In-depth review of the investment climate and market structure in the energy sector of

MONGOLIA

Energy Charter Secretariat

2013

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November 2013

ENERGY CHARTER SECRETATIAT
2013

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Boulevard de la Woluwe, 56
B-1200 Brussels, Belgium

ISBN 978-905948-132-9 (English, PDF)
ISBN 978-905948-142-8 (English Paperback)
Dépôt number: **D/2013/7850/8**

Layout Design and Prepress: Diana Spotinova for Spotinov print Ltd.
Printed by Spotinov print Ltd.

Photo on the cover: **Ulan Bator city, Mongolia**

Source: ***http://3.bp.blogspot.com***

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INTRODUCTION

Introduction

Mongolia ratified the Energy Charter Treaty (ECT) and the Protocol on Energy Efficiency and Related Environmental Aspects (PEEREA) in 1999. In fulfilment of its commitments, Mongolia presents a Report on the Investment Climate and Market Structure (ICMS). The report mainly covers the period 2005–2013 and is generally based on the latest publicly available data for Mongolia.

The ICMS report has been prepared by the Ministry of Energy of Mongolia in close cooperation with the Energy Charter Secretariat.

The report serves the purpose of investment promotion, information sharing and cooperation among the Energy Charter member states. It is hoped that the report along with the policy recommendations and conclusions will contribute to improving the investment climate in the energy sector, as well as promote investment flows for the implementation of national energy plans in Mongolia.

The report contains policy conclusions and recommendations, updated information on the development of the national economy, a review of the legal framework for investments and an analysis of the ICMS in the energy sector of Mongolia.

POLICY CONCLUSIONS ADOPTED BY THE ENERGY CHARTER CONFERENCE

THE CHARTER CONFERENCE,

Taking into account the decision by the Investment Group that convened on 15 May 2013 in Brussels regarding the Policy Conclusions and Recommendations arising from the In-depth Review on Investment Climate and Market Structure in the Energy Sector of Mongolia (ICMS-61 and ICMS-62), noted the following.

NOTED [1]

a) that Mongolia is in an advanced stage of market-based reforms of the energy sector at all levels: institutional, legislative and industrial. Mongolia has undertaken a comprehensive reform of the investment climate in the energy sector in a direction more favourable to foreign investors;

b) that the In-depth Review has shown that Mongolia honours its commitments under the ECT. The Review has confirmed the existence and content of two nonconforming measures under Article 10 (5) of the Treaty, resulting in the update of one of them in the "Blue Book" of the Energy Charter;

c) and, in particular,

- took note with satisfaction that Mongolia has significantly improved the investment climate over the last few years, which has resulted in a significant inflow of foreign direct investment (FDI) in the mining sector. The next challenge in improving the investment climate could be improving access to electricity and trading across borders through regional cooperation;
- took note with satisfaction, that Mongolia has put into place a comprehensive legal and regulatory framework for the implementation of national energy policies that apply to foreign investors based upon the principle of national-treatment;
- emphasised that the role of fair competition and the establishment of a level playing field is central to attracting private companies, including foreign investors. The Energy Regulatory Commission (ERC) has been successful in regulating the generation, transmission, distribution, dispatching and supply of energy. It is recommended that the independence of the ERC could be further increased;
- underlined that administrative and management capacity is remarkably strong at high levels of public administration. It is recommended that the issue of additional capacity building could be addressed to officers in ministries, state-owned companies and independent agencies to further streamline the implementation of the administrative procedures and therefore contribute to an improved investment climate;
- invited the Mongolian Government to facilitate measures aimed at reducing carbon emissions and reducing energy intensity. This could require a more rapid transition to a low carbon economy through revision of planning and policy, the development of renewable energy sources, technological modernisation, reduction of power losses, reinforcement of consumption monitoring, education and public awareness regarding energy efficiency programmes, appropriate tariff policies and further commercialisation of utilities;
- noted that the promotion of renewable energy is so far limited to the feed-in tariff, which may be worth revising when considering the sinking costs of technology and the rising

[1] *The policy conclusions and recommendations were adopted by the Energy Charter Conference by correspondence on 5 July 2013*

energy prices. The Mongolian Government could consider subsidies that are less restrictive of competition and give priority access to the grid for electricity from renewable energy sources and other incentives;

- noted that the Mongolian Government supports the establishment of a regional electricity market for renewable energies through the Gobitec and Asian Super Grid initiatives. The Government is invited to consider the possibility to include the development of the renewable energy sources and transmission infrastructure in the new energy master plan of Mongolia in order to allow cooperation with regional partners and international financial institutions;
- noted that the Mongolian Government intends to promote more investments to the clean coal technologies and generate electricity for regional electricity market;
- drew attention to the fact that, as opposed to the mining sector, the electricity and heating sectors are strongly dominated by state-owned companies. In this respect, regulated tariffs and any subsidies to state companies may constitute barriers to the entry of competitors, including foreign investors. A new round of privatisation could have a huge potential in terms of positively contributing to the improved competition in and sustainability of the energy sector;
- noted that in order to attract private investors into the energy sector, the Mongolian Government is invited to continue improving transparency and corporate governance in state-owned enterprises;
- recommended that the Mongolian Government should continue to strengthen market-oriented energy policies and a predictable and transparent framework, including liberalisation and application of full cost recovery tariffs along with direct support to vulnerable groups of the population;
- underlined that, with respect to additional investments, mining revenues could be regulated and organised in a national wealth fund active both in domestic as well as in international energy investment markets. Clear and transparent rules on financial markets could avoid distortion of the competition;
- drew attention to the fact that the aging infrastructure and diminishing capacity in the electricity and heating sectors call for additional investments, national and foreign. Given the sound financial situation of the country and its creditworthiness before the main international financial institutions, national investment vehicles in the form of concessions and private-public partnership (PPPs), including national wealth funds, could be a viable and sound alternative to resorting to international finance.

SUMMARY OF THE MAIN FINDINGS OF THE SECRETARIAT[2]

Investment climate

Mongolia has the second largest copper and the fourth largest coal reserves in the world, besides significant reserves of uranium, rare earths, gold and zinc. The growth of the mining sector in 2015 is predicted to be four times the 2010 level — in excess of US$ 11.5 billion — due to its upcoming entry into commercial production at the Oyu-Tolgoi mine. The exploration of other large reserves (Tavan Tolgoi) is under development. [3]

The World Bank (WB) describes Mongolia as being among the group of middle-income countries. The International Monetary Fund (IMF) estimates that Mongolia will have a gross domestic product (GDP) of US$ 24 billion in 2016, which is equivalent to US$ 8,000 per capita. Such a record would make Mongolia one of the fastest growing economies in the world in this period.

The global economic crisis has had an impact on the volatility of capital flows and commodity prices, which in turn has affected price and exchange rate flexibility in Mongolia. Nonetheless, Mongolia has enjoyed strong economic growth and it had the best performing stock market in 2010; inflation is stable and the currency performs well. [4]

In the period 2005–2010, FDIs amounted to US$ 4.8 billion and to 76.8 per cent of the total investment volume. As to the sectors involved, mining and geological prospecting account for half of the investment volume. China, Canada and the Netherlands are the leading countries from where FDIs originate. [5]

International financial institutions and foreign and domestic investors report that the general business environment in Mongolia has improved over the last five years. Investors who were interviewed noted that the law and the judiciary recognise the concept of the sanctity of contracts.

According to an assessment carried out by the WB in its report Doing Business 2013, Mongolia is ranked high, 25th out of 185 economies under the heading "Protecting Investors" and, at the other end, the country has low rankings, 169th under "Getting Electricity" and 175th under "Trading across Borders".

The general principles applicable to foreign investment is non-discrimination and national treatment. Nonetheless, foreign investment is subject to a single authorisation by the competent authority on the grounds of general legal compliance and, in particular, of compliance with environmental, health and safety standards, including an evaluation of technology.

The new Law on Foreign Investment in Strategic Sectors (such as mining, banking and finance and media, information and communications) was enacted in 2012. The law requires additional authorisation in relation to investment in strategic sectors. Authorisation is conditional to a consideration of national security, the restriction of competition, the impact on the national budget and the security of the sector concerned.

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2 *These findings were discussed by the Energy Charter Investment Group in Brussels on 15 May 2013*

3 *National Statistical Office, www.nso.mn*

4 *World Bank, Doing Business 201°*

5 *Foreign Investment and Foreign Trade Agency, www.investmongolia.mn*

Energy market

The territory of Mongolia is abundantly rich in mineral resources and is ranked among the top ten countries richest in minerals. Tremendous opportunities lie in the production of energy from renewable sources such as wind, hydro- and solar power. However, the share of renewable energy in terms of the total energy production is lowest out of the regional countries..

Mongolia is currently the world's fifth most carbon-intense economy (1,413 metric tons of carbon dioxide equivalents per US $ 1 million) and the tenth most energy-intensive economy (45,058 British thermal units per US $ 2,000 of the GDP).[6] According to the World Energy Council, Mongolia's energy security is weak due to its low diversity in terms of electricity production and a positive and increasing five-year energy consumption growth trend. [7]

The State Policy of Mongolia on Fuel and Energy of 2008 sets the strategic priorities for the period 2008 to 2015, including enhancing energy security, improving the efficiency of the sector, coal processing, clean coal technologies and building energy exports.

The Ministry of Energy is drafting a new Energy Master Plan based on the result of a report by international consultants mandated by the Asian Development Bank (ADB) and funded by the Japan Fund for Poverty Reduction.

Electricity and heating

The current installed power capacity in Mongolia is 1,050 megawatts (MW) but only 728 MW (69 per cent) are available because of aging power plants. The electricity system is organised into four separate grid systems. The largest system (95 per cent of the total national load) is the Central Energy System (CES), which covers the capital, Ulaanbaatar. Even though the total capacity installed meets the total demand, the age and the poor peaking capacity of the plants cause outages. Mongolia imports electricity to cover peak demands from the Russian Federation.

Since 1990, the energy sector has been unbundled into distinct generation, dispatching, transmission and distribution companies. A single buyer model was put in place in 2007 in order to advance the implementation of market principles between producers and final consumers. The electricity sector is dominated by state-owned companies. Collection rates are close to 100 per cent.

Residential heating and hot water in the capital, Ulaanbaatar, are provided by a local heating distribution system that is supplied by three combined heat and power plants (CHPs). Additional capacity is envisaged to respond to network bottlenecks and rising residential demand. The transmission and distribution of heat are provided by the state-owned companies at tariffs set by the Energy Regulatory Committee.

Renewables and the Asian Super Grid

The development of the vast resources of wind, hydro-, solar and geothermal power aims to reach 20 per cent of the shares of renewables in the energy mix by 2020.

[6] *ADB, Mongolia: Updating the Energy Sector Development Plan, October 2010*

[7] *http://www.worldenergy.org/data/sustainability-index/country/mongolia*

In the solar sector, the programme 100,000 Solar Ger, together with other initiatives, aims to supply households in rural areas. Projects for the electrification of remote households by medium-sized wind plants connected to the grid will be implemented in the short and in the medium term.

Combined with modern power transmission technologies, renewable energy could support the long-term economic prosperity of Mongolia and the region. According to the Mongolian National Renewable Energy Center, Mongolia has a potential renewable energy capacity of 2.6 million MW. It is estimated that this figure is seven times that of all the world's operational nuclear reactors.

The Gobi desert is estimated to be the third largest potential source of solar energy in the world and is also blessed with steady, strong wind speeds, making it ideal for both technologies. However, this geographic zone, attractive in terms of the development of renewable energy sources, is very isolated and requires investment and connection to the regional energy market. The Mongolian Government is promoting two regional initiates, namely the Gobitec and Asian Super Grid, for renewable energies in Northeast Asia.

GENERAL INFORMATION

Country information

Mongolia is a landlocked country in Central Asia with a total area of 1,564,000 sq km — the seventeenth largest country in the world. Its northern border with Russia is 3,485-km long and its southern border with China amounts to 4,677 km. Mongolia extends 2,392 km from east to west, and 1,259 km from north to south. The country is known for its steppes and the Gobi desert, but it also includes numerous mountainous areas, rivers and lakes.

Figure 1: Map of Mongolia

Source: www.nationsonline.org

The total population in Mongolia was last recorded to be 2.8 million people in 2011. Nomads account for around half of the population and are thus not permanently settled in one location. The population density is 1.6 inhabitants per sq km; it is one of the most sparsely inhabited countries in the world. Migration to the country's few cities (predominantly to the capital, Ulaanbaatar) has significantly increased in recent years. Today almost half of Mongolia's population has moved to cities.

Mongolia is a land of young people. 70 per cent of the population is under thirty years of age and 40 per cent is younger than sixteen. Mongolia is an ethnically homogenous state, with 90 per cent of the population belonging to the Khalkha[8] and Buriat Mongols. The Kazakhs, a Turkic Muslim population, represent the largest minority.

[8] *Main nationality*

Table 1: General information about Mongolia

Official name:	Mongolia
Head of State	President: Ts. Elbegdorj (since May, 2009)
Head of Government	Prime Minister: N. Altankhuyag (since July, 2012)
Legislative body	Head of Parliament: Z. Enkhbold (State Great Khural) (since July, 2012)
Capital	Ulaanbaatar
Major cities	Darkhan, Erdenet, Choibalsan, Sukhbaatar
Total land area	1,564,000 km2
Population	2.8 million
Labour force	1.1 million
Unemployment rate	6.2 percent
Literacy	98 percent
Official language	Mongolian
Independence declared	24 Nov 1911
Religion	Buddist 45 percent. Atheist 40 percent, Muslim 8 percent, other 7 percent
Ethnic groups	Khalkha, Buriat, Kazakhs
Currency	Mongolian tugrug/MNT/ (1,820 MNT=1 Euro as of 1 March 2013)
Time zone	GMT + 8

Source: Statistical General Office

Mongolia has a harsh continental climate with long cold winters and brief mild summers. It is known as "The Land of Blue Sky" and enjoys 270 sunny days per year.

The famous Gobi desert area dominates the south and southwest of the country. The west is a combination of desert steppes and the high Altai Mountains. Taiga forests cover the north, and vast grasslands the central and eastern regions.

Most of the territory of Mongolia is highland. The average elevation of the country is 1,580 m above the sea level. The highest point is the Khuiten peak at 4,374 m. The main rivers are the Orkhon, Kherlen, Tuul and Selenge. The biggest lakes in terms of surface area are Uvs in the northwest and Khuvsgul in the north.

The country's official language is Mongolian. Currently, Russian remains the widely spoken foreign language among the older generation. However, English is on the rise and likely to replace Russian as the first foreign language in the foreseeable future.

Mongolia is among the top ten mineral richest countries in the world with only 17 per cent of its vast territory properly explored. Only a few of these massive reserves are actively mined and herein lies Mongolia's biggest opportunity and biggest challenge: how to exploit these resources in a way that benefits the country as a whole.

Political system in Mongolia

In January 1992, the Mongolian legislature adopted a new constitution, which came into force on 12 February 1992. The constitution establishes that Mongolia is a democratic parliamentary republic. As a unitary state, Mongolia is divided into administrative units called aimags, organised on the basis of a combination of self-government (local Khural of elected representatives) and central government (local governors elected by the prime minister). The Mongolian political and constitutional structure consists of separate legislative, executive and judicial powers with a president as the head of state and representative of the national unity.

Mongolia's constitution guarantees to all citizens the right to life, personal freedom, freedom of movement, freedom of expression and of religion and freedom of association, property and work, and social rights such as education and healthcare.

Parliament

The parliament is composed of a single chamber (State Great Khural) of seventy-six representatives elected for a four-year mandate by universal and secret suffrage. The Khural exercises legislative power and the power to set the basis for domestic and foreign policies. The Khural appoints the prime minister and members of the government.

The largest political parties are the Mongolian People's Party (MPP) and the Democratic Party (DP). The MPP was the dominant party in the Khural from 1921 to 1996 (until 1990 in a one-party system). The DP was the dominant force in the ruling coalition between 1996 and 2000, and also an equal partner with the MPP in the 2004–2006 coalition. Since 2006 MPP has been the dominant party in coalitions with two other parties. The MPP won the parliamentary election held in June 2008. The DP won the parliamentary election held in June 2012. The next parliamentary election is scheduled for 2016.

President

The president of Mongolia is the head of state and representative of the national unity, elected by direct and secret suffrage by citizens aged forty-five years or older. The president has limited political powers, except for approving a candidate prime minister, vetoing the Khural's decisions (which can overrule the veto by a two-thirds majority) and proposing laws or amendments to laws. The president represents Mongolia in foreign relations and concludes international treaties. The current president is Mr. Elbegdorj Tsakhia. The next presidential election is scheduled for 2013.

Government

The Mongolian Government is the highest executive body of the state, elected by the Khural for a four-year term. The prime minister leads the activities of the government in the implementation of constitutions and legislation and is accountable to the Khural.

The government is also responsible for working out, directing and implementing the country's general policy objectives for economic, social and cultural development. To do so, it can establish agencies (classified as either implementing agencies or regulatory ones) by adopting the rules and regulations these agencies propose.

The government elected in 2012 works along with sixteen ministries, eleven regulatory agencies and seventeen implementing agencies.

Judiciary

The Mongolian Constitution vests the judicial function solely on the courts and is subject to the law only. The judicial system consists of the Supreme Court and of local courts.

The Supreme Court has appellate powers as well as the power to try certain criminal cases and legal disputes and examine human rights transferred violations submitted to it by the Constitutional Court and the Prosecutor General and it provides official interpretations of the law, with the exception of the constitution.

The Constitutional Court is composed of nine judges appointed by the Khural for a period of nine years. It exercises supreme jurisdiction over the implementation of the constitution and jurisdiction on constitutional disputes.

The Council of Courts is established to ensure and to protect the independence of the judiciary. It has the exclusive power to elect judges.

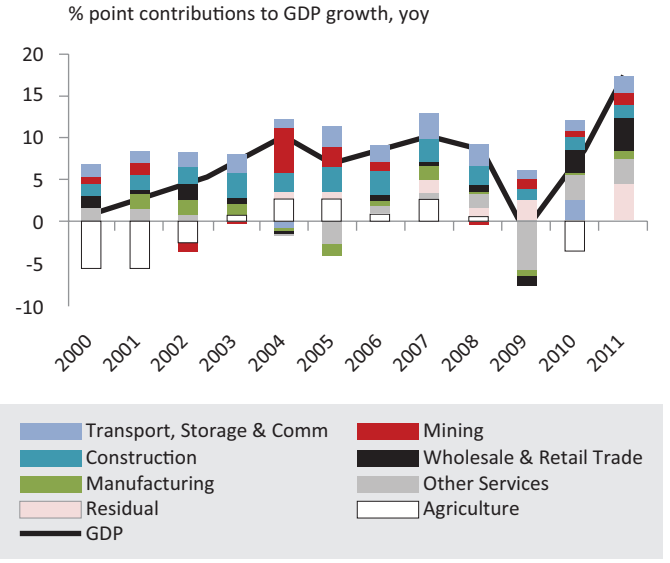
The constitution allows for the formation of specialised courts, such as criminal, civil and administrative courts, that are not under the supervision of the Supreme Court.

Economic situation

Performance of the economy

The Mongolian economy has been growing very strongly and it reached a GDP growth of 17.3 per cent in 2011. This is an increase of more than double the amount compared to the GDP of 6.4 per cent in 2010, and well above the average growth of 9 per cent in the years 2004–2008. The high-level growth rate makes Mongolia one of the fastest growing economies in the world.

Figure 2: GDP growth in Mongolia



Sources: National Statistical Office of Mongolia and WB report [9]

[9] *www.worldbank.org. Accessed on 1 June 2012*

Mining is the most important sector of the Mongolian economy and there is enormous mineral wealth. According to official estimates, there are 6,000 known deposits of ore minerals. The country has the second largest copper reserves and the fourth largest coal reserves in the world. It also possesses significant reserves of uranium and rare earth metals, as well as outstanding deposits of gold and zinc. Mongolia has embarked on a rapid growth supported by an increase in gold, copper and coal production, leading to rapid growth in the mining sector. The total growth of the mining sector reached 22 per cent in 2005, from 10 per cent in 1990, and it encountered a slight drop in 2009 due to the contraction of commodity prices. As for the future, the mining sector output is expected to outstrip US$ 11.5 billion by 2015, marking a fourfold increase from the 2010 levels of US$ 2.6 billion. A major proportion of this shift will occur in 2012–2013 as the Oyu Tolgoi mine becomes operational.

Table 2: Main indicators of economic growth

	2006	2007	2008	2009	2010	2011
GDP, billion MNT	4,027.6	4,956.6	6,555.6	6,590.6	8,414.5	10,829.7
REal economic growth	8.6	10.2	8.9	-1.3	6.4	17.3
Growth of mineral sector	5.3	1.1	-1.6	5.8	3.6	8.7
Growth of non mineral sector	9.4	12.6	11.3	-2.7	7.0	19.1
GDP per capita, USD	1324.2	1619.5	2,108.3	1,688.1	2,264.4	3,073.0

Source: Mongolian National Statistical Office. Monthly Statistical Bulletin, www.nso.mn

Mongolia is included in the group of low-middle-income countries according to the WB's classification. It is forecast that the economy will continue to grow at double-digit rates: 15 per cent in 2012 and 17.5 per cent in 2013. The drivers of growth are expected to remain the same, notably mining-related investment and output. Commercial production from the Oyu Tolgoi mine is scheduled to begin in early 2013, accounting for the boost in growth that year. The time frame for developing the Tavan Tolgoi coal deposit, one of the world's largest untapped reserves, is under development. Growth is likely to be further supported by a strong increase in the construction and services activity associated with mining, and by rising government spending.

The IMF projected that by 2016 Mongolia will rank 106th in the list of most well-to-do citizens with an estimated GDP of US $ 24 billion or almost US $ 8,000 per capita. This will make Mongolia the fastest growing country in the world over the next five years, far ahead of any other nation. It is estimated that much of this growth will come from the mining sector.

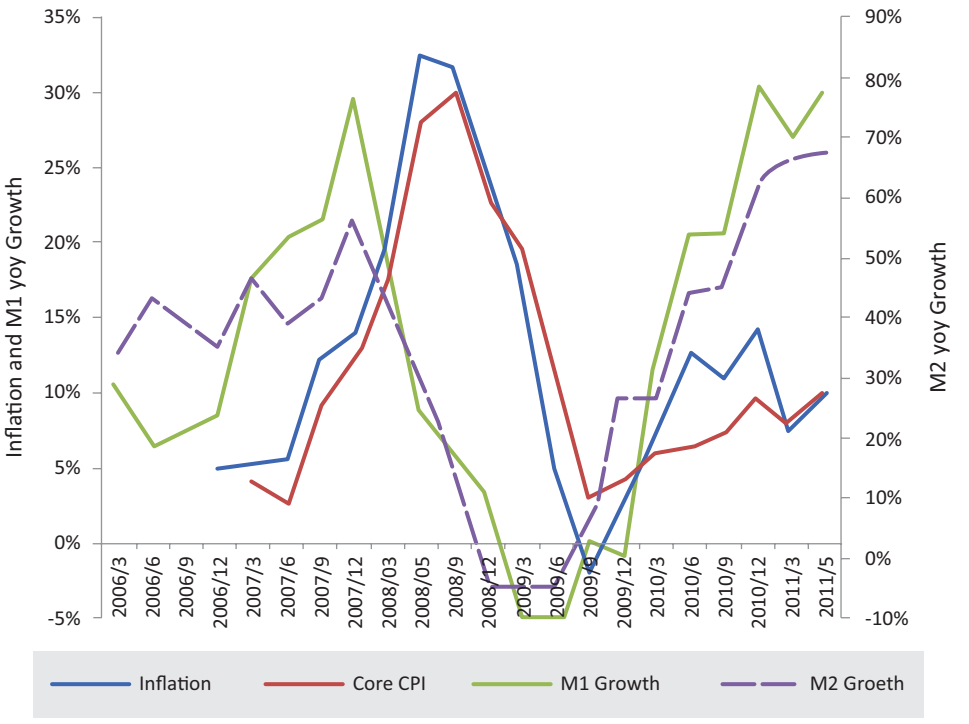
The average real GDP growth is projected to be 13.4 per cent annually over the coming five years with some years as high as 23 per cent due to mining initiatives. The growth projections are dependent on the development of the Oyu Tolgoi and Tavan Tolgoi projects.

Mongolia's past performance places it firmly in the top ten growth countries over the past decade, as the GDP has quadrupled. However, due to its dependence on the mining sector, Mongolia's economy is very sensitive to outside shocks. Fluctuations in commodity prices on world markets strongly affect economic development in Mongolia. For example, rising global mineral prices from 2003 to mid-2008 together with the discovery of the world class copper/gold deposit of Oyu Tolgoi triggered a mining exploration boom and significantly contributed to the country's rapid economic growth. Yet, the global economic downturn and a sharp decline in commodity prices in the second half of 2008 triggered a reverse effect, bringing

economic indicators down. In addition, Mongolia is heavily dependent on foreign trade, especially with China, to which 90 per cent of Mongolian exports flow. A stable economic development of China is, therefore, crucial to the well-being of the Mongolian economy.

With large capital flows coming into Mongolia, a booming economy and volatile commodity prices are the biggest challenges for the country with respect to maintaining price and exchange rate stability. As shown in the figure below inflation has ranged from 30 per cent to flat-out deflation within just one year.

Figure 3: Annual inflation and money growth



Source: Bank of Mongolia. Statistical Bulletin, www.mongolbank.mn

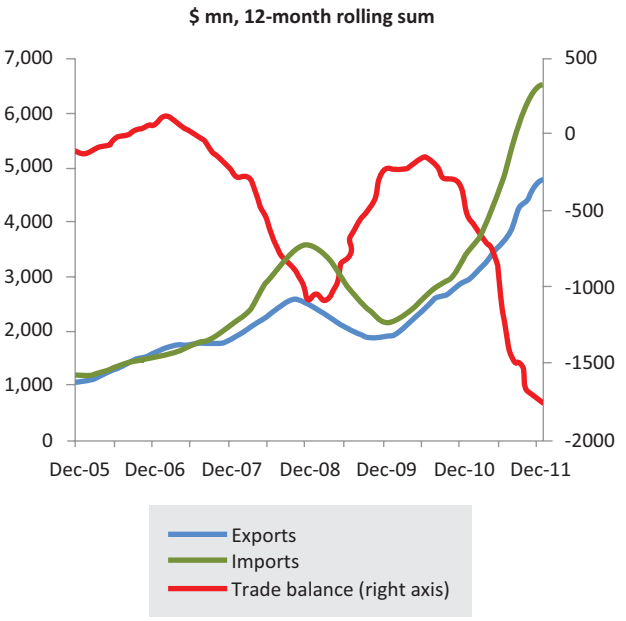
Inflation is expected to remain in double digits, 15 per cent in 2012 and 12 per cent in 2013, owing to very high public spending and large pay rises for public sector workers in 2012, as well as the emergence of supply bottlenecks in the mining industry and shortages in the labour market.

Trade, including imports and exports

The trade deficit reached record levels (US$ 1.7 billion in December 2011) as imports of mining-related equipment and fuel imports surged. However, exports also grew strongly, reaching US$ 4.8 billion in December 2011, having risen from US$ 2.9 billion the previous year, supported almost entirely by coal exports to China. The current account deficit widened to 35 per cent of the GDP from 14 per cent in 2010, but was fully funded by record FDI inflows of US$ 5.3 billion.[10]

[10] *Make reference to the report, name of report, year*

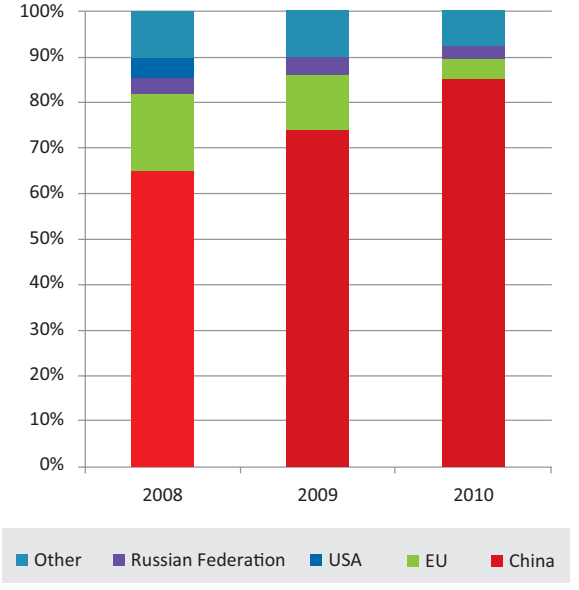
Figure 4: Trade deficit in Mongolia



Source: National Statistical Office of Mongolia and WB economic report, www.worldbank.org.mn

Historically the overwhelming majority of Mongolia's exports are destined for China (85 per cent in 2010, up from 64 per cent in 2008).

Figure 5: Exports from Mongolia, 2008–2011



Source: www.adb.org

It is projected that export growth will be robust in the forecast period, based on strong demand and continued high commodity prices. Export earnings will also be boosted when the Oyu Tolgoi mine starts commercial production.

Imports will continue to be driven by investments linked to mining and strong growth in private consumption. As new mines come on stream and mineral exports surge, the current account deficit is expected to narrow to an estimated 25 per cent and 15 per cent of the GDP in 2012 and 2013 respectively.

Membership of the World Trade Organization (WTO)[11]

Mongolia is one of the first economies in transition to a market economy that became a member of the WTO. By becoming a member of the WTO, Mongolia has adopted the path of a multilateral trading system and made its principles the engine for development.

The Mongolian Government aims to pursue a trade policy that would facilitate the one-sided structure of exports. Within this framework, the objectives are to diversify exports, promote new products and improve their competitiveness, reduce trade barriers and develop business relations with South Asia and Northeast Asia and Europe.

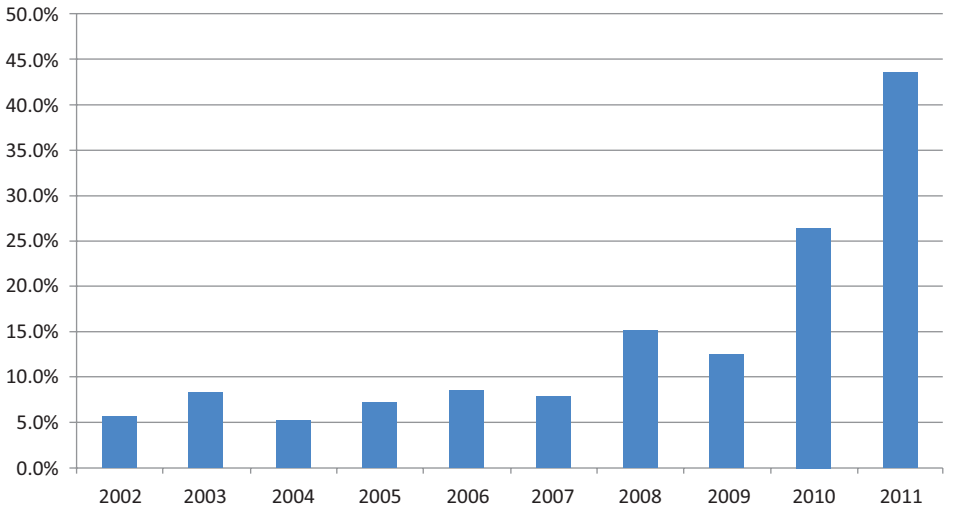
Economic reform has played a vital role. Within this framework, a number of measures directed towards privatising state-owned enterprises, promoting the private sector, developing national industries, liberalising foreign trade, attracting FDIs, undertaking structural changes, carrying out adequate financial and monetary policies and recuperating and restructuring the banking system have been adopted during the last decade.

National and foreign direct investments

During the last decade many foreign companies have been registered in Mongolia. In the period 2005–2010, FDI amounted to US$ 4.8 billion and to 76.8 per cent of the total investment volume. In 2010 alone, FDI from 769 companies reached US$ 1,025 billion.

[11] *http://www.wto.org/english/tratop_e/tpr_e/g145_e.doc. Accessed on 3 April 2013*

Figure 6: FDI as a share of the GDP

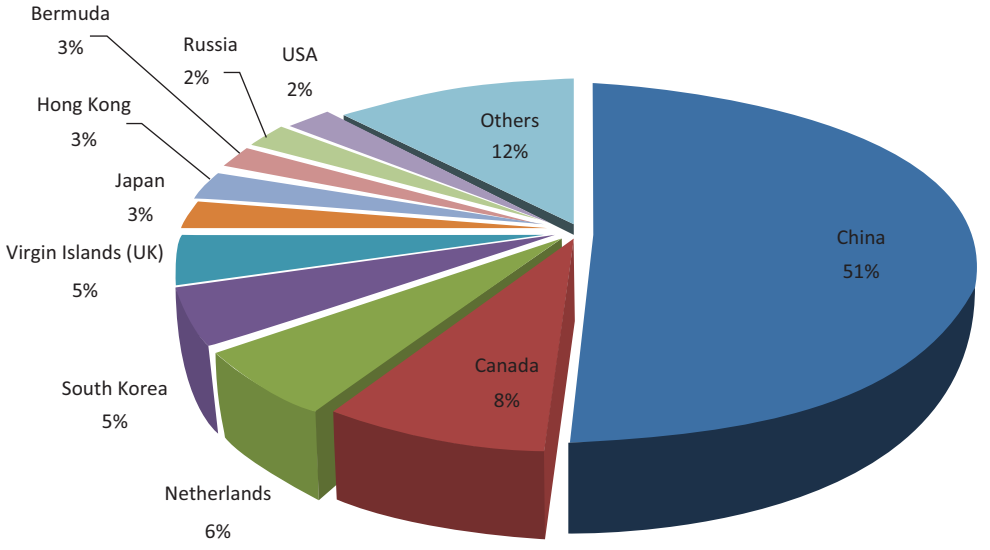


Source: FIFTA of Mongolia , www.investmongolia.mn

As to the sectors involved, mining and geological prospecting take up almost half of the total investment volumes and account for 65.3 per cent; trade and catering service account for 18.9 per cent, banking and finance for 2.7 per cent, light industry for 2.2 per cent, construction and the production of construction materials for 1.5 per cent and the processing of animal originated materials for 1.1 per cent.

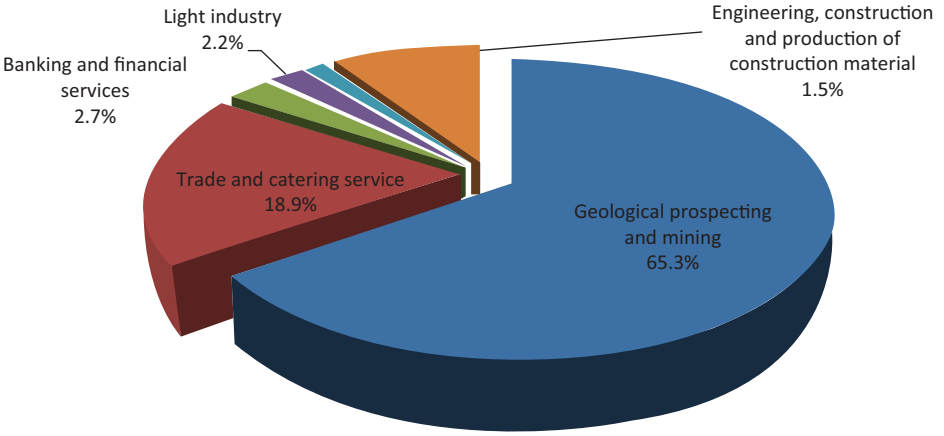
China is the leading country from where FDI originates (51 per cent), followed by Canada and the Netherlands.

Figure 7: FDI by country, 2010



Source:: FIFTA of Mongolia

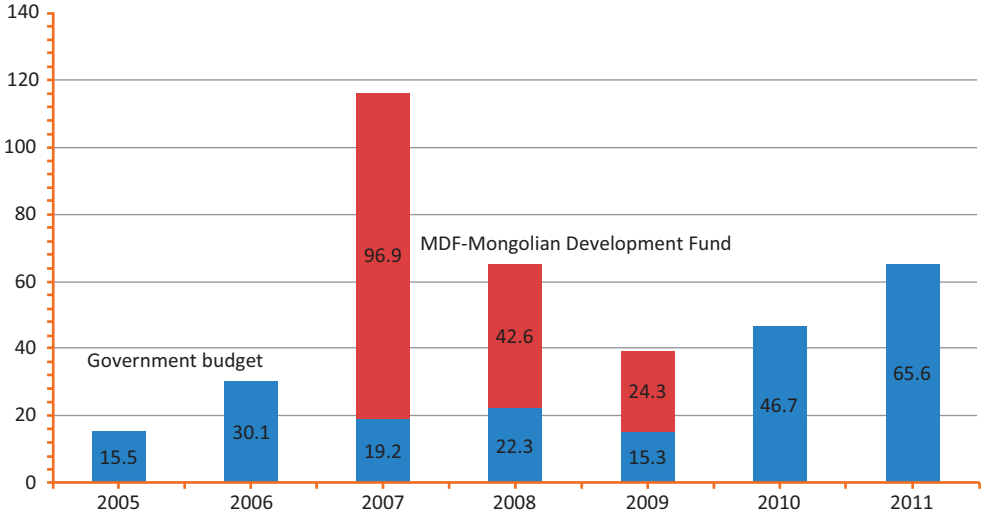
Figure 8: FDI by sectors, 2010



Source: FIFTA of Mongolia

Investment for the energy sector was MNT 15.3 billion tug in 2005 and it increased by 328.7 per cent and reached MNT 65.6 billion by 2011.

Figure 9: Investment in the energy sector from 2005 to 2011



Source: National Development and Innovation Committee of Mongolia

According to the Mongolian Government's investment programme 2011–2016, the plan was that investment for the fuel and energy sector would have a permanent increase of 10 per cent every year and MNT 3,280.6 billion would be invested in this sector. Investment in the fuel and energy sector accounted for 11 per cent of the total investment of sectors, according to the classification of the sectors.

Investment policy

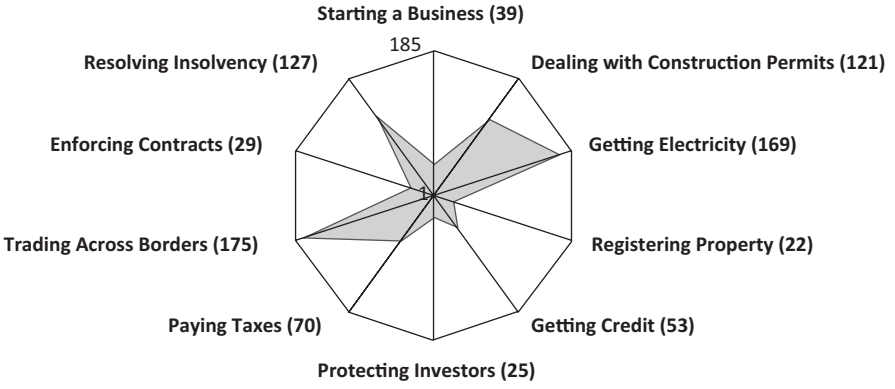
Mongolia's prospects for FDI look bright because of the strong economic growth and the current record volumes for FDI.

Mongolia had the world's best performing stock market in 2010 and the second best performing currency. These achievements were due to the start of trading on the stock market in shares belonging to the relevant companies.

Foreign investors enjoy legal protection both under Mongolia's national laws and under international treaties signed by Mongolia.

According to the WB's survey Doing Business 2013, Mongolia is among the leading countries for protecting investors' rankings. Globally, Mongolia is ranked in 76th place out of 185 economies. Mongolia stands in 25th position in the ranking on the strength of the investor protection index. However, acquiring electricity remains a challenge as Mongolia is ranked 169th.

Figure 10: Mongolia's rankings in Doing Business 2013



Source: World Bank Doing Business report 2013, www.worldbank.org

Attracting FDI remains a priority for the Mongolian Government and represents a political balancing act at the same time. On the one hand, Mongolia is facing pressure from within to keep as much of the profit from its mineral wealth inside the country. On the other hand, foreign investments need to be balanced (in terms of their provenance) in order to manage the country's foreign relations. One of the main challenges in this regard is the reduction of Mongolia's heavy dependence on its main trading partners (especially China) and the building of strategic relationships with other partners, such as, for example, the US, Japan, South Korea and the EU.

LEGISLATIVE FRAMEWORK FOR FOREIGN INVESTMENT IN THE ENERGY SECTOR

Legislation relevant to investment in the energy sector

Constitutional provisions

Article 18 of the constitution regulates the rights and duties of foreign citizens residing in Mongolia on the basis of the principle of reciprocity.

Foreigners may have their fundamental rights (other than the inalienable rights spelt out in international treaties) restricted on the basis of national security, security of the population and public order.

According to Article 10 of the Constitution of Mongolia, the international treaties to which Mongolia is a party shall become effective as domestic legislation upon entry into force of the laws on their ratification or accession.

Establishment of enterprises (national and foreign companies)

The Company Law of Mongolia governs the activities of business entities in Mongolia. The Company Law permits the creation of two forms of business entities (Article 3):

- an open or stock company whose shareholders' capital is divided into shares that may be freely traded by the public;
- a limited-liability company whose shareholders' capital is divided into shares, where the right to dispose of such shares is limited by the company's charter.

The state participates in business operations through companies owned by the state itself.

The authority to conduct business operations commences on the date of the entity's registration in the state register at the local government office. The applicant receives a certificate of incorporation upon completion of the registration. Failure to register a business entity can result in a substantial fine and confiscation of the profits from the business enterprise.

Any company may establish one or more branches or representative offices by issuing authorisation to an executive of such an office.

Entities are required by law to include abbreviations identifying their form of organisation as part of their registered names, as follows.

- "XK" (stock company);
- "XXK" (limited-liability company).

Capital contributions for company shares may be made in cash, contributing assets or intellectual property. Owners' equity in "XK" shall be at least MNT 10 million and in the case of "XXK" it shall be at least MNT 1 million.

The governing board of each "XK" is required to retain an independent auditor or an auditing board with supervisory responsibility for the financial affairs of the company. The auditor or auditing board verifies the annual financial report prepared for the company using Form A71, a form prescribed for all companies. This verified report then needs to be filled in on or before each 1 April with the Securities Commission, the company registrar and financial and taxation authorities.

Applications by investors to establish business entities with foreign investment require assessment and approval by the state central administrative body responsible for the

implementation of the foreign investment policy. More detailed information is provided in the annex.

Foreign investment legislation

The Foreign Investment Law of Mongolia (FIL) was adopted in 1991 and amended in 1993, 2001, 2002 and 2012. The objectives of these changes were to create a favourable environment for competitive foreign investment. Mongolia's stable political environment provides relatively safe conditions for foreign investment.

The Constitution of Mongolia and the FIL protect foreign investors in relation to:

- prohibition of expropriation (unless for public purposes, without discrimination, and following the due process of law) and the right to a prompt compensation;
- right to possess, use and dispose of their property;
- right to manage the investment;
- right to transfer rights and obligations;
- repatriation of income, profit and dividends.

The 1993 FIL defines "foreign investment" as all tangible and intangible assets invested in Mongolia by a foreign investor for the purposes of establishing a business entity in the territory of Mongolia or for the purposes of operating jointly with an existing business entity of Mongolia.

According to the law, a "foreign investor" is a foreign legal person or individual (foreign national or stateless person not residing permanently in Mongolia and citizens of Mongolia with a permanent residence abroad) investing in Mongolia.

A foreign investor has the following options when investing in Mongolia:

1. Establish 100 per cent foreign-owned business entities, local branches or subsidiaries of foreign enterprises;
2. Establish business entities jointly with local investors;
3. Participate in existing Mongolian business entities, through purchasing its equities or by acquiring shares or other securities;
4. Acquiring rights or contracts to make use of and process natural resources;
5. Conclude marketing or management contracts in financial leasing or franchising operations.

Business entities shall be defined as foreign investments when at least 25 per cent of their equity is owned or beneficially held by the following:

1. A person who is not a citizen of Mongolia;
2. A citizen of Mongolia permanently residing abroad;
3. A foreign company, corporation or other legal entity.

The law established a supervisory agency, the Foreign Investment and Foreign Trade Agency (FIFTA), which was responsible for the registration process and for putting businesses in contact with each other and the Mongolian Government and promoted in- and out-bound investments. The responsibilities of the FIFTA were taken over by Department of Foreign

Investment Regulations and Registration (DFIRR) of the Ministry of Economic Development. The department registers a foreign investor and grants a certificate of registration within three working days after the submission of the completed registration form. When the department issues the registration certificate, the Central State Taxation Department registers and publicly announces the foreign investment entity.

In addition to and besides the restriction described above, the Mongolian legal system ensures access for foreign or domestic investors to international commercial arbitration unless otherwise provided by the contracting parties.

In 2012, the Mongolian Parliament approved the new Law on the Regulation of Foreign Investment in Entities Operating in Strategic Sectors. The law specifies the following strategic sectors:

- Mining;
- Banking and finance;
- Media, information and communications.

All entities owned partly or fully by a foreign state and wishing to directly or indirectly operate in a strategic sector in Mongolia shall obtain a permit from the central administration.

When the share owned by the foreign investor in an entity operating in the strategic sector exceeds 49 per cent, and when the amount of investment at that time is more than MNT 100 billion, the investment is subject to the approval of the State Great Khural.

Entities operating in the strategic sectors shall grant priority to national entities of Mongolia in the procurement of goods, works and services. The Mongolian Government shall adopt the rules for the implementation of priority rights.

The 2012 law on foreign investment in strategic sectors leaves expressly without prejudice the applicable international treaties to which Mongolia is a party.

Legislation on land/immovable property/real estate

Two laws regulate foreigners' rights in relation to land ownership. The Law on Land (new version) and Law on Mongolian Citizens' Ownership of Land were ratified by the Mongolian Parliament in 2002 and revised in 2003.

In accordance with the above laws, foreign countries, international organisations, foreign legal entities, entities with foreign investment, foreign citizens and stateless persons may become users of land for a specific purpose and period of time subject to contract conditions and in compliance with the law.

Citizens, companies and organisations possessing or using land shall pay land fees in accordance with the relevant laws and contracts. The amount of land fees and regulations on a partial waiver from land fees, exemption from land fees and expenditure of the income from land fees shall be regulated by the law.

Land, excluding pastureland, land for public and special government use, may be given into ownership of Mongolian citizens only.

Pursuant to the constitutional prohibitions on direct foreign ownership of land, the FIL provides that all entities with foreign investment gain use of real property through leases. The relevant

local Khural and its council must approve of such leases; the leases must contain the terms and duration of any necessary measures for environmental protection and other liabilities of the lesser and lessee, as well as the annual rent.[12]

Responsibilities for leases in cases of joint venture are borne by investors in proportion to their capital contributions. The initial terms may not exceed sixty years, but a lessee may extend a lease once for up to forty years, provided this is stated in the initial terms of the lease.[13]

The state has the right to substitute or take leaseholds for specific public purposes, but foreign investors have the right of prompt and adequate compensation. If the state determines that the use of land harms public health, the environment or national security, it may cancel a lease.[14]

Competition legislation

The Law on Regulating for Unfair Competition was adopted on 12 May 2000. The law is designed to create conditions for fair competition in the market. According to the law:

- dominance exists when a single business entity, acting alone, or a group of business entities acting together account consistently for over one-third of the sales of relevant goods in the market;
- a monopoly exists when a business entity illegally uses its position of market dominance for creating obstacles for competitors in the marketplace and hinders competition or customers;
- a natural monopoly exists when a monopolistic business entity is able to supply a particular market with particular goods at the lowest cost and in the most efficient way for customers.

A dominant business entity is prohibited from performing the following activities: halting or restricting the production or sale of goods in order to create an artificial shortage to raise prices; selling their own goods at a lower cost in order to prevent other business entities from entering a particular market or to drive them from the market; unreasonably refusing to establish business relationships with other business entities in order to drive them out of the market; and following goods that a buyer is willing to purchase by unwanted or incomplete goods that are not a part of such goods, etc.

Business entities that collectively hold a dominant market position are prohibited from making agreements on competition by fixing or altering prices, holding or limiting scales of production or sales, dividing markets by location, size of production or sales, products, consumers or sellers, preventing competitors from becoming members of a collective or from organising groups to facilitate efficient business transactions, unreasonably refusing to enter into business relationships with other business entities in order to drive them out of the market or by selling or purchasing goods on a non-competitive basis.

Corporate taxation

Tax administration is the responsibility of the General Department of National Taxation (GDNT), which was established as a separate government agency in 1992, under the supervision of the Ministry of Finance. The GDNT has jurisdiction over twenty-one aimag (province) offices. There

[12] *FIL, articles 21.1, 21.2 and 21.3*
[13] *FIL, articles 21.4 and 21.5*
[14] *FIL, Art 21.7*

are nine district tax offices under the supervision of the capital city office and 360 districts under the supervision of the aimag offices and other cities.

The current tax system consists of taxes, fees and payments. Taxes are imposed at both state and local levels. The tax administration is responsible for administrating nineteen state taxes and four local taxes while the custom administration is responsible for the application of import duties, excise taxes and value-added taxes (the former sales tax) on imported goods and for the application of export taxes on certain exported goods.

In accordance with the Tax Law, the following citizens, residents, business entities and organisations that have taxable income and property are considered to be taxpayers:

- A citizen of Mongolia;
- A foreign resident and a stateless person in the territory of Mongolia, and a non-resident person who earns an income in Mongolia;
- A foreign business entity, organisation, foundation or legal person not located in Mongolia but earning an income in this country;
- A representative office of a foreign business entity or organisation that earns an income in Mongolia.

Corporate income tax: an economic entity that earns a gross taxable income for the tax year or that is liable to pay tax under this law, even though the same income may not have been earned, shall be a taxpayer.

Table 3: Corporate taxable income and rate

Income from primary and auxiliary production and sale of work and services;	Income within 0-3.0 billion MNT, it shall be taxed at the rate of 10 percent Income that exceeds 3.0 billion MNT shall be taxed 300.0 million MNT plus 25 percent of income exceeding 3.0 billion MNT
Income from goods, work and service received from others free of charge;	
Realized gain from foreign currency exchange rate;	
Income from technical, management, consulting, and other services;	
Income from interest and/or penalty for non-performance of contract duties, and compensation for a damage;	
Income from immovable and movable property lease;	
Income from sale of movable property;	
Income from sale of share and securities;	
Income from sale tangible asset;	
Income from interest;	10 percent
Income from dividend;	
Income from royalty;	
Income from sale of rights;	30 percent
Income from quiz, gambling and lottery;	40 percent
Income from sale and rental of erotic publications, books, and video recording and service of erotic performance	
Income from sale of immovable property;	2 percent

Source: General Department of Taxation, Mongolia, www.mta.mn

Table 4: Corporate taxable income and rate for non-residents

Income from dividend;	20 percent
Loan interest and payment for issuing a guarantee;	
Income from royalty;	
Income from interest on finance lease, payment for administrative expense;	
Lease payment;	
Income from tangible and intangible asset lease;	
Income from goods sold, work performed, and service provided in the territory of Mongolia;	
In the case of the representative office of a foreign economic entity transfers its own profit to overseas;	20 percent

Source: General Department of Taxation, Mongolia, www.mta.mn

Personal income tax: a citizen of Mongolia, foreign national and stateless person who resides in Mongolia and earns an income subject to tax for the tax year or who is liable to pay tax under this law, even though the same income is not earned, shall be a taxpayer. The taxpayer shall be classified as a resident taxpayer of Mongolia if he or she resides in Mongolia for 183 or more days in a tax year and a non-resident taxpayer of Mongolia if he or she does not possess a place for residence and does not reside in Mongolia for more than 183 days in a given year.

Table 5: Personal taxable income and rate

Salaries, wages, bonuses, incentives and similar employment income		Income*10 percent
		(Income-SIP)*10
Income from Activities		(Income-CIT law's exempt income)*10 percent
Income from property		TI*10 percent
Income from sale of property	Sale of immoveable property;	TI* 2 percent
	Sale of movable property;	(TI-SP,RC)*10 percent
	Sale of stocks and securities;	(PP-SP)*10 percent
Creation of scientific, literary, and artistic works, invention, product designing, organizing and participating in sports competition, art performance, and other similar income		TI* 5percent
Quiz, gambling, and lottery		TI*40 percent

TI=Total income SIP=Social insurance premium CIT=Corporate income tax SP=Selling price
PP=Purchasing price RC=Related price

Source: General Department of Taxation, Mongolia, www.mta.mn

Value added tax (VAT): a value-added tax rate shall be 10 per cent of the taxable amount of goods imported, produced or sold, work performed or services provided.

The value-added tax that shall be imposed on goods, work or services specified in Article 12 of the Value-added Tax Law shall be zero ("0").

Tax incentives: the Mongolian Government provides a number of tax incentives to foreign investors. Preferential income tax is granted to investors based on the investment sector.

Complete income tax exemption for ten years and a 50 per cent tax exemption for five years are available for foreign investment companies primarily engaged in the following three specific sectors:

1. Energy and power, including power and thermal plants and transmission networks;

2. Transportation infrastructure, including highways, railways and air cargo transportation;

3. Engineering, construction or telecommunications networks.

The above incentives are unavailable to enterprises acquired by private investors through participation in the Mongolian privatisation programme.

Foreign invested companies engaged in the fields listed below are entitled to receive complete income tax exemption and a 50 per cent tax exemption for five years:

1. Oil and coal;

2. Metallurgy and metal processing;

3. Chemical production;

4. Machinery;

5. Electronics.

An investment enterprise engaged in activities other than raw wool, cashmere and leather processing will be entitled to a complete income tax exemption for three years and a 50 per cent income tax exemption for three years after provided exports exceed more than 50 per cent of its annual output.

A foreign investor that reinvests income in the same business enterprise that produced the income will receive a deduction from taxable income equal to the amount reinvested.

Legislation regulating conditions for foreigners on entry into Mongolia

The Law on the Legal Status of Foreign Nationals became effective on 1 February 1994, with amendments being made effective on 28 November 2002. This law regulates the entry, exit, transit and residence of foreign citizens and stateless persons in Mongolia by registering temporary and long-term immigrants. Visas are required to enter, exit and transit in Mongolia except for nationals of countries that have concluded relevant bilateral agreements with Mongolia.

Foreigners must be holders of a valid foreign passport and must obtain permission from competent Mongolian organisations prior to visiting or residing in Mongolia. The amendments to the law determine the rights and duties of organisations issuing visas. The law provides that visas may be issued by the following authorities: (1) the central state administrative body in charge of external relations; (2) the office in charge of foreign citizens and citizenship issues; (3) diplomatic and consular missions of Mongolia to foreign countries; and (4) honorary consuls of Mongolia, authorised by the central state administrative body in charge of external relations.

The law classifies foreigners into seven categories depending on the duration of their visit or residence in Mongolia: (a) foreign citizens travelling to Mongolia under the provisions of this law for private or official reasons for up to thirty days must be considered visitors; (b) foreign citizens visiting Mongolia for up to ninety days for private business must be considered temporary residents; (c) foreign citizens to be employed in Mongolia in the management

of a business entity with foreign investment, a foreign non-governmental organisation or a representative office of an international organisation and/or under training, working or holding an official post in accordance with inter-governmental agreements and who is going to reside for more than ninety days must be considered long-term residents for official purposes; (d) foreign citizens who have come to live in Mongolia for a term of more than five years for private business must be considered immigrants; (e) foreign citizens who have married Mongolian citizens and are residing in Mongolia for more than ninety days shall be considered permanent residents; (f) foreign citizens residing in Mongolia for between ninety days and five years for private business must be considered long-term residents for private business; and (g) persons who travel through the Mongolian territory from one country to a country other than Mongolia must be considered transit travellers.

There are quantitative restrictions on the number of immigrants residing in Mongolia. The total portion of immigrants in Mongolia may not exceed 1 per cent of the total population of Mongolian citizens. Immigrants from any one country should not exceed 0.33 per cent.

The Council of Foreign Nationals under the Ministry of Justice is in charge of immigrant status in accordance with the Law on Legal Status of Foreign Nationals.

Foreign citizens (and members of their families) who arrive in Mongolia to work at foreign diplomatic or consular missions, resident representative offices of the UN or its specialised organisations or foreign press offices must be registered at the state central administrative authority responsible for external relations within seven days after their arrival in Mongolia. Foreign immigrants and stateless persons residing in Mongolia must communicate to the Immigration Office or police offices any changes in their family status, address or job within five days after such a change. Foreign citizens who came to be employed or to study in Mongolia must be registered at the office within seven days after their arrival.

Foreign exchange and securities laws/regulations

The Law on the Securities Market was adopted on 12 December 2002 and regulates the issuing, registering, keeping, trading, selling and transferring of rights to securities. The law protects the rights and interests of investors, and services activities of issuers and organisations that participate in security markets. According to the law, "securities" means debt instruments (bonds) issued by the government or other authorised organisations, all kinds of company shares, options and other instruments declared by the Financial Regulatory Commission to be securities for purposes of this law.[15]

Securities registered at the commission can only be traded on the securities market. An issuer may sell securities by way of a public offering or by way of a closed offering in accordance with the Law on the Securities Market. In the case of a public offering, the issuer must register with the Financial Regulatory Committee. This requirement does not apply to closed offerings. In order to register their securities, an issuer must submit the following documents: application, introduction notes and decision on the issuing of the securities, founding documents, if a joint stock company is going to be formed by way of issuing of shares, special licences issued by the state authorities, if it is required for the issuing of this particular type of security, and other necessary documents required by the Financial Regulatory Commission. The Financial Regulatory Committee determines whether to approve registration statements within thirty days after receipt of the registration statements.

[15] *Law on the Securities Market, Article 3.1.1*

It is prohibited to sell securities for credit. An issuer can sell its securities through an initial public offering of the securities or it can also sell its securities to an underwriting company. The issuer must report to the Financial Regulatory Committee within thirty days after a sale of the securities. A purchaser of 5 per cent or more of publicly offered securities in the company is obliged to inform the Financial Regulatory Committee within ten days of the purchase. A person who makes a tender offer to purchase the controlling stake of common shares must report the tender offer to the Financial Regulatory Committee.

An issuer of securities or professional organisations dealing with securities transactions and investors are called "participants in the securities market", the Law on the Securities Market, Article 18. The securities market includes primary markets as well as secondary markets. Securities are initially either sold directly by the issuer or through underwriting organisations in primary markets. Securities are then traded in secondary markets.

Professional participants in securities markets are the stock exchange, trading centre of securities, securities settlements, clearing and central depository systems, trust funds, investment funds, brokers, dealers, underwriters, investment managements and investment advisers.

The Financial Regulatory Commission must grant special licences to professional participants in the securities market. The commission must grant special licences to commercial banks and special licences to insurance agencies and pension funds in consultation with the central government agency in charge of financial and social affairs.

Legislative framework for privatisation

Privatisation of formerly state-owned assets has been regarded as a key component in economic stabilisation programmes and socio-economic reform. It also reflects a commitment of the Mongolian Government to the creation of a favourable environment for business and investment in the country.

From 1991 to 1994, all or part of the 4,500 Mongolian state-owned enterprises were transferred to the private sector through a voucher privatisation programme. Each citizen of Mongolia was issued vouchers to be exchanged for shares in enterprises or, in the case of rural dwellers, for a share of state-owned farms and livestock. However, the State retained control of the key industrial enterprises and other properties. Trading of company's shares, privatised under the voucher programme began in 1995 on the Mongolian Stock Exchange.

In 1996, the Mongolian Government selected certain properties for immediate privatisation and the State Property Committee conducted auctions for these properties in Ulaanbaatar. Since this time more than seventy previously state-owned properties have been privatised, including real estate and enterprises. The privatisation programme, approved by the government in July 1997, outlines a plan to privatise the remaining state-owned assets in Mongolia, which total over one-third of the GDP.

From 1996 to 2000, 942 enterprises and assets were privatised through sealed bid auctions, English auctions, sales of shares through the Mongolian Stock Exchange and other methods, raising approximately MNT 48 billion (over US$ 65 million) in revenues for the budget.

In summer 2005, the Mongolian Government issued a resolution to privatise some state entities and make a list of those who will be restricted in preparation for the privatisation. The

resolution is based on the state concept for privatisation and recognition of state organisations in the period 2005–2008, which was approved by the 48th parliament resolution and Law on State and Local Property.

From 2001–2007, 122 companies were privatised for a total value of MNT 108 billion; out of these companies, twenty-nine were large enterprises, accounting for 82.4 per cent of the privatisation revenue in this period.

In February 2011, the Mongolian Parliament passed a resolution including a list of ten assets up for full or partial privatisation for 2011–2012. The government intends to privatise Mongolian Telecom, Erdenet and Thermal Power Plant 3 (TTP3) via concession agreements, and the Mongolia Stock Exchange through management contracts.

The Mongolian Government now seeks to shift the focus of its privatisation efforts to the country's largest firms and their divestiture by transparent, credible "case by case" methods that permit and encourage new business entrants and aim to attract direct foreign investments.

Opening ownership of large privatised firms to external investors is expected to bring needed capital, market access, managerial know-how, technological and product development improvements, operational efficiency and customer- and service-oriented mentality to privatised companies. The sale of State-owned assets to reputable, internationally recognised firms is expected to have a major positive impact on the overall economic situation in Mongolia.

Legislation regulating the publishing of laws

All legal acts are published in the newspaper *Turiin Medeelel*.

Intellectual property rights

The Mongolian Government ensures protection for intellectual property. The Copyright Law, Patent Law and Trademark Law have been adopted. The Intellectual Property Office of Mongolia and intellectual property protection state inspectors are responsible for the protection and enforcement of intellectual property rights.

Mongolia became a member of the World Intellectual Property Organization in 1979 and joined eleven international conventions on intellectual property rights, including the Berne Convention on Copyright, Paris Convention on Protection of Industrial Property and Madrid Agreement on International Registration of Trademarks.

The first Patent Law of Mongolia was adopted by the Mongolian Parliament on 25 June 1993 and the current Patent Law was revised by Mongolian Parliament on 19 January 2006. The law governs relations arising from the protection of the rights of authors, inventions, industrial designs or innovations and patent owners. In the context of the law, invention means new useful solutions that can be used in manufacturing and relates to products, manufacturing processes or the means, principle parts or organisation thereof.

In Mongolia, inventions and industrial designs may be patented and authors of innovations can be issued certificates. An invention is defined as an absolutely new solution relating to products or processes. Industrial design means an absolutely new, original solution relating to the appearance or form of a manufactured article that can be produced by industrial means. Innovation means a solution that is new for a given organisation, and relates to a product, process or the organisation of a manufacturing process.

Trademark applications must be filed in Mongolia with the Intellectual Property Office by individuals or legal entities wishing to register a trademark. Trademark registration is valid for ten years following the filing date. It may be renewed for ten-year periods in accordance with the Law on Trade Marks and Geographical Indications.

Summary of laws/regulations for the energy sector

Since 1990, Mongolia has gradually set up a legal framework for developing a free market economy and attracting foreign investments in the energy sector. Below is a summary of all the major laws and regulations applicable to the energy sector of Mongolia.[16]

- Law of Mongolia on Energy – the purpose of this law is to regulate matters relating to energy generation, transmission, distribution, dispatching and supply activities, the construction of energy facilities and energy consumption that involve the utilisation of energy resources.
- Law of Mongolia on Renewable Energy – the purpose of this law is to regulate relations concerning the generation of power using renewable energy sources and their delivery.
- Law of Mongolia on Licensing – the objective of this law is to regulate a relation with respect to issuing, suspending and revoking a licence to conduct certain business activities that may negatively affect public interest, human health, the environment and national security and that require specific conditions and expertise.
- Law of Mongolia on Petroleum – the purpose of this law is to regulate the operations of Mongolian and foreign entities or individuals involved in the exploration for and the protection, processing, transportation, storage and marketing of petroleum originating in Mongolia.
- Concession Law – this creates the necessary institutional framework for private sector participation with the aim of improving the efficiency of the energy sector, facilitating the development of renewable energy, accelerating the commercialisation of energy companies and gradually privatising them.
- Application for a licence – this contains a list of documents collected for an application to obtain a licence.
- Rules of Electricity Consumption – the purpose of this rules is to regulate interactions between consumers and electricity transmission, distribution and supply licensees, hereinafter referred to as the "transmitter", "distributor", "supplier", in order to implement the Law of Mongolia on Energy.
- Public Hearing Procedure is adopted pursuant to the provisions of authority of the Energy Regulatory Authority (ERA) under the Law of Mongolia on Energy and established ERA regulations.
- Resolution of the Grand State Assembly of Mongolia – the Grand State Assembly of Mongolia resolves the following based upon reports and proposals by the working group established by ordinance no. 204 (2009) of the speaker of the Grand State Assembly that has the task of producing a relevant policy paper aimed at improving the financial and economic capacity and enhancing the legal framework of the fuel and energy sector.

[16] *For more detailed information see http://www.erc.mn/en/files?tag=26*

- Interim Methodology for Determining Prices and Tariffs of Licensees – the purpose of this interim methodology lies in establishing a tariff level to be followed by licensees at the first stage of the transition to the commercialisation of the energy sector.
- Heat Consumption Rule – the purpose of this rule is to regulate interactions between consumers and heat generation, transmission, distribution and supply licensees, hereinafter referred to as the "Transmitter", "Distributor", "Supplier", and determine their rights and responsibilities in order to implement the Energy Law.
- National Dispatching Center – GRID CODE – the purpose of this code is to regulate the extent of the technical activities of component entities of the grid.
- Connection rule for Ulaanbaatar's central heating supply – this rule is for connecting Ulaanbaatar's central heating supply to the buildings, equipment and facilities of individuals and the legal body.
- Connection rule for the Central Electricity Transmission Network – this rule is for connecting the Central Electricity Transmission Network to electricity equipment and facilities in order to supply electricity
- Connection rule for the Ulaanbaatar Electricity Distribution Network – this rule is for connecting the Ulaanbaatar Electricity Distribution Network to electricity equipment and facilities in order to supply electricity to individuals and the legal body.
- Business rule between licensees – the purpose of this rule is to regulate business relations established between energy sector licensees for electricity sale, purchase, import, transmission, distribution, supply and dispatching regulations, to determine the terms and conditions of agreements to be made between the parties and to define the level and quality of service, service fee payment conditions, rights and obligations of licensees in accordance with the Energy Law.
- Rule for the resolution of complaints and disputes addressed to the ERA of Mongolia – the purpose of this rule is for the ERA to resolve within its full authorisation complaints and disputes arising between licensees, as well as complaints and disputes between licensees and consumers.

The Mongolian Government has been working to establish strong a legal, institutional and regulatory framework that reduces risks for investors and encourages investors' long-term commitment through concessions and the emergence of independent power producers attracted by power purchasing agreements (PPAs).

Overview of Mongolia's participation in international organisations

Mongolia has been a member country of the Energy Charter since 1999. The Mongolian legal system provides appropriate guarantees concerning investment dispute settlement procedures and ensures free access for foreign or domestic investors to international commercial arbitration unless otherwise provided by the contracting parties. Mongolia has joined the Washington Convention on the Settlement of Investment Disputes between the State and Nationals of Another State (joined in 1996). Mongolia became a member of the WTO in 1997.

Mongolia has also been a full member of the Seoul Convention on Investment Insurance (joined in 1999) and of the Multilateral Investment Guarantee Agency (MIGA) of the WB Group since January 1999, thereby making investors eligible for risk insurance through MIGA.

Mongolia has concluded bilateral investment treaties (BITs) on the encouragement and mutual protection of investment agreements with forty countries. Mongolia has concluded exemption on double taxation agreements (DTAs) with thirty-four countries. A list of BITs and DTAs is provided in the annex.

Exceptions to national treatment

Mongolia currently maintains two exceptions to the non-discrimination principle in the Blue Book of the Energy Charter. The first exception relates to restrictions on the ownership of land and the second exception concerns special requirements in terms of the registration of business entities with foreign investments. A full text of the exceptions is given in Annex 1.

ENERGY SECTOR - SUPPLY AND DEMAND SIDE

Institutional structure

Ministry of Energy

According to the new Energy Law the State Great Khural is in charge of approving the state policy in the energy sector.

The Ministry of Energy is a line ministry in charge of policy making for the sector. The policy areas under the Ministry of Energy include the development of energy resources, energy use, the import and export of energy, the construction of power plants, lines and networks, energy conservation, the use of renewable energy sources, the monitoring of the sector, the approval of rules and regulations for the sector and international cooperation.

Ministry of Finance

The Ministry of Finance is responsible for socio-economic development policy and strategy, sustainable development strategy, economic security, economic conditions, regulation, investment credit and aid integrated policy, balance of payments and economic cooperation policies, which are aimed at providing a balanced macro-economy.

The Ministry of Finance has responsibility for reviewing proposals for investment in infrastructure and implement procurement for energy projects.

ERC

The ERA was established according to the Energy Law adopted in 2001. According to the amendments to the Energy Law approved by the State Great Khural on 9 December 2011, the ERA has been reorganised as an ERC.

The commission is an independent regulation authority, nominated by the government and self-funded by the licence fees, in charge of the regulation of the generation, transmission, distribution, dispatching and supply of energy (including the licensing and setting of tariffs in the electricity and heating sectors). Among other responsibilities the ERC engages in dispute settlement between licensees and consumers in accordance with its jurisdiction.

One of the main objectives of the ERC is to implement the transformation of the energy sector of Mongolia into a market-oriented system.

Mineral Resources Authority (MRA)

The MRA is a governmental agency responsible for the exploration, development and production of oil, as well as of Mongolia's strategic mineral resource reserves. In 2008, it was split into two agencies, namely the MRA and the Petroleum Authority.

Petroleum Authority of Mongolia (PAM)

The PAM is the implementing agency of the government and is responsible for the exploration, development and production of oil, as well as of Mongolia's strategic oil reserves. The PAM is responsible for all matters related to the petroleum industry in Mongolia. As far as petroleum upstream operations are concerned, the PAM is authorised by the Mongolian Government to enter into contracts on matters of oil and gas exploration, development and production and exercises supervision and assistance with respect to the implementation of such contracts. In respect of petroleum downstream operations, the PAM coordinates and regulates the

supply of petroleum products to ensure a stable and reliable supply of petroleum products in Mongolia and administers the implementation of petroleum refinery undertakings.

National Renewable Energy Corporation (NREC)

The NREC is a state-owned enterprise that has been managing scientific research, experimental and construction works, trade and the production of renewable energy equipment activities for the purposes of assessing renewable energy resources such as solar, wind, hydro, biomass and geothermal energy in Mongolia and its efficacious utilisation, since 1989. The mission of the NREC is to ensure sustainable, smooth and balanced economic and energy development through the utilisation of ecologically clean renewable energy.

National Dispatching Center (NDC) of Power Systems

The NDC is a state-owned company, which was established in August 2001 following Resolution 164 of the Mongolian Government in accordance with the Energy Law of Mongolia, approved by the Mongolian Parliament in February 2001.

The NDC's responsibility under certain network codes is to comply with dispatch arrangements for the reliable and stable operation of the network and electricity and heat supply using a least-cost principle to consumers 24 hours a day that meet the standards and, moreover, to maintain a balance with electricity and heat supply and demand.

Energy policy

Mongolia has been establishing legal framework and institutional arrangements for the sustainable development since the 1992 Rio Summit:

- National Program on Sustainable Development, 1997;
- MDG-based Comprehensive National Development Strategy, 2008 Mongolian Action Programme for the 21st Century (MAP 21), 1994;
- National Committee on Sustainable Development headed by the prime minister was established in 1994 as a coordinating entity for development and implementation of MAP 21;
- National Green Development Committee headed by the prime minister is a governance body to coordinate and manage green development policy and strategy in the country, 2012.

It has been emphasised that the utilisation of renewable energy is one of the priority areas of the energy industry in government policy documents such as the Government Action Plan, Millennium Development Goals, Sustainable Development Program of Mongolia for the 21st Century, Regional Development Concept, Consolidated Energy System Program of Mongolia and Sustainable Energy Development Strategy of Mongolia for 2002–2010.

Until 2001, a vertically integrated and highly centralised state-owned monopoly operated the energy sector. Further to the Energy Law, 2001, which aimed to unbundle the energy sector and establish a sector regulatory agency, the Mongolian Government issued the Energy Sector Development Strategy with Short and Long-term Action Plans, 2002–2010, in 2002, which focuses on:

(i) sector restructuring;

(ii) energy conservation;

(iii) planning and operational capacity enhancement;

(iv) energy access for all. The Renewable Energy Law, 2007, targets increasing the share of renewable energy in total primary energy sources up to 3 per cent–5 per cent by 2010 and 20 per cent–25 per cent by 2020.

In 2008, the government issued the State Policy of Mongolia on Fuel and Energy, which identifies sector strategies, priorities and actions from 2008 to 2015. The priorities include:

(i) enhancing energy security;

(ii) improving the efficiency of the sector and creating favourable conditions for operation in the market environment;

(iii) developing coal processing and clean coal technologies;

(iv) building energy exporting capacity.

Currently the Ministry of Energy of Mongolia coordinates the work of the international consultants who work on updating the energy master plan of Mongolia. The work of the consultants is organised by the ADB and financed by the Japan Fund for Poverty Reduction.

The provided technical assistance will support the Government in:

(i) comprehensively assessing the sector to identify investment gaps and the urgent reforms needed to create an enabling environment for sustained sector development;

(ii) formulating priority investments in power supply;

(iii) enhancing the government's capacity in sector assessment and investment needs analysis. [17]

Energy supply and demand

Energy supply

Table 6: Major energy indicators

	1995	2000	2005	2010
Total Primary Energy Supply (1,000 TOE)	2,317	2,564	2,800	3,545
Energy per capita (TOE)	1.03	1.06	1.09	1.27
Population (thousand)	2,243	2,408	2,562	2,781
GDP (billion tog, at 2005 constant price)	1,826	2,100	2,780	4,154
Energy/GDP Intensity (TOE/million Tog)	1.27	1.22	1.01	0.85
Import Dependency (percent)	16.2 percent	19.4 percent	21.4 percent	25.6 percent

Source: Ministry of Energy

The table above shows that the import dependency increased from 16.2 per cent in 1995 to 25.6 per cent in 2010. The table below shows that indigenous production rose significantly between 2005 and 2010 but imports kept on rising as well due to surging energy demands in the industrial and transportation sectors.

[17] *ADD Technical Assistance Report, http://www2.adb.org/Documents/TARs/MON/43079-01-mon-tar.pdf. Accessed on 3 April 2013*

Table 7: Energy production and net import in Mongolia (unit: 1,000 TOE, per cent)

	1995	2000	2005	2010
Indigenous Production	1,980	2,019	3,592	11,591
Import	375.55	497.13	597.88	908.89
Export	-1	-3	-1,405	-9,028
Total Domestic Energy Supply	2,317	2,564	2,800	3,545

Source: Ministry of Energy

Table 8: Energy supply by sources in Mongolia (unit: 1,000 TOE, per cent)

Energy sources	1995	2000	2005	2010
Coal	1,695	1,798	1,895	2,324
Oil	345	472	584	879
Hydro	0.00	0.25	0.28	4.73
Traditional Fuels	277	293	321	337
Total	2,317	2,564	2,800	3,545
	100.0 percent	100.0 percent	100.0 percent	100.0 percent

Source: Ministry of Energy

Energy demand and consumption: Mongolia has also experienced a significant structural change in energy demand. Industrial energy demand has rapidly increased in the past five years, from 464,000 tons of oil equivalent (TOE) in 2000 to 623,000 TOE in 2010, mainly due to the expansion of energy intensive industries. The transportation sector has shown the most rapidly increasing energy demand in response to substantial growth in the number of vehicles, while the residential and commercial sectors have shown a relatively lower pace of growth in energy demand, compared with the transport sector.

Table 9: Energy demand by sector in Mongolia (unit: 1,000 TOE, percent)

	1995	2000	2005	2010
Industry	502	464	721	623
Transport	220	254	248	686
Residential	516	585	548	812
Commercial /Public/ Others	333	467	456	490
Total	1571	1770	1973	2611
	100.0 percent	100.0 percent	100.0 percent	100.0 percent

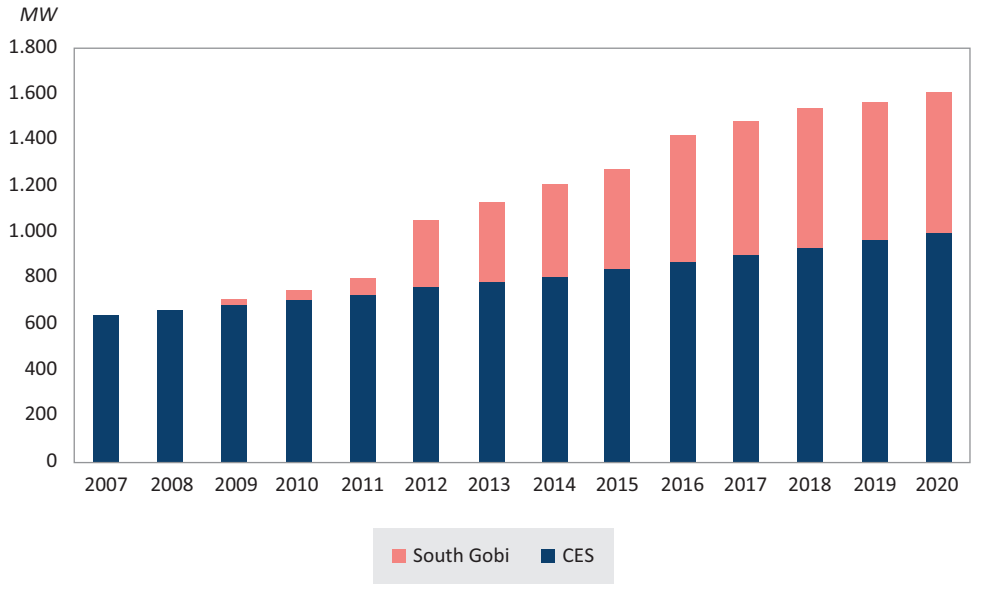
Source: Ministry of Energy

The most important implication of the industrialisation of the Mongolian economy is a significant increase in energy consumption. The total consumption of primary energy has increased from 2,564.17 million TOE in 2000 to 3,545 million TOE in 2010.

The most recent available data on energy consumption in Mongolia's regional heat and electricity systems shows that these sectors consume about 5.6 million tons of coal or 23.5 per cent of the total coal production used domestically (5.623 million tons). In addition to the regional coal-based energy systems, there are isolated diesel-power generators that make up the remaining 2 per cent of electricity production.

It is estimated that electricity demand is going to grow from the 600 MW of 2007 to over 1,600 MW by 2020.

Figure 11: Electricity demand projection until 2020

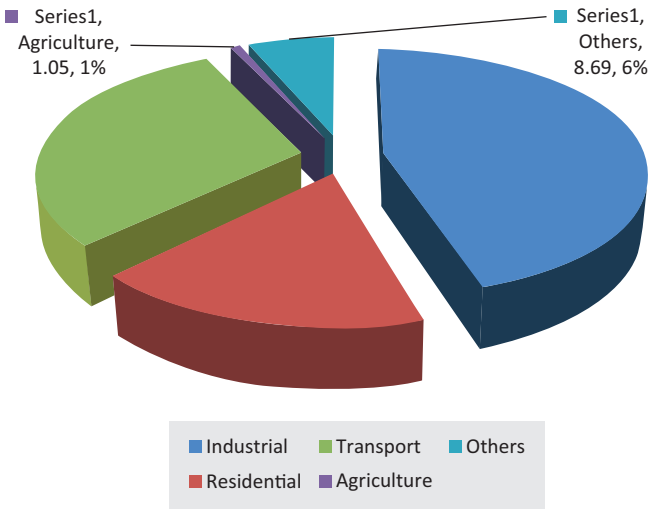


Source: Ministry of Energy

In order to meet Mongolia's energy consumption growth for 2015–2030, which is estimated to be 1,500–3,000 MW, and to export electricity, it is necessary to build power stations near mining deposits such as Tavan Tolgoi, Shivee Ovoo, Baganuur, Aduunchuluun, Hotgor, Booroljuut and Chandagan.

Active participation and support from international banks, financial institutions, foreign and domestic investors and business entrepreneurs in the energy sector are of vital importance for the best implementation of new projects

Figure 12: Energy consumption and trend by sector in 2011



Source: Ministry of Energy, Mongolia

Energy Dependency

Mongolia imports oil products and electricity from the Russian Federation. Coal is the major fossil fuel produced in Mongolia while oil production is very limited.

Mongolia's oil has been imported mainly from the Russia Federation. Currently, dependency on Russia for oil is around 95 per cent of the total oil import and electricity dependency is only around 4.2 per cent.

Table 10: Energy import dependency of Mongolia (per cent)

Year	Energy Import Dependency	Energy Import/total Imports	Dependency of imports from the Russian Federation	
			Petroleum Products	Electricity
1990	25.21	30.98	100	8.38
1995	17.57	34.21	100	19.95
2000	18.89	26.09	100	9.66
2005	27.52	17.64	95	6.86
2010	25.6	7.78	95	4.2

Source: Ministry of Energy

Tariffs

In Mongolia, the ERC is responsible for setting tariffs. The Law on Energy has provisions regulating the principles for setting tariffs. The law states that tariffs shall be determined separately for each licensed activity, including the generation, transmission, distribution, dispatching and supply of electricity and heat. The following principles shall be observed in determining the tariffs.

- Tariffs should be based on the real costs of operations;
- Costs should be allocated to different consumer categories according to their requirements for electricity and heat supply;
- Tariffs should enable the regulation of energy consumption;
- Tariffs should ensure price stability;
- Tariffs should ensure that the revenues of licensees are sufficient to support their financial viability;
- The tariff structure for electricity and heat should be clear and understandable for consumers.

The least-cost principle should be followed while tariffs should be sufficient to enable compliance with the requirements of technical and technological safety in energy generation, transmission, distribution, supply and dispatching.

Tariffs differ according to consumer groups, geographic locations and times of the day. For example, the energy regulator introduced daytime and night-time tariffs for the residential sector in 2005. Since then, lower income consumer groups have also received special discounted tariffs, which are calculated on the basis of the monthly consumption. The detailed information on electricity tariffs is given in Annex 2.

The Law on Renewable Energies of 2007 states that the prices and tariffs of renewable energy shall be effective and stable for a period of not less than ten years since the validation of this law. The ERA shall set tariffs for energy generated and delivered by renewable energy power sources connected to the grid within the following limits:

- US$ 0.08–0.095 per kWh of electricity generated and delivered by a wind power source;
- US$ 0.045–0.06 per kWh of electricity generated and delivered by a hydropower plant with a capacity of less than 5,000 kW;
- US$ 0.15–0.18 per kWh of electricity generated and delivered by a solar power source.

The above-mentioned feed-in tariff system provides incentives to develop renewable energy sources.

The regulatory boards of aimags and the capital city shall set tariffs of energy generated by stand-alone power sources within the following limits:

- US$ 0.10–0.15 per kWh of electricity by a wind power source;
- US$ 0.08–0.10 per kWh of electricity by a hydropower plant with a capacity of less than 500 kW;
- US$ 0.05–0.06 per kWh of electricity by a hydropower plant with a capacity of 501–2,000 kW;
- US$ 0.045–0.05 per kWh of electricity by a hydropower plant with a capacity of 2,001–5,000 kW;
- US$ 0.2–0.3 per kWh of electricity by a solar power source.

ENERGY MARKET STRUCTURE BY SECTOR

Coal sector

Overview

Since 1994 the Mongolian Government has been working to rationalise and further develop the coal sector. In Mongolia, the state has shares in some large coal mines. Local authorities (Khurals) have shares in smaller coal mines. Local and foreign investors also have shares in coal mines.

The Mineral Resource Authority of Mongolia is an implementing agency of the Mongolian Government. Its main objectives are to support the development of government policy for the mineral resources sector and to provide investors, customers and other interested public sectors with quick, convenient and customer-oriented services.

The Ministry of Mining has prepared a national programme to develop the coal sector. The major objectives of the programme are as follows:

- To develop clean coal and coal liquefying technologies via coal processing complexes in the eastern, central and western economic regions;
- To develop a large coking plant at the Tavan Tolgoi coking coal deposit;
- To establish a smokeless fuel producing net to reduce the air pollution in urban areas, especially in Ulaanbaatar, the capital city of Mongolia;
- To establish small-medium scaled integrated gasification combined cycle (IGCC) plants in the western region based on some local coal deposits to support the central power system.

Mongolia has 162.3 billion tons of coal resources and preliminary explorations suggest there are over 20 billion tons in coal reserves. Statistics show that, in 2010, coal exports increased by 2.5 times compared to in 2009. It is projected that, by the year 2015, 50 million tons of coal will be exported. This projection is based not on the potential, but the infrastructure potential. If the infrastructure develops faster than planned, more coal can be exported. Among the energy sources, coal is the most important fuel in Mongolia. Its share in 2010 was 66.3 per cent, which accounts for slightly less than a half of the total prime energy supply. Coal still accounts for the largest share in Mongolia's total primary energy demand.

Before the democratic revolution of 1990 (centralised economy), Mongolia was exporting a small amount of lignite to Russia. However, due to shortages in production caused by economic difficulties in the country, Mongolia stopped this export.

Since 2000, private coal mining companies have started to produce and export high-grade metallurgical coal to China. Export has been increasing, reaching 74 per cent of the total coal production in 2010. In the year of 2010 a total of 18,479,000 tons of coal was exported.

All of the coal is produced domestically; both lignite and bituminous coal is used for energy electricity production, accounting for 99.3 per cent and 0.65 per cent respectively.

Today, Mongolian coal mines fully supply the CHPs for power generation. Heating boilers in local areas are also supplied by domestic coal mines.

Lignite

Lignite is still the principle energy source in the power generation of the CES and Eastern Energy System (EES). It is also the main energy source along with biomass and firewood in the residential sector.

Table 11: Lignite production in Mongolia (unit: 1,000 tons)

	2000	2005	2010
Lignite	4,959.9	4,955.1	6150
Res. & Com.	130.9	89.1	463
Industry	266.5	181.4	360
Power Gen.	4,423.0	4,589.6	5324

Source: Ministry of Energy

Bituminous coal

Bituminous coal deposits are located mainly in the western and relatively low developed regions of the country, leading to low production of this type of coal compared with lignite production. However, bituminous coal is still the principle energy source in the residential sector in rural areas.

Table 12: Bituminous coal production in Mongolia (unit: 1,000 tonnes)

	2000	2005	2010
Bituminous Coal	225.14	2,199.4	19952
Res. &Com.	58.9	79.6	269
Industry	119.9	162.1	509
Power Gen.	26.0	30.0	209

Source: Ministry of Energy

Coking coal

The Mongolian Government intends to expand the Tavan Tolgoi coking coal mine, which is the only coking coal deposit. This deposit produces and exports metallurgical coal to China, Russia, Japan and Korea, and seeks other potential markets. The plan is to establish a large coal processing and coke producing plant at the deposit site.

Electricity sector

Overview

Mongolia's energy needs are mainly met by domestic generation in seven coal-fired power plants, thirteen hydropower plants, diesel generators, small-size solar panels and wind power installations. About 13 per cent of the electricity is imported from Russia. One industrial mine in Mongolia directly imports electricity from China.

Electricity is widely available for both residential and industrial use in Mongolia's urban centres but to a lesser extent outside these centres where the energy infrastructure is limited.

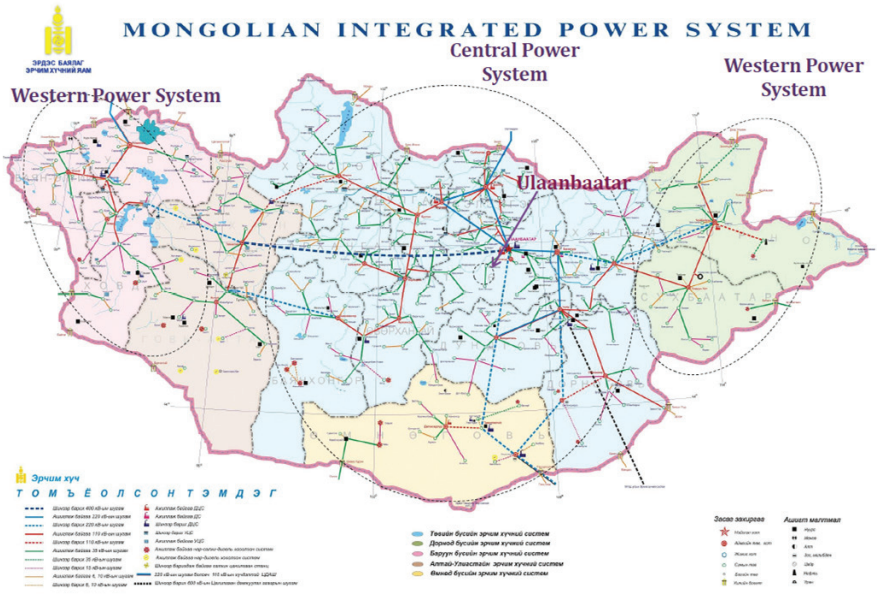
Mongolia has four independent power systems: the CES, Western Energy System (WES), EES and Altai Uliastai Energy System (AUES).

The CES presently has a gross electricity demand of around 729 MW (including the Erdenet copper mine load), which accounts for approximately 95 per cent of the total load in the country.

In the CES area the total installed capacity for power generation is 826.3 MW compared to a peak demand of about 729 MW. The CES is also connected to the electricity network of the Russian Federation.

The main problem in the CES is that the largest generation unit of 100 MW of Ulaanbaatar's Power Plant 4 only provides about 20 per cent of the winter average load. Sometime this unit goes out of order, which leads to a huge power deficit. In such situations the power generating units are not able to respond quickly enough to changes in load demands. The power deficit is covered by selectively curtailing the load on a rotating basis and/or by buying electricity from Russia.

Figure 13: Map of the Mongolian power system



Source: Ministry of Energy

For Mongolia, the most technically and financially viable solution in the near term is the energy conservation programmes, including energy efficiency improvements in the power plants themselves.

The Mongolian Government appointed the ADB to advise the government in structuring the 450-MW CHP5 in Ulaanbaatar as a PPP.

CHP5 could help address the city's growing heating and energy demand and provide a steady supply to the capital where the government plans to retire old plants to reduce air pollution. If implemented, it would mark the largest private sector infrastructure project outside Mongolia's dominant mining sector. A number of foreign companies have participated in the open tender.

All five old coal-fired power stations in the CES grid are of Russian design. They are cogeneration plants for producing base-load electricity, hot water for district heating (DH) and process steam

for industry. The CES is unable to meet the daily system demand with these plants due to their poor peaking capability.

In total Mongolia has 836 MW of thermal power generation capacity in the country. More details are given in the table below.

Table 13: Existing CHPs in Mongolia

Power & Heating Plant	Installed Capacity (MW)	Available Capacity (MW)	Boiler Capacity (MW)	District Heating** (MW)	Industrial Steam (MW)	Year of Commissioning
Ulaanbaatar Power Plant 2	24	21.5	80	43	58	1961 - 1969
Ulaanbaatar Power Plant 3	148.0	136	136.0	562	105	1968 - 1982
Ulaanbaatar Power Plant 4	580.0	560	260.0	918	29	1983
Darkhan	48.0	48	477	210	49	1966, 1986
Erdenet	36.0	28.8	318	140	24	1987
Subtotal CES	836.0	794.3	494.3	194.3	265	-
Choibalsan EES	36.0	36	397	130	22	1969, 1979
Dalanzadgad	6.0	5.4	38	8	-	2000
Durgun	12.0	12	--	-	-	2008-2010
Taishir	11.0	11	-	-	-	2010-2011
Diesel	43	43	-	-	-	
Total	**944.0**	**901.7**	**5 90**	**2 90**	**287**	**-**

Source: Ministry of Energy

The other three grids cover the western and eastern parts of Mongolia and are very small in comparison with the CES. The WES covers the aimags of Uvs, Bayan-Ulgiy and Khovd in the Altai region with a total demand of about 20 MW. The WES imports electricity from the Russian Federation to meet the peak demand. The EES serves the two eastern aimags of Dornod and Sukhbaatar with a total demand of about 21 MW and the AUES serves Gobi-Altai, in Zavkhan province, with a total demand of about 8 MW.

In the EES area the CHP of Choibalsan produces 36 MW of electricity per year; however, the actual peak demand is only 21.7 MW in the grid system. The new Dalanzadgad CHP plant supplies 6 MW to a local isolated small grid.

Transmission voltages are 220 kV (in the CES only) and 110 kV, while the principal medium distribution voltage is 35 kV, which is generally transformed to 10 kV or 6 kV. In 2010 the lengths of the total transmission lines installed are approximately (in route km) as summarised in the table below.

Table 14: Transmission system by districts

Electrical System	Voltage Level 220 kV	Voltage Level 110 kV	Voltage Level 35 kV	Voltage Level
6-15 kV				
CES	1044	2982	5824	9966
WES	0	742	724	1679
EES	0	305	679	826
AUES	0	254	929	813
Dalanzadgad	0	0	193.8	298
Total Country	1044	4283	8349	13582

Source: Ministry of Energy

In order to register and classify the reasons for electricity supply interruptions and to determine the numbers of interruptions in conformity with international standards, the ERC started to register electricity supply interruptions by using the following three indices from 2005:

1. The System Average Interruption Duration Index (SAIDI) – the number of interruptions per consumer per year (number of interruptions/number of all customers per year);
2. The System Average Interruption Frequency Index (SAIFI) – the average time of the interruptions per consumer per year (duration of interruptions (min)/number of all customers per year);
3. The Consumer Average Interruption Duration Index (CAIDI) – the average interruption time per consumer affected by the interruption per year(duration of interruptions (min)/number of customers affected by the interruptions per year).

Using these three indices, the ERC received electricity supply interruption information quarterly from transmission and distribution companies; through the integration of this data the ERC prepared quarterly summaries in 2011.

These indices were estimated for every distribution company in 2011 by reflecting the scheduled outages, unscheduled outages, natural calamities, outages caused by the fault of the licensees and outages resulting from other licensees' actions.

In 2011 the ISAIDI was 119 hours, which was a decrease of 52 per cent from the previous year. The ISAIFI was 12 per customer, depicting a decrease of two units compared with in 2010.

Table 15: Summary of interruptions indices from 2010–2011 (in hours)

Region	2010			2011		
	SAIDI	CAIFI	CAIDI	SAIDI	CAIFI	CAIDI
Central Region	61	14	4	57	12	5
Western Region	213	9	24	220	7	33
Eastern Region	4012	12	332	654	3	205
Dalanzadgad	-	-	-	466	12	39
Total	381	27	14	954	29	33
Central Region	**247**	**14**	**18**	**119**	**12**	**10**

Source: Energy Regulatory Commission

Outages reduce the actual power delivery by about 14-18 per cent. In addition, the CES uses 22 per cent of the gross generation for its own use during the winter and this amount is very high. Most of the CHPs operate with de-rated capacity due to the fact that the coal quality is much below that of the design coal for these boilers. The situation is aggravated by the coal supply and spares parts problems.

A serious aspect of the system is its age. The remaining lifetime of the power plants is only twelve years on average with the Ulaanbaatar Power Plant 4 (TPP 4) being capable of operating for possibly fifteen years more. It is apparent to professional circles that major refurbishment must be considered in the short term and medium-term replacement of the generating capacity has to be planned for soon.

Rehabilitation projects on the CHPs, TPP 3, TPP 4 in Ulaanbaatar, the Darkhan CHP and the Choibalsan have been carried out and are partly financed by loans from various donors.

A major part of these rehabilitation projects has been devoted to boiler refurbishment, which has considerably improved the reliability of the operation. A new rehabilitation project has been completely implemented on TPP #4 with a US$ 50 million loan from Japan.

During the last few years there have been favourable achievements and changes in the energy sector, and generation and consumption are stabilising.

The total electrical energy generated in the central region was 3.5 billion kWh in 2010 and electrical energy increased by 560 million kWh or 19 per cent compared with in 2000, as the maximum amount of electrical energy was generated; the total heat energy distributed by power plants was 6.22 million Gcal and this increased by 100,000 Gcal compared with in 2005.

The income of the energy companies amounted to MNT 25 billion at the end of 2010 and this reduced by MNT 5.3 billion. The income was reduced by MNT 5.3 billion compared with in 2009.

Of the total income, 27.2 per cent comes from entities or industries, 46.9 per cent from households and 24.7 per cent from suppliers and others. The overall costs of the energy companies reached MNT 29.3 billion at the end of 2010.

The electricity transmission and distribution losses of the central region reached 17.3 per cent and increased by 1.4 per cent, as compared with the objectives (18.3 per cent). The total losses

of electricity in the Dornod region reached 8.7 per cent. The electricity transmission losses of the western transmission system were 21.9 per cent and the electricity distribution losses of the distribution companies in the western three aimags were 17-37 per cent. The total losses of electricity in the AUES are estimated to be 12 per cent. Considerable subsidies have been provided to the Dalanzadgad power plant and diesel-power plants in aimag centres from the state budget in order to compensate electricity and heat losses incurred due to their lower output and efficiency.

Table 16: Electricity generation in Mongolia

	1980	1990	2000	2005	2010
Capacity (Mw)	983.03	956.0	937.59	911.03	944.1
Peak Load (Mw)	590	477	526	576	730
Gross Generation (Gwh)	3348	2628	2946	3418.9	4301

Source: Ministry of Energy

Single buyer model (SBM) as a transition operational model

Currently, Mongolia has the SBM, which has been adopted in the frame of the CES and is regulated by an automatic cash flow mechanism. Spot and auction markets are also implemented in the CES.

With the purpose of creating a market environment in energy production and supply, the SBM has been in place since September 2002.

SBM purchases electricity from the five power plants operating in the central region and through imports from Russia and sells it to the ten electricity distribution companies. The Central Regional Electricity Transmission Network has been operating as a single buyer since September 2002.

In 2011, using SBM, 3,844.4 million kWh of electricity were purchased, equivalent to MNT 231.7 billion, from the generators and through imports from Russia. The amount of electricity purchased has increased by 6.1 per cent from 2010.

In 2001, before the inception of the SBM, the rate of sales revenue collection was only about 76.5 per cent. This rate has increased every year and reached 101.8 per cent in 2011 and an additional MNT 4.3 billion was collected, more than planned (MNT 231.7 billion), in 2011 and accumulated debts of previous years were reduced accordingly.

Spot market

A spot market is based on the differences between the amount of scheduled electricity generation and the amount of real-time electricity supply. As a result of operating the spot market, power plants will try not to breach the scheduled generation or dispatching graph. If it is breached, they will bear some responsibility according to the spot market rule. In other words, trade is affected by selecting the highest tariff of the companies participating in the spot market.

In 2011, about 3.9 million kWh of electricity or MNT 195.7 million was traded in the spot market. The amount of traded electricity reduced by 20.6 per cent from 2010.

TPP4 gained revenue of MNT 123.2 million from the spot market trade in 2011. However, TPP 2, TPP 3, Darkhan TPP and Erdenet TPP have carried responsibility for paying the MNT 10 million, MNT 57.8 million, MNT 47.3 million and MNT 8.1 million respectively traded in 2011.

Auction market

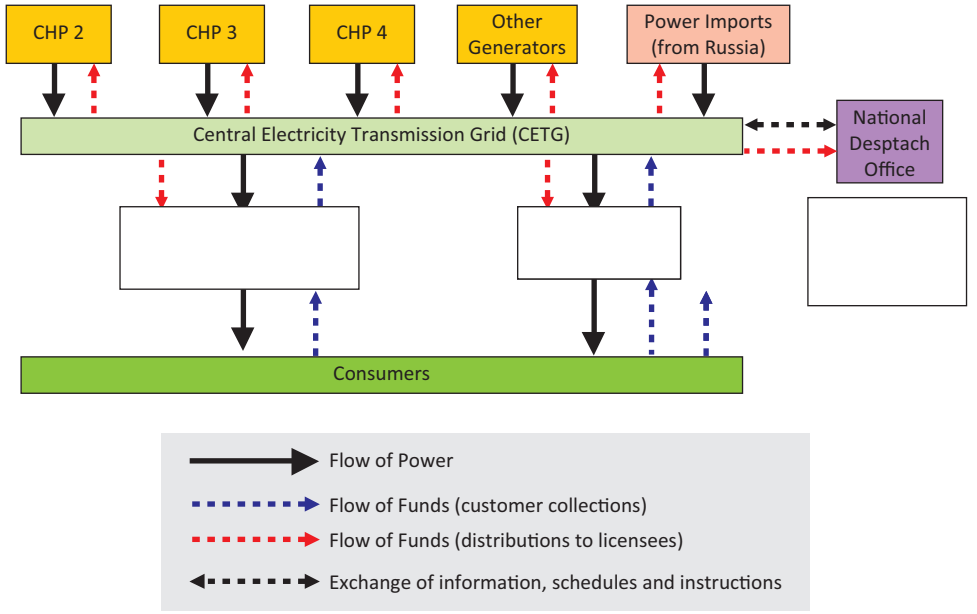
The auction organised among the generators based on their offered generation tariffs and their growth in electricity demand is defined as the competitive market.

According to the experiences of competitive markets in foreign countries, usually the right to supply electricity is awarded to the generator based on the lowest offered price.

However, in the case of Mongolia, the lowest generation tariff will not be ranked in first place. Instead, the generators who have offered to reduce their generation tariff by a higher percentage will be ranked first. This affords an opportunity for the power plants with significantly different tariffs to have an equal right to participate in the auction market. Besides, due to the specific features of the electricity market of Mongolia, we organised the auction market according to just the growth of the electricity demand.

The auction market commenced operation on 1 August 2007. In total, 4.45 million kWh of electricity, which is equal to MNT 281.7 million, were traded in 2011 in the auction market. Power plants participated in the auction market, decreasing their energy tariff by 0.2 per cent.

Figure 14: Market structure of the Mongolian power sector



Source: Ministry of Energy

The Central Electricity System includes the electricity supply services for the cities and surrounded areas of Ulaanbaatar, Darkhan and Erdenet. Under the SBM, the Central Electricity Transmission Network acts as a single (the only) buyer of electricity from the generators. This

system was adopted by the ERA as an initial organisation phase to deal with government-owned distribution systems and government-owned generation plants.

The advantages of the SBM are its simplicity, easy balancing of supply and demand for electricity and the fact it prevents a single buyer from gaining the benefit of lower generation costs.

After the inception of the SBM, the revenue collection increased to 75 per cent in 2002 and to 97 per cent in 2004. The licensees did away with the shortage of cash. Some power plants annulated the debt to coalmines.

Before the adoption of the SBM the 40 per cent of total revenues was made through offsets. The ERA made a decision to reduce the level of offsets, and in 2004 the level of offsets was at 15 per cent.

As the privatisation of state-owned assets advances private companies and potential foreign investors might prefer the contracts model over the SBM. Therefore, the ERA is aiming to develop the necessary rules and regulations to make a transition to the new power market structure.

Corporatised energy entities

The energy sector has been unbundled into distinct generating, dispatching, transmission and distribution companies. Currently, all of these companies are state owned, and are assuming responsibility for the financing and operation of their businesses. These companies include the following:

Eight generating companies

- Ulaanbaatar Power Plant 2
- Ulaanbaatar Power Plant 3
- Ulaanbaatar Power Plant 4
- Darkhan Power Plant
- Erdenet Power Plant
- Nalaikh Power Station
- Baganuur Heat Station
- Dalanzadgad Power Plant.

Four electricity distribution companies

- Ulaanbaatar Electricity Distribution Network
- Darkhan-Selenge Electricity Distribution Network
- Erdenet-Bulgan Electricity Distribution Network
- Baganur-South Eastern Electricity Distribution Network.

Two heat distribution companies

- Ulaanbaatar Heat Distribution Network
- Darkhan Heat Distribution Network
- Central Electricity Transmission Network

- Eastern Electricity System (stand-alone power system)
- Western Electricity Transmission Network (stand-alone power system)
- Altai Uliastai Electricity System.

Renewable energy sector

Renewable energy resources

Mongolia has vast resources of renewable energy and has favourable climatic and weather conditions so that it can use these resources effectively. Mongolia has 3,800 small and big streams and rivers, which could support 6,417.7 MW of power and deliver 56.2 billion kWh of electricity in a year.

From 270 to 300 days in an average year the entire territory of the country is estimated to be sunny and the yearly average daylight time is estimated to be 2,250–3,300 hours. The yearly radiation is estimated to be 1,200–1,600 kW per sq m and its intensity is estimated at more than 4.3–4.7 kW per hour.

According to the wind energy atlas of Mongolia, 10 per cent of the total territory or an area 160,000 sq km is estimated to be suitable for wind energy application. It is estimated that thirteen aimags have more than 20,000 MW of wind potential, and nine aimags have more than 50,000 MW of wind potential, and Umnugobi aimag alone has a wind energy potential of over 300,000 MW.

There are over forty indications of geothermal manifestations in the territory of Mongolia and from these sites Tsenkher, Khujirt and Shargaljuut, located in the Khangai region, may be used for energy production purposes.

The government intends to implement a goal to increase the percentage share of renewable energy in the total energy production. Up to date the share of renewable energy in prime energy supply has reached above 5 per cent and it is planned that it shall reach a 20–25 per cent share by 2020. The plan is to:

- decrease losses in the overall energy system by 3–5 per cent by the year 2010 and have no more than by 10 per cent losses by the year 2020 by introducing advanced renewable energy technology and increasing conservation and the efficiency of the production, transmission, distribution and operation;
- provide power to all distant soums and settlements, which require significant amounts of resources to be connected to the centralised power grid system, through the introduction of renewable energy generating systems;
- develop and implement step-by-step sub-programmes to provide schools, hospitals and public service institutions in remotely located soum centres with renewable energy sources from the centralised energy grid system; present wide application solar and wind energy in water pumping and irrigation of crops fields and grasslands; and establish basic conditions for the future development of local electronic governance and promote knowledge-based production in rural areas.

The government is working towards reaching full achievement of the objectives raised in the national programme, entitled 100,000 Solar Ger to supply all herding households in rural areas with renewable energy sources.

It is planned, based on the results of a detailed study of the renewable energy (solar, hydro, geothermal, hydrogen, biomass, etc.) potential of Mongolia to develop and implement a master plan to use these sources.

The government is taking measures to perform technical, economic feasibility studies of large hydropower stations, namely the Eg river 220-MW station, the Artsat 118-MW station on the Selenge river and the Orkhon river and the 110-MW stations on rivers with significant hydropower resources, such as the Selenge, Eg and Orkhon rivers, and to implement these studies.

"The National Renewable Energy Program (2005–2020)" shall be implemented in two stages: the first stage for 2005–2010/near term/ and the second stage for 2011–2020/mid-term/.

Near-term tasks

- Complete construction and launch of the Durgun and Taishir hydropower plants;
- Launch the construction of the 100-MW Orkhon hydropower plant in the central region;
- Reach full achievement of the objectives raised in the national programme entitled 100,000 Solar Ger to supply all herding households in rural areas with renewable energy sources;
- Provide and electrify at least eight soum centres located far away from the centralised power grids, be proven to have good wind power resources, from wind-diesel or wind-solar-diesel hybrid power stations and electrify at least five soum centres using solar and diesel hybrid powered systems;
- Perform feasibility studies of hydropower plant construction for the electrification of sixteen selected soum centres and electrify the following eight soum centres: Bulgan soum of Bayan-Olgii aimag, Batshireet soum of Khentii aimag, most soum Khovd aimag, Erdenebulgan soum of Khovsgol aimag, Baruunturuun soum of Uvs aimag, Tosontsengel, Tsetsen-Uul and Zavkhanmandal soums of Zavkhan aimag, using hydro energy resources;
- Conduct a detailed survey of medium-sized wind parks in sites with high wind energy potentials, such as Salkhit hills, Khuitnii Ongotkhoi and eastern and southern regions of the country, and perform a detailed study of the use of these parks in the centralised power grid system;
- Widely use solar heating equipment to provide distant soum centres with a commercial hot water supply.

Mid-term development tasks

- Complete the construction and launch of the 100-MW Orkhon hydropower plant;
- Electrify all remotely located soum centres and settlements that are not connected to the centralised power grid, using renewable energy techniques and technology;
- Expand the use of renewable energy technology to improve the energy supply in rural areas and widely use renewable energy to improve the power supply of farming stations, border guarding and defence forces, tourist camps and public service providers;
- Construct small and medium capacity energy complexes in Ulaanbaatar and other cities and towns to reduce air pollution in these areas using solar, wind, hydrogen and geothermal resources;

- Construct medium capacity (30–50-MW) wind parks in sites with a proven wind energy potential and connect to the centralised power grid system, creating efficient operation conditions;
- In the scope of international research activities in very large-scale photovoltaic (PV) power generation systems, gradually implement a pilot project in the Gobi region of the country.

Programme outcomes

- Completion and utilisation of the 100-MW Orkhon river hydropower plant will create flexibility for the operational regime of the central power grid and increase its independence;
- Completion of the construction of Durgun and Taishir hydropower stations will ensure the independence and reliability of the western region's power supply;
- Full achievement of objectives raised in the national programme entitled 100,000 Solar Ger and delivery of renewable energy power sources to over 180,000 herding households will encourage the development of household production and reduce migration from the countryside to urban areas;
- Completion of the task to deliver a renewable energy power source to all remote soums and settlements not connected to centralised power grids will result in increasing opportunities for rural inhabitants to access to education and information and will create conditions for the development of production based on electronic governance and knowledge in rural areas;
- Construction of medium capacity (30–50-MW) wind parks in sites with proven wind energy potential and utilising these farms in the centralised power grid will create efficient and reliable operation conditions;
- Creation of a favourable legal environment for the use of renewable energy, for energy conservation and for increasing the industry's efficiency will result in wide opportunities for domestic and international companies and business entities to work in the area of renewable energy;
- Extensive use of renewable energy will exert a significant, positive influence in terms of decreasing the emissions of waste greenhouse carbon dioxide and other poisonous gases into the environment due to the limited use of organic fuel (coal, oil, etc.).

A number of local and international companies are interested in developing the renewable energy sources of Mongolia. In 2011 the ERC issued several licences for the construction of renewable energy plants to the following companies: Sainshand Wind Park LLC for constructing a 52-MW wind park; Clean Energy LLC for a 250-MW wind park; AB Solar Wind LLC for a 100-MW wind park; Aydiner Global LLC for 50.4-MW wind park; and Civil Aviation Authority for a 443-kW solar plant. Furthermore, the ERC approved their electricity generation tariffs. Moreover, the ERC developed and approved samples of power purchase agreements between renewable energy generators and transmitters.

National and foreign investors participate in the development of the renewable energy sources of Mongolia.

The ERC sets tariffs on the energy generated and delivered by a renewable energy power source connected to the grid, which is presented in section 4.4.

The utilisation of renewable energy has been emphasised as one of the priority areas of the energy industry in government policy documents such as the Government Action Plan, Millennium Development Goals, Sustainable Development Program of Mongolia for the 21st Century, Regional Development Concept, Consolidated Energy System Program of Mongolia and Sustainable Energy Development Strategy of Mongolia for 2002–2010. The Mongolian Government attaches great importance to the use of renewable energy for improving the power supply through research and the use of environmentally friendly and new sources of energy for the benefit of rural households who are not fully provided with power and soums and settlements that would require significant amounts of resources to become connected to centralised power grids.

Currently, all twenty-one aimags and 318 soums are supplied by centralised energy sources while fifteen soums are supplied from renewable sources and other hybrid systems. At the present time, the use of renewable energy sources for power generation has become a reality, as a result of which about 100,000 nomadic families have access to electricity through solar panels provided by the national programme entitled 100,000 Solar Ger.

The 50-MW Salkhit wind farm is another flagship project for Mongolia's renewable energy. The wind farm has been built about 70 km away from the capital, Ulaanbaatar. Apart from being a landmark project and an innovation in the Mongolian power sector, it will provide about 5 per cent of the country's electricity needs currently served by mainly coal-fired power plants. The wind farm is expected to reduce CO_2 emissions in the country by approximately 164,000 tonnes annually, enabling the company to sell carbon credits.

In relation to this project, the European Bank for Reconstruction and Development (EBRD) facilitated technical assistance to the Mongolian Government, funded by the Japanese Government, to develop the regulatory framework for renewable energy. In addition, the EBRD received funding from the government of Luxembourg for an environmental and social impact assessment for the Salkhit wind farm.

The EBRD extended a loan of US$ 42.4 million to Clean Energy LLC in order to implement the Salkhit wind farm. As part of the project financing, the EBRD will also take a further US$ 4.4 million equity stake in Clean Energy LLC. This company has been created to build the wind farm and 25 per cent of it is currently owned by the EBRD and 75 per cent by Newcom LLC — a Mongolian incorporated company that acts as a holding company for investments ranging from technology to aviation. Other participants in the project include US-based General Electric, which will supply thirty-one 1.6-MW wind turbines to the site. As the first private owner of a generator, Clean Energy LLC will facilitate the transition to a more liberalised market.[19]

Despite its ample resources, Mongolia has seen no significant growth in renewable energy at the industrial level because its market is too small and too heavily subsidised to create the economies of scale necessary to efficiently and economically support investments. Even if Mongolia's domestic market reached the 25 per cent goal stipulated in the National Renewable Energy Program (2005–2020), it will only translate into approximately 450 MW of the total installed renewable generation. Mongolia's greatest wind resource areas are in the sparsely populated southern provinces along the Chinese border. Transmitting this power hundreds of kilometres to the highly populated centres in the north would be prohibitively

[19] *http://www.ebrd.com/pages/news/press/2012/120321.shtml. Accessed on 24 April 2013*

expensive. While not an insignificant amount, 450 MW is not significant enough to warrant the development of a basic infrastructure or to produce the economies of scale necessary to tap into the country's most potent resource areas.[20]

In order to overcome the problems connected to integrating renewable energy sources into the national grid systems and create the economies of scale the government has recently started to promote the renewable energy potential of the Gobi desert, which shall be supplied to the regional market by Asian Super Grid. For more information please see section 5.3.4.

Hydropower

With an estimated 3,800 rivers and streams and a total length of 6,500 km, Mongolia has significant hydropower potential. At present, there are ten small Hydro Power Stations (HPP) running with the following installed capacities.

Table 17: List of small hydropower plants

Name of HPP	Installed capacity
Bogdiin	2000 kW
Mankhan	150 kW
Guulin	480 kW
Taishir	11000 kW
Durgun	12000 kW
Uench	2000 kW
Khungui	150 kW
Galuut	120 kW
Erdenebulgan	200 kW

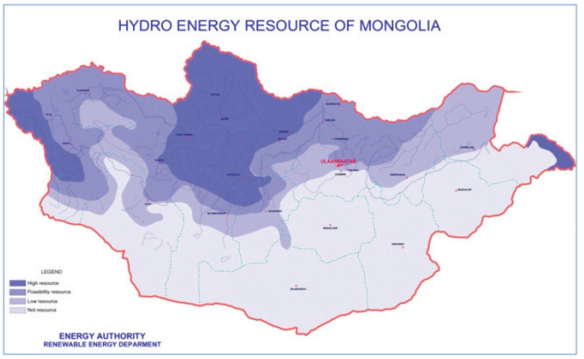
Source: Ministry of Energy

The small HPP are run-of-the-river designs that provide electricity to neighbouring rural areas except during the winter. Consideration is being given to increasing the number of similar hydro generators in order to reduce the use of diesel.

A number of larger hydro projects have been identified and are shown in the table below. Because of the demand loads of the CES, serious consideration is being given to developing the Eg and Shuren projects. It would provide peaking capacity (which is atypical of hydro projects) for the CES and eliminate the need for Russian electricity imports. The EG or else Shuren project would require a 120-km transmission line to the substation of 220-kV Erdenet.

[20] *http://www.reegle.info/policy-and-regulatory-overviews/MN. Accessed on 24 April 2013*

Figure 15: Hydro energy resources of Mongolia



Source: Energy Authority, Mongolia

The Durgun HPP will be connected to the WES of Mongolia. The Taishir HPP will supply electric energy to two provinces that have no connection to any energy systems in Mongolia. One of the key issues confronting Mongolia as it considers developing its hydro resources is the cost of power. As the table below indicates, there is a considerable range in power costs for the various proposed hydro schemes.

Table 18: Potential hydropower projects in Mongolia

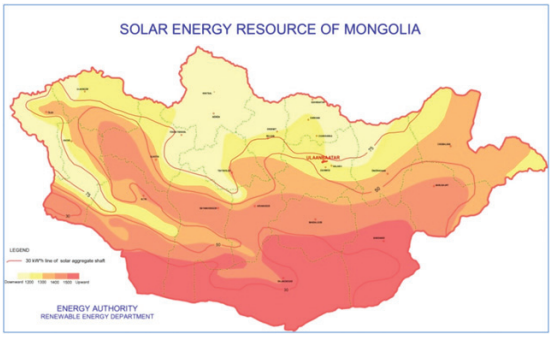
Project Name	Installed Capacity (MW)	Production/year (GWh)	Capital Cost ($ millions)	Energy Cost (US t/hWh)
Central ES				
Eg	220	484	300	5.72
Shuren	300	957	600	7.81
Western ES				
Erdenburen	69	347	128	3.72
Other Regions				
Delger/Chargait	15	114	84	7.37

Source: Energy Authority, Mongolia

Solar

Known as the "land of eternal blue skies", Mongolia has substantial solar potential. Approximately 71 per cent of the total land area receives solar insolation at a rate of 5.5–6 kWh/m^2 per day, and 2,900–3,000 sunshine hours per year. An additional 18 per cent of the country receives insolation at the rate of 4.5–5.5 kWh/m^2 per day, and 2,600–2,900 sunshine hours per year. Solar energy could be a suitable source for electricity for lighting and possibly cooking in rural areas. However, it is likely that heating and most cooking would be based on other energy sources.

Figure 16: Solar energy resources of Mongolia



Source: Ministry of Energy, Mongolia

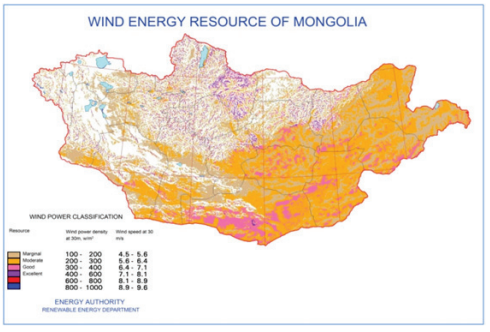
The government has adopted the 100,000 Solar Ger programme, which was implemented in three phases. The objective of the programme is to supply solar panels to100,000 herdsman families between 2000 and 2010 and this was ratified by the Mongolian Government's 158th resolution on 6 October 1999.

As of April 2013, some 87,262 gers were provided with solar panels financed by the state budget. Around 36,000 families contributed 50 per cent of the total cost to have solar panels. At present, 100,000 gers (out of 170,000 gers for the whole country) have independent solar PV systems that allow the use of electricity lights, radios, TVs and satellite dishes. The programme is currently negotiating additional financing for 25,000 more gers to be provided with solar PV systems. The installation of large-scale PV systems in the Gobi region of Mongolia has been considered, as it may contribute to both protecting against air pollution and supporting regional development and a feasibility study is under development.

Wind

Up to 70 per cent of the country has wind resources that may be suitable for development. In particular, the Gobi desert area and Dornod and Sukhbaatar provinces have wind regimes of 150–200 W/m^2 with wind durations of 4,000–4,500 hours per year.

Figure 17: Wind energy resources of Mongolia



Source: Energy Authority, Mongolia

The government anticipates that wind power will play a major role in the rural electrification programme. Recently, wind power stations have been built in many soums. In the last few years, a number of feasibility studies have been carried out on the construction of a wind power farm at Salkhit uul, near the capital city of Ulaanbaatar. This will be the first project of its kind in Mongolia and will also will the first renewable project to be implemented by a private investor, Clean Energy — a local company wholly owned by Mongolian Newcom Group LLC — and it will be supported by the EBRD, which will provide a 25 per cent stake in it.

The Sainshand wind park project is going to be implemented in the Sainshand province and the Oyu-Tolgoi wind park project is to be implemented in the Umnugobi province.

A wind potential survey has been conducted in Mongolia sponsored by the United States Agency for International Development (USAID) and the Technical Assistance to the Commonwealth of Independent States (TACIS) in order to produce a reliable wind map. This map was issued at the end of the year 2000 by the National Renewable Energy Laboratory (NREL), the US Department of Energy, and will help to target the areas in which wind power generation can be developed. The survey reveals that, in almost 40 per cent of the country's area, mainly in the southeast part, the conditions are good for rural and moderate for utility generation purposes, with wind speeds between 5.6 and 6.4 m/s. More than 10 per cent of the total land area is considered to be "windy land" and estimated to have good-to-excellent wind potential for utility scale applications, with wind speeds between 6.4 and 7.1 m/s.

Regions in Mongolia with areas of more than 160,000 sq km are possible and convenient for using high-capacity wind power stations connected to the electric grid network. Ten per cent (56,500 sq km) of the whole territory has good wind resources.

The Mongolian Altai ranges, the Tagna and Khan-Khentii mountain ranges and the mountainous areas of Khuvsgul are considered areas with low wind energy resources. The intensity of wind power here is less than 100 W/m2, and the 3.5 m/s wind speed per year is less than 3,000 hours. This area accounts for 32.3 per cent of the country. The Steppe zone and Ikh Nuuruud and Post Altai Gobi areas have sufficient wind energy resources. The wind power equals 100–150 W/m^2 with 3,000–4,000 hours of wind per year. These areas encompass 28 per cent of the total territory. The Gobi desert zone and Dornot and Sukhbaatar provinces belong to the areas with high wind energy resources, which comprise 39.7 per cent of the national territory. These areas hold the highest rate of wind power with over 150–200 W/m^2 and wind durations of 4,000–4,500 hours per year. Therefore, an opportunity exists to provide rural small users in about 70 per cent of the national territory with wind power.

The potential of wind power generation is quite substantial in Mongolia and has so far been utilised only with small wind turbines systems of 50- and 100-W generation capacities. However, today there are many of these wind turbines in use in rural areas. It is estimated that more than 4,000 wind power systems have been installed, mainly by herdsmen. Nomads are practically self-sufficient in terms of power as they use small wind turbines.

A recent study by Nippon Koei Co Ltd of Japan, Master Plan Study for Rural Power Supply by Renewable Energy in Mongolia, shows that most of the wind turbines are used in the southern Gobi region. The US NREL has developed a wind energy resource map for Mongolia in cooperation with the REC and National Institute of Meteorology. This map consists of six categories according to the wind power density regions.

Table 19: Potential resource to produce electricity from Mongolian wind energy

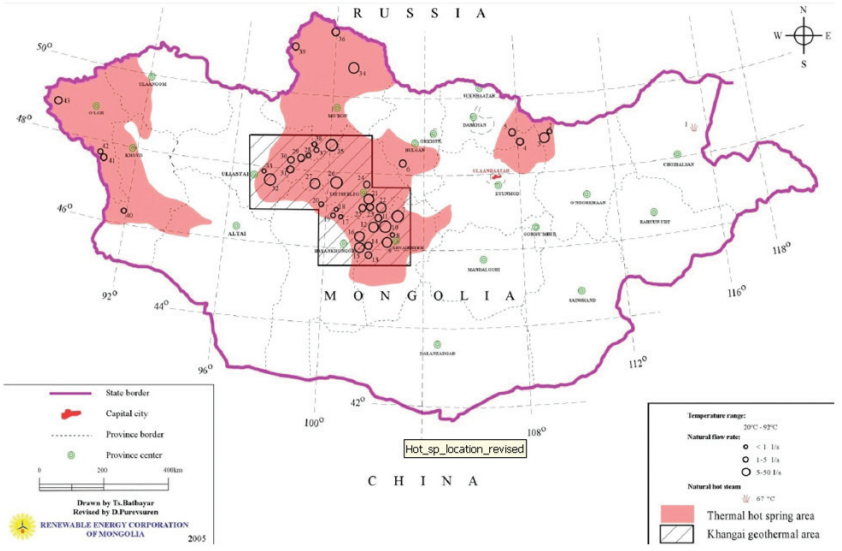
Category	Wind at 30 m height		Total area coverage		Total capacity MW	Energy to be produced GW.h/year
	Power W/sq.m	speed m/s	Sq.mk	percent		
3	300-400	6.4-7.1	130.665	81.3	905.500	1.975.500
4	400-600	7.1-8.1	27.165	16.9	188.300	511.000
5	600-800	8.1-8.9	2.669	1.7	18.500	60.200
6	800-1000	8.9-9.6	142	0.1	1.000	3.400
Total			160.641	100.0	1.113.300	2.550.100

Source: Ministry of Energy

Geothermal

During the last two decades, however, some general studies have been conducted on the geothermal regime in East Siberia and Mongolia, including the southern Siberian platform, Baikal rift zone, trans Baikal fold area and Mongolia, the four regions differing in terms of their geology and tectonics. The continental crust is highly heterogeneous within the provinces, ranging in age from the early Riphean to the late Cenozoic. At present around forty-three hot springs have been identified but their application is very limited.

Figure 18: Geothermal potential map of Mongolia



Source: Ministry of Energy

List of proposed investment projects

Electricity sector:

- Oyu-tolgoi Wind Park, 250 MW/feasibility study was completed;
- Sainshand Solar Power Plant, 30 MW/pre-feasibility study was completed;
- Taishir Solar Power Plant, 7.8 MW/pre-feasibility study was completed;
- Industrial complex in the city of Sainshand, 300 MW electrical demand;
- Tavantolgoi mining complex, 300–500 MW electrical demand;
- East coal-fired thermo-electrical power plant/increased capacity up to 100 MW;
- Electric railways in southern region, 200 MW;
- Delger Hydro Power Plant, 250 MW/feasibility study was completed;
- Egiin Hydro Power Plant, 220 MW/feasibility study was completed;
- Erdeneburen Hydro Power Plant, 60 MW/feasibility study was completed;
- Chargait Hydro Power Plant, 24.6 MW/feasibility study was completed;
- Orkhon Hydro Power Plant, 100 MW/feasibility study was completed.

Heating sector

- TPP, 5 MW x 3 aimag`s/renewable energy source;
- Heating households using renewables/capital city and remote areas;
- TPP in capital city/coal-fired power plant.

Gobitec and Asian Super Grid for renewable energies in Northeast Asia

The Mongolian Government promotes regional cooperation in the area of renewable energy and infrastructure development with countries in the Northeast Asia region, namely Japan, the Republic of Korea, China and the Russia Federation.

Combined with modern power transmission technologies, renewable energy can support the long-term economic prosperity of the region. According to the Mongolian National Renewable Energy Center, Mongolia has a potential renewable energy capacity of 2.6 million MW. It is estimated that this figure is seven times that of all the world's operational nuclear reactors. The Gobi desert is estimated to be the third largest potential source of solar energy in the world and is also blessed with steady, strong wind speeds, making it ideal for both technologies. However, this geographic zone, which is for the development of renewable energy sources, is very isolated and requires investment and connection to the regional energy market.

In March 2013 five partner organisations signed a memorandum of understanding to jointly prepare a regional study, Gobitec and the Asian Super Grid, for renewable energy sources in Northeast Asia. These are as follows.

- Energy Charter Secretariat;
- Energy Economics Institute of the Republic of Korea;
- Ministry of Energy of Mongolia;

- Japan Renewable Energy Foundation;
- Energy Systems Institute of the Russian Federation.

The countries of Northeast Asia have the common objectives of enhancing cooperation throughout the energy value chain, promoting the use of renewable energy sources, developing further the infrastructure and encouraging private sector investments in energy projects.

"Gobitec" is a new industrial initiative, in which electricity is produced from renewable energy sources in the desert regions of Mongolia and China and brought to the industrial centres of Mongolia, China, the Republic of Korea and Japan via high-voltage lines.

The Asian Super Grid Initiative aims to construct high-voltage transmission lines throughout Northeast Asia and interconnect the national grids of Japan, the Republic of Korea, China, Mongolia and Russia so that abundant renewable energy sources in remote areas could be utilised, such as hydropower resources in East Siberia.

The core objective of the joint study is to provide Northeast Asian countries and the international community with reliable information and data concerning the potential of renewable energy sources in the region. The study also aims to stimulate the interest of the private sector and international investors, and to provide recommendations for maximising international and regional cooperation in order to promote the Gobitec and the Asian Super Grid initiative.

The study will be completed in the course of 2013 and presented to interested policy makers, the business sector and the general public to stimulate informed discussions and facilitate regional cooperation in the energy sector of Northeast Asia.

Oil and natural gas sector

Overview

Due to the absence of oil refinery capacities Mongolia has been dependent on oil product imports from the former Soviet Union and Russian Federation for over seventy years. In the 1990s, the major eastern Russian suppliers –— Angarsk and Achinsk — were privatised as Yukos Corporation. Thus, by 2000, Mongolia realised that its economy was dependent upon petroleum product imports from a single Russian company. However, Russia also exports oil products to Mongolia through Sibneft refinery in Omsk.

Although oil products play a minor role in the country's energy consumption, some remote settlements and those isolated from the central power line still use diesel for electricity generation. However, this consumption accounts for about 1.5 per cent of the total imported diesel. Imported oil products are mainly consumed by the transport sector of the country.

Mongolia's sedimentary basins for petroleum are divided into thirty exploration blocks. The main form of cooperation between the PAM and investors in petroleum exploration, development and production operations is a production sharing contract (PSC). At present, the PAM has concluded eighteen PSCs with fourteen domestic and foreign companies on eighteen exploration blocks. 33 per cent of contractors are Mongolian companies, 39 per cent are Chinese companies and the remaining 28 per cent are companies from other countries. Currently, six more PSCs on six exploration blocks are under review by the government and five blocks are open for international biddings.

The PAM supervises and monitors the implementation of PSCs, joint petroleum geological survey agreements (JPGSAs) and other agreements as well as giving assistance to contractors in the implementation of the agreements.

From 1993 to 2010, a total of 22,077,14 km of 2D seismic work, 5,914,9 km of 3D seismic work, 36,955 km of gravity surveying, 118,895 km of magnetic surveying and 814 deep well drillings were conducted and 239 wells were put into production. Investments totalling over US$ 1.5 billion were made in petroleum exploration works in Mongolia by contractors during this time.

The petroleum production started in 1998 as an appraisal development and as of April 2011 a total of 8.12 million barrels of oil have been produced, of which 7.88 million barrels have been exported to China and overall MNT 136.8 billion have been allocated in the budget as revenue from oil sales, fulfilling the plan by 135 per cent.

In 2010, Mongolia become an "oil producing country" by registering in Mongolian mineral fund reserves of block XIX and block 97'PSC a total of 119.02 million tons of "proved" reserves, of which 13.67 million tons are "exploitation proved" reserves, 74.54 million tons are "probable" reserves and 52.78 million tons are "possible" reserves and a total of 26 million tons of "proved" reserves, of which 1.25 million tons are "exploitation proved" reserves and 25.84 million tons are "possible" reserves respectively.[21]

The PAM pays significant attention to the development of the infrastructure in local areas where petroleum operations are run by contractors. A total of 188.6 km of electrical line with a capacity of 110 KVT of power as well as 110 km of un-surfaced roads are under construction on block XIX. In addition, the construction of gathering, cleansing and storage facilities has begun on this block. The construction of electric lines and un-surfaced roads is running on the contract block referred to as 97'PSC as well.

In regard to Petroleum Downstream Operations, the PAM implements the government's policy on petroleum refining and products supply.

The State Great Khural (parliament) of Mongolia adopted the Law on Petroleum Products on 1 July 2005. This statutory law creates the legal environment for the state regulation on the supply of petroleum products and refining operations, safety and petroleum stockpile issues in order to ensure a stable and reliable supply of petroleum products.

Beginning in 2000, the volume of petroleum product imports has been increasing by around 10 per cent per year. With the rapid development of Mongolian mineral resources and industrial sectors, the demand for petroleum products has had a tendency to increase further.

In 2008 the State Great Khural of Mongolia entitled the government to regulate domestic prices for petroleum products using taxation adjustments. As a result, retail prices for petroleum products have been stable, so far, since September 2009.

The government's policy in the petroleum sector is aimed at developing the exploration of the petroleum potential of Mongolia, increasing production and fully supplying oil products from a domestic oil refining industry based on domestic resources for the country's needs through mutually beneficial cooperation with potential international oil companies. The Law on Petroleum Products was ratified by the Mongolian Parliament on 1 July 2005.

[21] *http://www.pam.gov.mn/page.intro. Accessed on 4 April 2013*

In order to increase sources of petroleum product supply, it is important to establish refineries and meet the domestic demand with refined petroleum products using imported and domestic crude oil.

Initial steps have been taken to start small-scale refining activities since 2000. In 2001, Petroleum Production Co Ltd installed a 50,000-t gas condensate refinery in the city of Erdenet. Unfortunately, the plant was closed due to financial problems. Another company, named Mich Co Ltd, has assembled oil refining equipment capable of refining 120,000 t of crude oil per annum in the city of Darkhan. This refinery still runs in a pilot-plant mode.

Oil products supply and demand for natural gas

Mongolia imports 100 per cent of its oil from foreign countries, with the overwhelming majority being from the Russian company Rosneft.

In 2010, Mongolia imported over 878,197 metric tons of petroleum products, including gasoline, diesel, fuel jet and lubricants.

Some 14,000 tons of oil products were imported from January–February of 2013 from South Korea. In addition, Mongolian companies have signed a contract with the Swiss company Ganvor and have imported 20,000 tons of oil products. An agreement has been made with China to sell the oil refinery in Huh Hot, China, and import 10,000 tons of refined products every month. It is possible to import almost 50 per cent of oil and fuel from third sources. Nearly 70,000 tons of oil products are being traded on the Mongolian market each month. Oil extracted from the three Tamsag basin sites will be transported to China's refinery. Of the 332.6 million tons of proven reserves at these sites, 43,000 tons are exploration reserves. A total of 1.9 million tons of oil have been extracted from China, and it is expected to extract 660,000 tons this year.

The government pays particular attention to the prices for and tariffs on oil imports and oil products. It was agreed to fix the price of China-imported oil according to the "Dachin-33" mark oil prices sold on the Singapore stock market. The oil extracted from Tamsag basin is being sold at the same price as "Dachin-33" traded on the Singapore stock market. In 2012, the price of this mark oil averaged US$ 100–110 per barrel.

Table 20: Imports of petroleum products, 2010

№	Petroleum product types	Tons
1	Gasoline A-80	127356
2	Gasoline A-92	149648
3	Diesel fuel	500544
4	Gasoline A-95	8948
5	Jet fuel TC-1	32864
6	Bitumen	31609
7	Lubricants	15201
8	Liquefied Petroleum Gas/LPG/	11785
9	Others	238.7
10	Total	878197

Source: Ministry of Energy, Mongolia

To date, no natural gas reserves have been discovered in Mongolia. There have also been no imports of natural gas to Mongolia.

Liquefied petroleum gas (LPG) plays a very limited but growing role in Mongolia. Since 1998, small amounts have been imported from China for household consumption, transport, tourism and industry and trucked throughout Mongolia.

It is believed that Mongolia might have substantial resources of shale gas. Recently, the Mongolian subsidiary of the US company, Genie Energy Ltd, Newark, NJts, signed an exclusive agreement to explore and evaluate the commercial potential of oil shale resources on 34,470 sq km in central Mongolia.

The PAM granted Genie Oil Shale Mongolia LLC a five-year contract to explore, identify and characterise the resource and conduct a pilot test using in situ technology on appropriate oil shale deposits.

Genie may seek to proceed to commercial development via a production sharing agreement in accordance with Mongolian law. To date, Genie Energy is the only recipient of an exclusive oil shale survey contract in Mongolia.

Genie Energy is said to have begun evaluating Mongolia's oil shale deposits after signing a joint survey agreement in 2012 and is said to have located a world class resource and will now identify the most advantageous areas for development.[22]

Heating sector[23]

Mongolia is one of the coldest countries in the world. Given its harsh climate, where temperatures can fall as low as minus 40°C, heat is a basic need. The government has made an adequate and reliable supply of power and heat a high priority in order to support Mongolia's economic transformation and development.

About 46 per cent of the population is connected to the DH system in Ulaanbaatar (UB), which supplies all customers with space heating (SH) and domestic hot water (DHW). The oldest parts of the network were commissioned over forty-five years ago, although parts of the network and substations have been rehabilitated over the last ten years. There is a small segment of the SH market that is supplied by heat-only boilers (HOBs), usually for public institutions. Peri-urban ger areas where 60 per cent of the population live do not have access to DH. This SH market is divided into gers (46 per cent of households in ger areas live in nomadic tents) and detached houses (53 per cent of households). All gers and about 15 per cent of detached houses use individual coal stoves. 62 per cent of detached homes use coal stoves attached to heating walls and 23 per cent use small water-heating boilers (coal-fired furnaces for individual homes), these being the only ger area buildings with some form of radiator system inside the home, and which may be targeted to connections to the DH network or to new large-scale HOBs.

The DH system in Ulaanbaatar is owned and operated by several companies.

(i) Three CHPs (CHP-2, CHP-3 and CHP-4), separate state-owned enterprises, are the only DH generators;

[22] *http://www.ogj.com/articles/2013/04/mongolia-signs-oil-shale-feasibility-agreement.html. Accessed on 24 April 2013*

[23] *Ulaanbaatar DH supply improvement feasibility study*

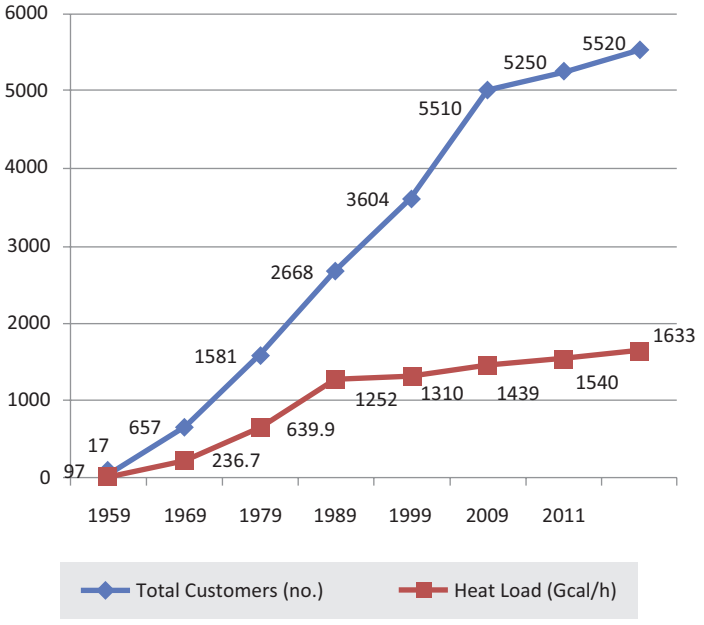
(ii) UB Heating Network Company, a state-owned enterprise (41 per cent owned by the Ministry of Energy, 39 per cent by the State Property Committee and 20 per cent by the Ministry of Finance), operates the transmission network and parts of the distribution network;

(iii) About twenty-one city housing services companies (CHCs), municipally-owned enterprises, operate most of the distribution network. All production and transmission assets, including booster pumps, are state owned. Some group substations and building level substations and most secondary networks to the building entrance are owned municipally and operated by the CHCs.

The ERC sets heat tariffs. Currently, there are eight different heat tariffs. Approximately, 37–45 per cent of heat sales (commercial and residential) is billed according to the meter. All others are assigned flat rates. The Ministry of Energy is also responsible for setting the energy policy in the country. UB owns and operates the CHCs and is responsible for policies and the management of the city. The Ulaanbaatar District Heating Company (UBDHC) was established in 1959 and currently employs 333 staff, including ninety-three technical staff and 240 administrative staff. In 1989 it employed 258 staff with thirty-eight technical staff.

Heat demand has grown steadily. In year 2009, the peak load of the DH system was 1, 555 Gcal/h and the heat consumed by customers 3.43 million Gcal. In December 2012 the reported peak load was 1,595 Gcal/h. The heating system design temperature is -39°C, and the peak load duration is 3,600 hours.

Figure 19: Total customers and heat load in selected years



Source: UB District Heating Company, 2012

All heat for DH is produced by three CHP plants, and these had a total available capacity of 1,585 Gcal/h at operating parameters in 2009. The CHPs have been operating between 25–47 years with twenty-five boilers with an estimated thermal capacity of about 5,570 ton per hour. In the year 2009 the heat supply to the DH network was 4.37 million Gcal and it grew to 4.62 million Gcal in 2012. The only fuel available is local coal, which has a lower heating value of about 3,400–4,000 kg/kcal. The table below indicates the production capacities of the CHP plants, but plants 3 and 4 still have excess steam production capacity available.

The CHP plants are all located in the west and are relatively old, but substantial modernisation has taken place sporadically. Boiler automation and frequency controlled DH pumps have been implemented in CHP3 and CHP4, for instance. There is a possibility that CHP2 and the low-pressure part of CHP3 may be retired, depending upon the planned investments.

A new CHP5 plant has been proposed recently with power generation capacity values of 450 MW being proposed for 2015, and 820 MW by 2020. Two alternative locations for CHP5 are under consideration, either at the site of the existing CHP3 or on a green field area east of the city.

The CHP3 location would benefit from the existing infrastructure with lower investment costs, whereas the green field location would solve bottlenecks prevailing in heat transmission from west to east. With the latter green field location, CHP3 could remain a peaking source in case electric power demand hikes in the near future.

A planned 300-MW heat boiler in the east side of the city has been proposed to cover the rapidly rising eastern heat load and unblock a bottleneck to the development of this part of UB. Thus an expansion of the 100-MW capacity in TPP 4 is underway.

The CHP plants supply heat to the transmission network of some 342 km, comprising pipes ranging from DN 125 to DN 1,300. In the network, there are still textile sealed compensators, which leak water out from the system. Heat transmission is boosted with eight pumping stations located in the network pumping hot water from west to east. The network and the booster pump stations are owned by the Ulaanbaatar District Heating Network Company (UBHNC).

The heating network system distributes heat and DHW through networks of about 150 km of total channel length comprising four pipes. In addition, the channels normally also have a fifth pipe for potable water supply.

The UBHNC sold heat to about 5,520 contracted customers and generated sales of about US$ 31.8 million in 2012. A significant share of sales in energy terms is through CHCs. The apartments are private, but the common areas in buildings are managed by either numerous condominium associations or by the CHCs. Heating customers are connected to the network in a variety of ways: heat exchanger units, mixing loops and hydro elevators are used for SH. Tube heat exchangers are used exclusively for the preparation of district heating water (DHW). With respect to SH, a few hundred hydro elevators still mix the DH network water to a maximum of 135°C (the design is 150°C) with the return water from the indoor heating system in order to supply water at 95°C to the radiators, which are mainly serially connected (one-pipe system). With respect to DHW, only indirect connections exist.

The UBDHC reports to be experiencing capacity constraints in its transmission network, especially in the CHP4-supplied network. It also needs to be able to ensure off-take from the expanded CHP3, the east HOB and CHP5.

Planning investments are difficult for the DH Company. The government is weighing options of how to address (i) perceived sustained increases in heating demand, especially in the eastern part of the city and in ger areas, and (ii) the reduction in available capacity. Although the heat load is growing, the city is considering constraining growth in certain parts of the city to reduce congestion. In addition, the city would like to investigate ways to expand DH to the ger areas where technically and economically feasible, and which do not have high negative social impacts. Some parts of the gers, however, are being re-planned. Furthermore, the government is planning to retire the low-pressure parts of CHP3 and CHP2 (338 MW representing 19 per cent of the available capacity).

The Mongolian Government and the Municipal Government of Ulaanbaatar have received US$ 15 million IDA credit toward the implementation of the Ulaanbaatar Clean Air Project. Part of the proceeds of this credit is used for the preparation of a feasibility study for evaluating options for improving the DH services in Mongolia.

ANNEX 1:
EXCEPTIONS FOR THE BLUE BOOK

LAND/REAL ESTATE

COUNTRY: **MONGOLIA**

MEASURES

Constitution of Mongolia, Article 6, paragraphs 1, 2, 3 and 5; FIL of July 1993, Article 21; Law on Allocation of Land to Mongolian Citizens for Ownership (adopted on 28 June 2002).

SECTOR

National economy.

LEVEL OF GOVERNMENT

National.

DESCRIPTION

The Mongolian Constitution stipulates that land, its subsoil, water, fauna and flora and other natural resources are the exclusive property of the state, with the exception of land given to the citizens of Mongolia for private use. Citizens are prohibited to transfer land in their possession to foreign citizens or stateless persons without the permission of the competent state authorities. The state may, however, allow foreign citizens, legal persons and stateless persons to lease land for a specific period of time. Accordingly, the FIL stipulates that business entities with foreign investment may require the right to use land by way of lease.

The Law on Allocation of Land to Mongolian Citizens for Ownership allows the transfer of plots of land into private ownership of Mongolian citizens (privatisation) under certain terms and conditions related to the location, size of the plot, etc. Private land cannot be sold to foreigners or stateless persons. However, a local joint venture partner can contribute land as its equity in a joint venture.

An authorisation by the relevant local Khural of representatives and its presidium is required for the lease of state-owned land by a wholly foreign-owned business entity or a business entity with foreign investment in which a Mongolian investor is a party.

The business entities with foreign participation may use land by way of lease for fees. The duration of any lease is determined by the duration of the operations of the business entity with foreign investment. The initial term of lease shall not exceed sixty years; the lease may be extended once for a period of up to forty years on the same conditions as the original lease.

PHASE-OUT

No plans at present.

OTHER EXCEPTIONS

None.

ACCESS/REGISTRATION/SCREENING

COUNTRY: **MONGOLIA**

MEASURES

Law on the Regulation of Foreign Investment in entities operating in strategic sectors of 2012, articles 4, 6 and 7; FIL of 10 May 1993, latest amendment as of 16 August 2012, Article 12.

SECTOR

National economy.

LEVEL OF GOVERNMENT

National.

DESCRIPTION

Applications by investors to establish business entities with foreign investment require assessment and approval by the central state administrative body responsible for the implementation of foreign investment policy, which is the DFIRR of the Ministry of Economic Development. The DFIRR registers a foreign investor and grants a certificate of registration within three working days after the submission of the completed registration form. When the department issues the registration of the certificate department, the Central State Taxation Department registers and publicly announces the foreign investment entity.

A foreign entity wishing to operate in a strategic sector of Mongolia or acquire one-third or more of the shares of a company that is an entity operating in the strategic sector (including mining, banking and finance and media, information and communications) shall obtain a permit from the Mongolian Government. The state administrative body responsible for foreign investment shall, within forty-five days after the receipt of the application, deliver its recommendation on the permissibility of the transaction to the government.

For foreign investments outside a strategic sector the central state administrative body in charge of foreign investment matters shall receive an application and make a decision within fourteen days after the date when the application was received.

PHASE-OUT

Plans to introduce amendments to the law on the Regulation of Foreign Investment in entities operating in strategic sectors

OTHER EXCEPTIONS

None.

ANNEX 2:
ELECTRICITY SALE TARIFFS FOR END USERS (VAT EXCLUDED)

Table 21: Electricity sale tariffs for end users (VAT excluded)

№	Classification	Measuring unit Central energy system	Central region				Eastern energy system	Dalanzadgad	Western energy system	Altai-Iliastai energy system
			Ulaanbaatar		Other cities and center of province, with connected to central grid					
			Apartment	Ger district	Apartment	Ger district				
	1	2	3	4	5	6	7	8	9	10
Mining industries										
1	Simple meter	MNT/kWh	100		100		100	90	90	90
2	Time use of meter /3 parts/									
	a. Daytime consumption / 06.00 am - 17.00 pm	MNT/kWh	100		100		100	-	-	-
	b. Evening consumption / 17.00 pm - 22.00 pm	MNT/kWh	179.4		179.4		179.4			
	c. Nighttime consumption / 22.00 pm - 06.00 am	MNT/kWh	46		46		46			
Industrial users, enterprises and organizations										
1	Simple meter	MNT/kWh	88		88		88	90	90	90
2	Time use of meters /3 parts/									
	a. Daytime consumption / 06.00 am - 17.00 pm	MNT/kWh	88		88		88	-	-	-
	b. Evening consumption / 17.00 pm - 22.00 pm	MNT/kWh	155.2		155.2		155.2			
	c. Nighttime consumption / 22.00 pm - 06.00 am	MNT/kWh	46		46		46			
3	"Electrical transport" /Trolley company/	MNT/kWh	49.2		-		-	-	-	-
4	Lighting of public streets and squares in cities and center of provinces									
	a. Daytime consumption / 06.00 am - 19.00 pm	MNT/kWh	88		88		88	-	-	-
	b. Evening and nighttime consumption / 19.00 pm - 06.00 am	MNT/kWh	40		40		40			
5	Entrance lighting for Condominium owners' Associations of public apartments									
	a. Daytime consumption / 06.00 am - 21.00 pm	MNT/kWh	88		88		-	-	-	-
	b. Evening and nighttime consumption / 21.00 pm - 06.00 am	MNT/kWh	40		40					

	1	2	3	4	5	6	7	8	9	10
Residential consumers										
1	Time of use meter /2 part/									
	a. Daytime consumption / 06.00 am - 21.00 pm	MNT/kWh	84		84		84	-	-	-
	b. Evening and nighttime consumption / 21.00 pm - 06.00 am	MNT/kWh	40		40		40			
2	Simple meter	MNT/kWh	84	81	84	81	84	79.8	60	79.8
3	Residential consumers in get district and apartments									
	a. Monthly consumption is up to 150 kWh	MNT/kWh	74	71	-		-	-	-	-
	b. Monthly consumption is from 151 kWh up to 250 kWh	MNT/kWh	79	76						
	c. Monthly consumption is above 251 kWh	MNT/kWh	84	81						
4	Residential consumers in get district and apartments in cities and center of provinces									
	a. Monthly consumption is up to 100 kWh	MNT/kWh	-		74	71	-	-	-	-
	b. Monthly consumption is from 101 kWh up to 150 kWh	MNT/kWh	-		79	76				
	c. Monthly consumption above 151 kWh	MNT/kWh	-		84	81				
5	Residential consumers in get district and apartments in cities and center of provinces									
	a. Monthly consumption is up to 50 kWh	MNT/kWh	-		-		74	-	-	-
	b. Monthly consumption is from 51 kWh up to 100 kWh	MNT/kWh			-		79			
	c. Monthly consumption is above 101 kWh	MNT/kWh			-		84			
6	Monthly average consumption for calculating payment of residential consumers without meter									
	a. Apartment	MNT/kWh	320		200		200	200	-	-
	b. Ger district	MNT/kWh	250		150		150	150		
7	Vulnerable consumers tariff									
	a. UB - 100 kWh, Darkhan and Erdenet - 75 kWh, Others are up to - 50 kWh	MNT/kWh	39				-	-	-	-
	b. UB - 101 kWh, Darkhan and Erdenet - 76 kWh, Others are above - 51 kWh	MNT/kWh	58				-	-	-	-

Source: Annual Report 2011, Energy Regulatory Commission of Mongolia

Table 22: Heat sale tariffs for end users (VAT excluded)

№	CITIES	Residential MNT/M^2	Non-Residential MNT/M^3	Hot water MNT/person/ month		Heat counted by meter MNT/ Gcal	
				Heating season	Non heating season	Residential	Non-residential
1	Ulaanbaatar	341	323	1,282	1,924	9,824	20,886
2	Darkhan	341	298	1,282	1,924	7,879	16,600
3	Erdenet	341	345	1,282	1,924	7,879	22,556
4	Dornod	341	527	1,282	1,924	-	19,236
5	Dalanzadgad	304	600	-	-	-	57,250
6	Nalaikh	304	530	1,145	1,718	-	24,400
7	Baganuur	341	697	1,282	1,924	-	41,147

Source: Annual Report 2011, Energy Regulatory Commission of Mongolia

ANNEX 3:
LIST OF ABBREVIATIONS

ABBREVIATION	FULL NAME
ADB	Asian Development Bank
BIT	Bilateral Investment Treaty
CDM	Clean Development Mechanism
CER	Certified Emission Reduction
CES	Central Energy System
CHP	Combined Heat and Power
ECT	Energy Charter Treaty
DP	Democratic Party
DFIRR	Department of Foreign Investment Regulations and Registration
DNA	CDM National Bureau
EBRD	European Bank for Reconstruction and Development
ERC	Energy Regulatory Commission
EU	European Union
FIFTA	Foreign Investment and Foreign Trade Agency
FDI	Foreign Direct Investment
GDP	Gross Domestic Product
GDNT	General Department of National Taxation
GHG	Green House Gas
IEA	International Energy Agency
ICMS	Investment Climate and Market Structure
IMF	International Monetary Fund
JICA	Japan International Cooperation Agency
MAP 21	Mongolian Action Programme for the 21st Century
MEA	Mongolian Energy Association
MIGA	Multilateral Investment Guarantee Agency
MRA	Mineral Resources Authority
MPP	Mongolian People's Party
MNT	Mongolian Tugrik
NREC	National Renewable Energy Corporation
NDC	National Dispatching Center of Power Systems
NREL	US National Renewable Energy Laboratory
PPP	Private Public Partnership
PEEREA	Protocol on Energy Efficiency and Related Environmental Aspects

SBM	Single Buyer Model
TFC	Total Final Consumption
TPES	Total Primary Energy Supply
TPP	Thermal Power Plant
UBDHN	Ulaanbaatar District Heating Company
VAT	Value Added Tax
WB	World Bank
WES	Western Energy System
WTO	World Trade Organization

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of MONGOLIA

Boulevard de la Woluwe, 56
B-1200 Brussels, Belgium
Tel.: +32-2-775-98-00 · Fax: +32-2-775-98-01
E-mail: info@encharter.org · www.encharter.org

ISBN 978-905948-132-9 (English, PDF)

ISBN 978-905948-142-8 (English Paperback)

Dépôt number: **D/2013/7850/8**

Energy Charter Secretariat
2013