress**

Mongolia is facing many challenges: modernising a Soviet-legacy infrastructure, many characteristics of developing countries including scarce financial resources, poverty, internal migration, a sizeable portion of the population relying on agriculture, a harsh climate (which induces large heating demand, but occasionally also decimates livestock), a land-locked and remote location. At the same time, it is blessed with abundant energy (coal) and mineral resources; it succeeded in establishing a stable democracy and consensual political culture, a favourable climate for foreign direct investments (FDI) and indigenous private entrepreneurs, and can boast well-educated professionals in Government and private business.

GDP and energy demand have displayed robust growth rates for many years. Adequate energy supplies – in existing consuming centres such as Ulaanbaatar and other towns and mines, but also for new mining projects – is a constant preoccupation for the Government. In this context, it is not surprising – and no exclusive attribute of Mongolian planners - that the Government tends to favour new power plants, largely based on domestic coal, but also renewables, over further efficiency projects. Nonetheless, efforts to promote energy efficiency, e.g. through building regulation or through an Energy Conservation Law in the making, are highly laudable.

Existing facilities (power and heat plants and networks) have been rehabilitated over the last two decades mostly with donor moneys. While there still remains a large potential for additional efficiency gains in the energy infrastructure and housing stock, some systems (mainly in buildings) technically do not lend themselves for efficiency measures (e.g. heat metering per dwelling). The Government has reformed the energy markets and prices through successive increases in tariffs, which appear to have been accepted by the population after extensive information campaigns. Also, the Government has scored successes in supplying energy to rural and peri-urban communities, and continues its efforts.

## **Recommendations**

The following recommendations are offered to promote energy efficiency in Mongolia

### ***General Recommendations***

- The Government, in devising its medium and long term energy planning, should lay out the various supply and demand side options to fill the looming demand gap. Least cost options should be chosen among supply (new electricity generation and heat supply) and energy efficiency (conversion, transmission and end use efficiency). The Government should use and expand ongoing surveys of energy losses and end use.
- Energy efficiency work should focus on those sectors holding the largest potential: energy efficiency in buildings (heating system, building envelope, and lighting), district heating and reducing electricity production, transmission and distribution losses.

### ***EE Policies, Legislation and Programmes***

- The Government should finalize the Energy Conservation Law according to the announced timetable. Promulgating the Energy Conservation Law should send a

strong signal to energy stakeholders and the wider public about the crucial 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 ensure further the development of secondary legislation and regulations in different sectors, in close cooperation with relevant actors.
- The Government should undertake strong efforts to ensure implementation and enforcement of legislation and regulations, through continued training, ensuring sufficient human and financial resources for the inspectorate and enhancing its sanctioning power. This pertains particularly to energy efficiency and environmentally related legislation such as building and vehicle emissions regulations and Environmental Impact Assessment.

### ***Institutional framework***

- The Government should allocate sufficient human and financial *resources* within the Ministry for Mineral Resources and Energy for overall energy efficiency policy. This should include appointing a *high level decision maker* for energy efficiency policy, who should have sufficient authority and resources.
- The Government should ensure that the *Energy Authority* is given the adequate human and financial resources to implement energy efficiency policy.
- One of the assignments for the high level decision maker should be to organize a *knowledge base* by compiling information regarding energy efficiency projects (including donor financed projects), including lessons learned. This can assist the Government in developing a strategy and prioritizing future donor financing of energy efficiency projects.
- Another assignment of the high level decision maker should be to clearly define the responsibilities and roles for different ministries and other stakeholders regarding energy efficiency.
- *Cooperation* between the Ministry for Mineral Resources and 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, perhaps institutionalized in some way.

### ***Energy Market and Pricing***

- The Government should continue the planned efforts in energy pricing reform (eventual cost covering level of prices and removal of cross subsidies).
- The Government should continue to support the liberalisation of the energy market, at the same time as ensuring private energy investment.

### ***Energy efficiency financing***

- The Government should continue efforts to provide end-users with energy efficient equipment and solutions including stoves, solar panels, ger insulation, using instruments such as subsidies and micro credits.
- The Government should continue its efforts in attracting Clean Development Mechanism (CDM) financing for energy efficiency projects.
- The Government should explore the possibility of allocating financial resources which are freed as a consequence of end-user subsidy removal to funding of energy efficiency projects.

- The Government should consider consolidating the Green Credit Guarantee Fund and other similar funds in order to create revolving credit liquidity.
- The Government should examine possibilities of introducing tax incentives for energy efficiency projects.

### ***Specific energy efficiency programmes and measures***

#### **Buildings**

- The Government should put strong emphasis on implementation and enforcement of adopted building regulations. The Government should demonstrate an exemplary role in public buildings and in its own construction of new apartments.
- The Government should introduce individual heat metering in modern apartments where this is technically possible and in future buildings.

#### **District Heating**

- The Government should continue current efforts in decreasing energy loss in the district heating system.

#### **Electricity**

- The Government should continue current efforts for increased energy efficiency in the electricity sector.
- The Government should ensure that best available energy efficient technologies are used for new coal power plants.

#### **Industry**

- The Government should promote the use of energy audits and energy management in enterprises.

### ***Information, training and awareness raising***

- The Government should promote energy efficiency awareness raising and training for Government officials and the wider public at local, regional and national level.

### ***Renewable energy***

- The Government should pay particular attention to the implementation of provisions of the Renewable Energy Law when advancing the currently planned projects.
- Rural electrification efforts should be continued based on the positive results already achieved from some international donor projects like the 100,000 solar Ger project.
- The Government should continue their support to renewable energy generation solutions.