

For a green development

# MONGOLIAN ECONOMY



The Mining Sector and  
the Issue of Energy Supplies

Russian Oil "Crisis" Sends Warning  
to Mongolia

Central Banks under  
Threat from Inflation

2011. May. № 004

Mongolian economy and business magazine

## New Development for the CHP-5



# MINING INFRASTRUCTURE

## BUSINESS ACTIVITIES

Power plant  
Power supply  
Power transmission and distribution system  
District heating system  
Renewable energy  
Instrumentation and Control  
Industrial automation

## SERVICES

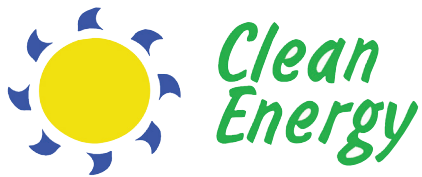
Project management  
Engineering, designing  
Feasibility study  
Consultancy  
Procurement  
Construction and Commissioning  
Operation and After sales service

### UkhaaKhudag 18MW Coal Fired Power Plant.

Construction period: 2009-2011  
EPC contractor: MCS International Co.,Ltd



05/15/2011



## MAKE SALKHIT A REALITY

In 2004, Newcom set up its "Clean Energy" company to survey potential wind power generation sites, eventually settling on Salkhit Mountain, 70 km southeast of Ulaanbaatar, as the site for the first project in the renewable energy sector. In 2010 Clean Energy LLC has been incorporated as a foreign invested company at Foreign Investment and Foreign Trade Agency (FIFTA) with development investments coming from EBRD and FMO. Mongolia faces a challenge in shortage of electricity with large mining operations starting from year 2012 nationwide and energy demand is expected to increase by 5-10% each year. Such demand can be met through the newly established domestic production of electricity including from renewable and non-polluting sources such as Salkhit Wind Park. The Mongolian name of the site "Salkhit Uul" means "Windy Mountain" in English. Bogd Mountain is located in northern part of the area, which is the most southern end of Hentii Mountain range.

The project site is located just in alteration zones between mountains and steppes and occupies 12,000-hectare land in Sergelen soum of Tuv Aimag, the nearest province to Ulaanbaatar. The site wind resource has been identified during several studies and wind measurements. The area locates about 9 km from the railway, 11 km from the paved road, 13 km from the 35 kW grid line and 22 km from the 110 kW grid line in Nalaikh, an older coal mining town 45 km east from Ulaanbaatar.

The Salkhit Wind Park is expected to save 1.40-1.90 million tonne of fresh water and 160-190 thousand tonne of coal every year, thus preventing the emission of 150,000-200,00 tonne of CO<sub>2</sub> equivalent into the atmosphere. To put this figure in perspective, one hectare of forest absorbs 10 tonne of CO<sub>2</sub> per year, which means that the wind park would be equivalent to 15,000 hectares of forest.

The Wind Park will be connected to the Central Regional grid and will produce electricity from clean and renewable energy resources. The renewable energy initiative will pioneer the energy sector of Mongolia towards the long term sustainable economic development of Mongolia led primarily by mining sector meeting the rising demand in energy sector while protecting our environment.



# Mongolia's Biggest & Best Bank

## Your Partner of Choice

### Differential strength and vision

- Mongolia's largest bank in terms of Total Assets per 2010 audited accounts;
- Mongolia's leading corporate bank with > 30% market share;
- Only Mongolian bank enjoying direct Tier 2 equity related capital from leading commercial entities: Credit Suisse and Abu Dhabi Investment Council;
- Only bank to enjoy zero weighted credit risk premium from The Bank of Mongolia (Central Bank);
- Selected by Amex and IATA as exclusive partner in Mongolia (secured after competitive evaluation);
- The pioneer within the Mongolian banking system introducing card services, IT, electronic banking, private banking and investment banking to the market.

### Industry leader with the highest market share

- Assets > 25%
- Individual deposits > 30%
- Corporate deposits > 30%
- Corporate loans > 30%
- Card transactions > 60%
- International payments > 60%
- International trade finance > 50%
- Foreign exchange transactions > 40%

### The strongest financial structure in the system

- Capital adequacy ratio 13.4%
- Return on Equity 26.6%
- Highest Liquidity 51.2%
- Lowest loans/deposit ratio 59.6%
- Lowest NPLs (Non Performing Loans) 1.5%

### Key financial data for last five years

	2006	2007	2008	2009	2010
Assets	353,161	652,051	697,179	1,013,109	1,573,936
Deposits	283,707	512,485	505,171	795,251	1,317,499
Net Loans	174,700	323,026	447,787	505,299	784,605
Capital	35,794	54,871	63,548	78,471	128,072
Post tax profit	2,520	7,378	12,201	13,170	20,053
Return on Average Assets (%)	0.8	1.6	1.8	1.6	1.7
Return on Average Equity (%)	10.7	17.3	24.3	22.5	26.6

MNT=Mongolian Tugrug USD 1=MNT 1,257.18 31/12/10

### CONTACT DETAILS

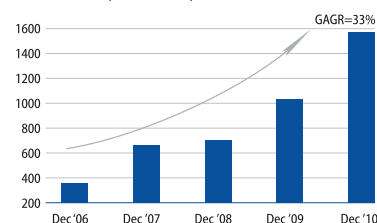
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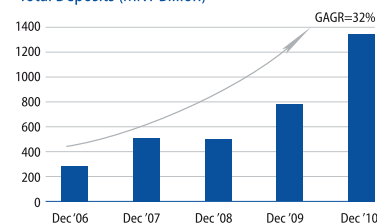
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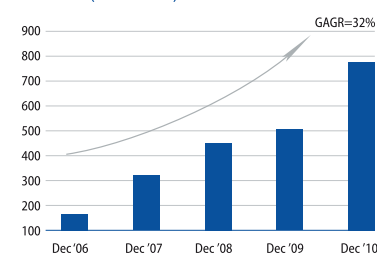
Total Assets (MNT Billion)



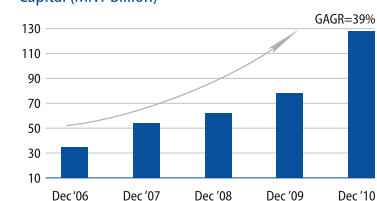
Total Deposits (MNT Billion)



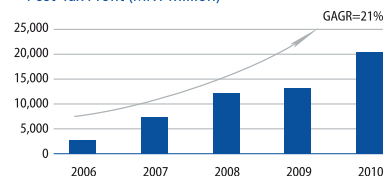
Net Loans (MNT Billion)



Capital (MNT Billion)



Post-Tax Profit (MNT million)



# Oyu Tolgoi Investment Agreement: The Facts



Oyu Tolgoi is restating details about the Oyu Tolgoi Investment Agreement today to give Mongolians a better understanding of the terms and reassure them of the benefits it will deliver to the country.

Oyu Tolgoi wants to clearly explain the Investment Agreement so that there is no doubt about the fairness and transparency of the deal with the Government of Mongolia.

Oyu Tolgoi is spelling out the facts to clearly explain the key aspects and underline the transparency of the Investment Agreement. The main points of the landmark Investment Agreement are:

- Oyu Tolgoi is one of the world's greatest copper-gold orebodies and could support mining for more than 60 years based on mineral resources identified by current studies;
- Rio Tinto and Ivanhoe Mines will have invested US\$4.5 billion into the Oyu Tolgoi project by the end of 2011, including more than US\$1 billion on exploration and evaluation before the Investment Agreement was finalized;
- The Oyu Tolgoi Investment Agreement was signed by the Government of Mongolia, Rio Tinto and Ivanhoe Mines on 6 October 2009 and negotiated in accordance with Mongolia's Minerals law;
- Under the Investment Agreement, the Government of Mongolia acquired a 34 per cent interest in the Oyu Tolgoi project, which cannot under any circumstances be reduced. It also has an option to increase its share to 50 per cent;
- The Government of Mongolia will receive the majority of the economic benefits generated by the Oyu Tolgoi project through taxes, royalties and dividends;
- The Government of Mongolia has not and will not be required to contribute any cash from its own resources to fund the development costs of the project. Ivanhoe and Rio Tinto will provide the finance needed for Mongolia's share of the project's capital expenditure; Oyu Tolgoi will create thousands of jobs and business opportunities for Mongolians. Oyu Tolgoi is one of the biggest private sector employers in Mongolia with more than 8000 employees and a wide range of job and training opportunities;
- Hiring and training Mongolians is a priority. As set out in the Investment Agreement, during the life of the mine nine out of 10 workers will be Mongolian;
- Many Mongolian businesses are supplying goods and services to the Oyu Tolgoi project;
- The mine will significantly contribute to the economic development of the Southern Gobi region through infrastructure like roads, power, water and air links.

Cameron McRae, President of Oyu Tolgoi LLC said "The development of the Oyu Tolgoi project has only been made possible by the significant financial commitment of shareholders after the resource was discovered by Ivanhoe Mines. Rio Tinto and Ivanhoe have invested heavily to get the project where it is today. We will continue to spend billions of dollars to get the mine into production and operating at world-class standards.

"The Government of Mongolia and its citizens will receive significant economic and social benefits from Oyu Tolgoi. Extensive independent analysis of the Oyu Tolgoi Investment Agreement by international financial institutions and academics confirms that it represents global best practice.

"The benefits for Mongolia arising from Oyu Tolgoi are built on the bedrock of the Investment Agreement, which provides a firm foundation for the development of the Mongolian economy over many decades.

"It is crucial that the Investment Agreement is supported by the Government to provide confidence for investors and deliver the certainty required for investment in the project. It also sends an important message to international investors that Mongolia is open for business.

"A steadfast commitment to honouring legal agreements and contracts, fairly negotiated in good faith, will place Mongolia in a strong position to raise finance for large-scale projects. The benefits from these projects in turn provide essential funding for government programmes, building national infrastructure and improving the quality of life of all Mongolians."

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## Message from the Editor:



Dear Readers,

**W**e are glad to present you the fourth edition of our magazine which specifically focuses on a major issue facing our country: the energy sector and its related future governmental policies.

These days, Mongolians mainly talk about large mining deposits, money and economic development, neglecting to address the issue of energy - the key to the country's economic development. How is Mongolia going to extract and transform all its mineral wealth into economically viable projects without energy?

Those to rip the fruits of development first will be those 'connected' first, so to speak. In other words, energy brings development. But how will these large mining deposits going to be 'connected'? In this edition's articles, many issues are addressed concerning the implementation of the Program on Integrated Power Energy System in Mongolia, renewable energy and its place in the country's policies, energy tariffs, and the building of new sources of energy.

The MEM wishes to inform its readers on new developments and changes taking place in the energy sector.

According to several policy documents, the Government has paid for the past years a substantial attention to this challenging sector in need of solutions and steps have been taken to bring it to new levels of development. One example is the organization of the Mongolian Energy-2011: Policy-Investment-Technology Investors' Forum. During the Forum, officials and representatives of the energy sector will inform investors in the energy sector on future governmental policies and will introduce cooperation projects to enhance its development. MEM, whose objective is to support the development of Mongolia's energy sector, is participating to the Forum as a media partner.

In addition, this edition will also focus on the issues of oil and inflation. Should Mongolia continue to be dependent on Russia to meet with its domestic demand in oil, or can liquid fuel be extracted from coal in sufficient quantities for the country to be independent from its northern neighbor?

Yours faithfully,

D. Bekhbayar

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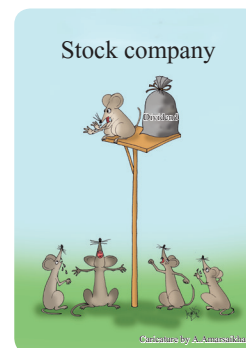
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## Main topic

## New Development for the CHP-5

Mongolian government officials say nothing but “yes” to the building of new plants or new sources of thermal power, which are required by the current development needs of the country. Nevertheless, the project has been put on hold for many years - like the Oyu Tolgoi mining project – before to be approved.

Since 2005 up until today, many talks and studies on the matter of new sources of thermal power have taken place. At the beginning, the CHP-5 was planned to be built to the East of Ulaanbaatar or in the Uliastai region. However, expert organizations came to the conclusion that the soil freezes on this location, which would contribute to the air pollution of the capital city and negatively affect its water reserves. The search for a new location site was launched.

Later, it was concluded that if the thermal power station was to be located near the Honkhor radio station, it would be too close to the Bogd Mountain, a natural conservation area and exclusion zone. In addition, it was also stated that the location was too remote – around 27 to 28km away from the thermal power line - and that the uneven elevated ground which lays at an altitude of about 100 meters above the city level will create difficulties for the water cycle in the thermal power line.

Finally, after many studies on a possible location, it was decided that the new power plant would be built as an extension to the thermal power station No.3.

What kind of station will it be?

The large-scale thermal power station shall be fully operative by 2020. The station will have a capacity of 1100 Gcal of heat, and an electric power production capacity of 820 MW. 2.5 to 3.6 million tons of coal will be burned annually to produce three times more electricity and heating than currently generated. Due to higher technology, the thermal station will have less impact on the environment. It will refine with 100% efficiency the gas emissions resulting from the burning of coal and will filter with 99.8% efficiency the ashes which will be used for construction materials. 70% of the coal to be supplied



to the new plant will come from the Shivee-Ovoo mining site and the remaining 30% from the Baganuur region. Mongolia's current installed power plant capacity is 850 MW and around 5 to 6 million tons of coal are burned annually.

This is Mongolia's largest construction project over the last 20 years, and the nation should without hesitation roll up its sleeves and invest itself fully into the project - which received the approval from the Government - in order to stay in line with global development. The project will be implemented in two phases; the construction of a 450 MW capacity site first - to be operational in 2015 - followed by the construction of a second site with a 370 MW capacity.

Why the thermal power station No.3?

The answer could easily be ‘why not’? The construction of the thermal power station No.5 – or extension of the thermal power station No.3 - is a good thing and will constitute the base for the vast construction and building work which face Mongolia at the dawn of this new century. It will allow the renewal of techniques and technologies which are obsolete.

Between 1995 and 1999, USD48.8 million was used to renovate the thermal power station No.3. USD39.6 million low interest loan from the ADB was spent on the high pressure furnace renovation, USD5.8 million from the Nordic Development Fund were used to renovate the turbine reconstruction, and USD3.3 million for the renovation of the thermal supply network were financed by the DANIDA grant aid. Thanks to this renovation work, the thermal power station was able to reliably supply power to certain districts of the capital city. However, these equipments are once again starting to wear off and it has been estimated that the thermal power station No.5 project is the most acceptable alternative economically. “By choosing the foundation of the thermal power station

## NEW COMBINED HEAT AND POWER PLANT IN ULAANBAAT



No.3 we are able to save more than MNT100 billion,” the head of the Energy Authority Ts. Bayartsogt said.

When will the tender bid be announced?

The technical and economic feasibility study of the project is now in its final stage. The ADB's significant efforts in conducting relevant analysis and studies on building new sources of power up until today should not pass unnoticed. The bank cooperates in the CHP-5 project by conducting studies within the framework of the public-private sector partnership (PPP). ADB has selected and signed an agreement with the U.S. Company H&J as a consulting company to conduct the technical and economic feasibility study. After the completion of the technical and economic feasibility study, the State Property

Committee is planning to conduct many activities - including the selection of the type of concessions - to prepare the tender documentations, announce and conduct the tender bid, evaluate and sign a concession agreement with the company that wins the tender, and

consequently, start construction works. This time the draft of the tender proposal will be clear, profitable, and open to investors. The first tender bid for the CHP-5 had been announced in 2008 by the former Ministry of Fuel and Energy. Out of the 26 parties interested which obtained the tender bid materials, only China Datang Corporation send its proposal. However, the tender was cancelled as the company's financial proposal did not meet the requirement. The basis for the large scale operations were initiated only with the second tender bid.

The thermal station which shall be built within the decade will require in total USD1.4 billion. The consulting company advised on the basis of its studies for a financial scheme to either be a joint financing scheme gathering the ADB and other donor organizations, either be fully financed with governmental funds, or be a commercial project within the framework of PPP. In addition, they pointed out that, a low interest aid from the ADB and donor organizations will result in a cheaper investment, due to lower capital expenditure and tariffs. On the other hand, a PPP, private sector investment and commercial loan will raise the expenses of the project.

It is now up to the State Property Committee to decide on the type of financial scheme and financial plan of operations. In any case, the building of a new source of thermal power has been put on paper and has been approved after going through all levels of governmental meetings. Now the only thing left is to announce the tender bid, to establish the agreement with the investors, and start the first phase of construction works. ■

<http://www.mongolianeconomy.mn>



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engaged in exploration and mining  
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coal properties.

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## Speech

“Mongolian Energy - 2011: Policy – Investment - Technology” Investors Forum, Ulaanbaatar, 27-28th May 2011

## The current state of energy sector in Mongolia, development trends

D. Zorigt, Minister of Mineral Resources and Energy

### The current state of energy sector:

Having built its foundation since 1924, Mongolian energy sector has seen a rapid development serving all sectors of the country from economy to society whilst growing as a main sector to serve its citizens and households sparsely populated within a wide territory. The energy sector of Mongolia consist of four independent electric power systems: Central Energy System (CES), Western Energy System (WES), Eastern Energy System and Altai-Uliastai energy system in addition to Dalanzadgad combined heat and power plant (CHP) and other diesel fuel and renewable energy sources.

According to the results of the Central, Western and Eastern energy systems of 2010, the total energy production of thermal power plants reached 4,256.1 million kWh, 31 million kWh from hydro-electric stations, 0.6 million kWh from solar and wind power stations and 13.2 million kWh from diesel fuel stations, while 214.1 million kWh of energy were imported, and 20.7 million kWh of energy were exported. Energy supplied to customers from these networks totaled to 3023,5 million kWh of electricity and 6,474 thousand Gcal of heat.

About 95% of the country's energy production capacity comes from thermal power plants, 4.7% from imports and the rest is supplied from diesel generators, small to medium sized hydro power plants and other renewable energy sources. In recent years, increasing energy consumption need of Central region has been met by domestic production. Electricity imports from Russia are used to meet the energy demands of CES during peak hours and 60-70% of energy consumption in WES.



The total revenue of big energy companies resulted in MNT 280,5 billion, plus MNT 66,3 billion for taxation and duties paid to state and local budgets. In 2010, the amount of receivables from consumers and suppliers amounted to MNT25.4 billion, and accounts payable amounted to MNT29.3 billion, showing a decrease of 17.5% and 44.5% from 2009 respectively. Between 2008 and 2010, MNT 105,5 billion were invested into mineral resources and energy sector from the Mongolia Development Fund, majority of which is dedicated for energy sector.

Between 1990 and 2008, the energy sector received USD575.3 million of grant and loans from foreign countries, international banks and financial institutions, of which USD347.9 million were loans and USD 227.4 million were grant. Through these grants and loans, 67 project programs were successfully implemented, and some are still ongoing.

In December 2010, the State Great Khural (Parliament) adopted a resolution No.72 to improve the financial and economic capacity of energy industries and companies, to index energy tariffs and ultimately to implement a transition into market based commercial system from 2014. This work is being implemented as part of a work on improving legal and market based mechanisms of energy sector and introducing a contract based market design, and works being undertaken according to the Ministry work plan. As such, energy sector in our country has been working

» sustainably with continuous and secure energy supply.

### Development trends:

Policy and objectives of the sectoral development, and its implementation phase

The State Great Khural and the Government of Mongolia approved a "Program on Integrated Energy System of Mongolia", "the National Program on Renewable Energy" and the 100 000 Solar Ger's Program in addition to "the Comprehensive Policy on National Development" and Government programs include concrete short-term and long-term strategies for the development of the energy sector.

These policies include plans to set up a fully integrated energy system by 2040 by establishing a transmission line between the Central, Western, Eastern, Altai-Uliastai energy systems, Dalanzadgad CHP and energy systems in Gobi region. The sector development and policy documents planned to establish thermal power plants relying upon Tavantolgoi, Shivee Ovoo, Baganuur, Khushuut, Nuurst Khotgor, Aduunchuluun and Mogoin river coal mines as well as to fully meet the increasing energy demand of the country and to have a capacity to export electricity to neighboring countries by producing energy from hydropower plants at Eg, Orkhon, Selenge river, solar and wind power plants to be built in Gobi and central region and nuclear power stations that can be built in Dornod region.

Implementation of the Program on Integrated Energy System of Mongolia:

Currently, all 21 aimags and 318 soums are supplied by centralized energy source while 15 soums are supplied from renewable sources and other hybrid systems. The first phase or short-term (from 2007 to 2012) action plan of "the Program on Integrated Energy System of Mongolia" is currently being implemented successfully.

Implementation of "the 100,000 Sun Lights" and "the National Program on Renewable Energy":

Currently, use of renewable energy sources for power generation has

become a reality as a result of which about 100,000 nomadic families and 15 soums have access to electricity using a renewable energy sources. "100,000 Sun Lights" national program will be completed in 2011 with the final distribution of 20,000 solar home system.

Implementation of the plan on providing independent solar, wind and hydro energy sources to soums isolated from centralized energy system is underway with 11 small scale hydropower plants, 5 solar and wind hybrid electricity stations, 8 solar energy stations, 1 wind power stations working in soum and бага (administrative unit) level. In addition, Durgun and Taishir hydropower plants went into operation serving as a source of electricity in western provinces.

If to assess energy sector according to its developmental phases, the period between 2000 and 2008 was a time of electrification where structural changes into the energy sector was made, state policy on providing electricity were implemented, all aimags and soums in the countryside were connected to electricity and nomads were provided with small scale renewable energy sources.

Period from 2008 to 2011 became a time when equipment and technologies were upgraded and renovated and when preparatory works for supplying sources to regional electricity systems went underway.

The period between 2011 and 2016 can be seen as a beginning of new development era in which large scale energy supply networks and main power lines will be built to establish an Integrated Energy System which will meet the country's ever-growing energy demand. This period is considered to be a technologically progressive stage to bring up the energy sector development to a new stage with modern and environmentally friendly technologies.

### Short-term strategy and goals:

In the near future, if new energy sources are not built, a great deal of challenges and difficulties are likely to arise due to growing demand in energy demand in Ulaanbaatar city. Meeting the increasing energy demand of big mining and mineral resource

projects that will be implemented as part of the Law on Air Pollution Reduction and "the Program of New Reconstruction and Growth" and the need to urgently solve these issues may result in a serious consequences possibly leading to energy capacity deficiency. Although the issue of developing a new energy sources has been discussed and planned within the sectoral policy systematically, it has been ongoing issue due to lack of finance and other constraints. Now it is of crucial importance for us to settle this issue of developing new energy sources in a complex way.

Moreover, supporting private sector involvement in the energy sector, creating a favorable legal and tariff condition, developing public-private partnerships are issues that should be settled and can be a gateway to the resolution of above mentioned challenges facing the energy sector in Mongolia.

Above issues that should be urgently settled by the Mongolian energy sector in near future incline the need for amending main policy documents of energy sector. Therefore, the Ministry of Mineral Resources and Energy (MMRE) is working to make such amendments within this year on key policy documents like "the Program of Integrated Energy System in Mongolia" and "the Master Plan of Energy Sector". Research analysis and calculations that will be conducted as part of these program/plan amendments will make energy consumption growth trend and demand supply policies and plans more specific and detailed resulting in a quality document that follows not only Mongolia's economic and social development trends, but also follows the international standards. Such a fact based document will also meet the requirement of investors, thereby creating a favorable environment to implement projects planned within the program.

According to numerous studies conducted from government and international organizations on large industrialized and settlement regions and cities (Power consumption prognosis by 2020 based on the General Plan of Ulaanbaatar city Development; power demand prognosis study of the central energy system of Mongolia and the Gobi mining zone, conducted from Asian »

Development Bank's consulting company on Ulaanbaatar CHP-5 project's technical study; energy supply required to heat ger district households of Ulaanbaatar city with electric heaters within the framework of Law on Air Pollution Reduction; energy consumption data of industrialized regions by "Worley Parsons" company; technical and economic feasibility study on the Energy Supply to the Mining Consumers of the Gobi Region commissioned from the MMRE in 2010), it can be estimated that between 2015 and 2030, the country's energy consumption rate will reach 1,500 to 3,000MW.

It is necessary to emphasize that the short-term objectives of Mongolia's energy sector are to build new sources of energy to meet the ever-increasing energy demand. Currently, several projects are being implemented, including the building of an 18 MW capacity thermal power station in Ukhaa-Hudag, and the expansion of the thermal power station No.4 with an additional 40 MW. The thermal power station in Darkhan is also being extended to increase its capacity by 30 MW, and the Dalanzadgad thermal power station capacity by 3 MW. Preparatory works for the construction of a 50 MW capacity wind power park in Salkhit, 12 MW capacity thermal power station in Hushuut, and 60 MW capacity thermal power station near the Mogoi River are underway. In addition, the technical and economic feasibility study of Ulaanbaatar CHP-5, which constitutes one of the largest sources of energy, has been completed and approved by the Government and the National Security Council.

In order to meet Mongolia's energy consumption growth for 2015- 2030 and to export electricity, it is necessary to build power stations near mining deposits such as Tavan Tolgoi, Shivee Ovoo, Baganuur, Aduunchuluun, Hotgor, Booroljuut, Chandagan. The initiatives, active participation and support from international banks, financial institutions, foreign and domestic investors, and business entrepreneurs of the energy sector, are of vital importance for the best implementation of these projects. The fact that our Government's policy and legal environment are favorable in supporting the public-private sector cooperation and investment should create significant incentives

for companies investing in Mongolia to further expand their business ventures.

In the near future, Mongolia's Ministry will implement the following principles and strategies towards the development of the energy sector, including:

- Conducting a well-grounded estimate and revision of energy consumption rate, and drafting an action plan based on these data;
- Providing financial and economic opportunities to build new sources of energy supply networks and developing energy sector;
- Supporting the construction of new energy supply networks by the private sector, developing the legal environment of energy prices and tariffs, and developing a public-private sector partnership;
- Developing and expanding power line networks under the review of the Government in accordance with the consumption and energy supply sources projections;
- Increasing the efficiency of the energy sector, providing its financial sustainability, implementing economically feasible regulations, and fully transferring the energy sector and prices to market regulations.

Preconditions of transfer the energy sector to market regulations consist of activities such as making energy tariffs and the legal environment attractive to investors, developing public - private partnership, and establishing and exploiting new energy

sources with the participation of the private sector. Further conditions for the full-scale transformation of the energy sector into market principles include the privatization of the current energy supply networks and the building of new private energy supply networks. However, the Government in accordance with the law needs to improve power lines networks under its purview, and expand and develop it in line with the construction of new energy supply networks.

Consequently, with the construction of new power stations, and the creation of a properly balanced supply network system that includes traditional as well as renewable energy sources, the Program on Integrated Energy in Mongolia will truly be implemented providing opportunities for a reliable and secure energy supply and enabling energy exports to neighboring countries. With the introduction of integrated energy system and new techniques and technologies, Mongolia will have a proper conditions to operate its energy supply networks efficiently and economically, contributing to its rapid economic and social development as well as strengthening its economy.

Hopefully, business entrepreneurs and interested parties will receive all necessary information during the Mongolian Energy-2011 Investment Forum to establish business contacts and successfully develop concrete proposals, action plans, projects and programs for the Mongolian energy sector. ■





## The Mining Sector and the Issue of Energy Supplies

The prospect of the rapid development expected to occur as Oyu Tolgoi and Tavan Tolgoi become operational, the 1,170 mineral deposits of 80 types of mineral resources, and the 8,000 mineral findings registered in Mongolia, certainly heighten the spirit of Mongolians. But they should not rejoice too quickly as extensive mining production, the nation's large scale reconstruction and consequent growth will not happen without the resulting need in energy being met with. Mongolians have a saying: before to milk the cow, you have to prepare the buckets. During socialist times, the development of the energy sector was prioritized above everything else. Nevertheless, the bitter truth is that today in Mongolia, this strategically important sector is lagging behind and not prioritized.

### The situation

The mining sector alone represents more than 80% of foreign direct investment (FDI) in Mongolia, constitute 30% of the country's GDP, and more than 85% of its exports. Production starting date at the Oyu Tolgoi mining site - the largest untapped copper and gold deposit – has been advanced to 2012. But if the news was welcomed by the general public, it was not by officials in the energy sector. It has been estimated that mining operations' requirements in electricity and heating – currently met with thanks to 24 MW diesel power station - will reach up to 280 MW when production starts. A question must be asked: How will this demand be met if it requires an amount of energy which is twice superior to the production capacity of the thermal power station No.3? Many examples seem to show that the

issue will be resolved by exporting mineral resources to China and importing energy supplies instead - a practice already common.

Coal mining companies, Chinhua-MAK-Nariin Sukhait – a Mongolian-Chinese joint company -, Mongolian Gold Corporation (MAK) and Southgobi Sands are operating in the Gurvantes soum in the Umnugobi aimag. In 2006, 35 kV power lines were imported from China to supply electricity not only to the mining deposits, but also to the Noyon, Sevree, Gurvantes soums in the Umnugobi aimag. However, today, their 35 kV capacity is not sufficient and within the year specialists explain that in such conditions, processing coal and producing value-added products is unthinkable.

MAK hopes to build a coal chemical plant in the future; however, the project will remain unfeasible unless a thermal power station is built in Nariin Sukhait. Consequently, the practice of exporting coal to China in return for energy has been ongoing for quite some time now. Such is the state of the Gobi energy supply network, where operations are ongoing in large-scale mining deposits. Certainly, the best way to resolve the energy supply issue in the region would be for mining companies reliant on energy imports there to provide money and funding for the building of a diesel power station. If only Mongolia's energy sector functioned properly, the ever-increasing demands of mining sites in energy would be welcomed and seen as financially profitable rather than an issue impeding Mongolia's development.

► What strategy to adopt?

A Government plan to supply energy to the Gobi region by building a thermal power station at the Tavan Tolgoi mining deposit does exist. However, experts estimate that the project, which is still at the stage of research, will require 4 to 5 years to be completed. A tender bid was also won by MCS International to lay down 220 kV power lines from the capital city of Ulaanbaatar to Tavan Tolgoi and Oyu Tolgoi. In other words, with the implementation of this project, large-scale mining deposits located in Choir, Mandalgobi, and Tavan Tolgoi, will be supplied with energy produced domestically. But how will the Central energy system, which by the way barely manages to meet with the current demand, provide energy to Tavan Tolgoi and Oyu Tolgoi? Hopefully, the implementation of the first phase of the CHP-5 project by 2015 should answer that question by generating 450 MW of electricity and 500 Gcal of heating.

On the other hand, the power line will also be used to supply energy from the Gobi to the Central region once the Tavan Tolgoi thermal power station has become operational. In short, the Government wants to kill two birds with one stone. Until then, there is no other solution for the Oyu Tolgoi mining site but to import energy from the People's Republic of China.

In addition, the project of supplying energy to the Tsagaan Suvarga mining deposit from Baganuur to Choir is still in the engineering design process. "This project only will require 70 MW of energy," Vice President of the Mongolian Gold Corporation G. Tsogt says. Only after laying 220 kV power lines from Choir can the Tsagaan Suvarga copper-molybdenum mining deposit be operational. According to the concessions agreement, MAK will be in charge of the task. The comprehensive governmental policy is directed to supply energy to the Gobi region through two sources: power lines and power stations.

#### The private sector steps forward

In recent years, the private sector has made a forceful entry in the country's energy sector. In-depth analyses revealed that there is no other way for mining companies than to invest into this sector. Energy Resource LLC is ready to put into exploitation an 18 MW capacity power station at the Ukhaa Hudag. MoEnKo Company which conducts mining operations at the Hushuut mining deposit has been authorized to build a 12 MW capacity thermal power station. More private companies face the need to regulate their energy supply issue in order to conduct their operations.

It is also necessary to mention that a policy has just been implemented to support the private sector participation in the energy sector and reduce the Government's expenses. With the adoption of the Law on Concession last February 2010, a legal environment was created to provide for the growth of the private sector participation in the energy sector, and support foreign and domestic investors in particular. 16 energy

supply establishments mentioned on the Government approved concessions list might even be privatized. Within the framework of the concession agreement, a 60 MW capacity station on the Mogoin Gol is being built, and the CHP-5 and the Tavan Tolgoi power station will be implemented. The improvement of the legal environment for renewable energy should not be omitted. For example, the Cleantech Company plans to build a 250 MW capacity wind power park in the Hanbogd soum, Umnugobi aimag.

#### Finally

Such is the situation of Mongolia's mining sites and their ever-increasing demand in energy. The Ministry of Mineral Resources and Energy estimated that between 2015 and 2030, energy demand will rise by an additional 3,000 MW - an astronomical number in comparison to the 856.3 MW capacity of Mongolia's thermal power stations.

Many good projects were drafted which could fully supply for such high energy demand and even generate profits. For example, the establishment of a 3,600 MW capacity Shivee-Ovoo complex in the Nyalga-Choir region could supply 7.6%, or 273 MW, of the domestic energy demand and export the remaining to the People's Republic of China. In addition, approximately 300 MW of energy could be used to meet with the need of mining sites in Umnugobi. Unfortunately, nothing has been heard of these projects until now. Meanwhile, discussing the challenges facing the thermal power station No.5 and the Tavan Tolgoi power station will not be necessary. According to specialists, the reasons for such project to be lagging are directly linked to bad policies on energy tariffs and the sector's unfavorable investment environment.

The difficulty is that the energy sector requires a tremendous amount of investments and will generate long-term benefits. Investors are also wary of the fact that the Government regulates energy prices. Could investors be interested by an unprofitable sector where production costs exceed selling prices? Nevertheless, experts note that the adoption of the Parliament resolution No.72, adopted on the 9 December 2010 on measures to be undertaken in respect to the fuel and energy sector, has provided the grounds for improving the investment climate in the energy sector. Within the framework of this policy document, energy prices will gradually increase until 2014, and opportunities for energy prices to adopt market principles will arise.

So, the conditions were finally established to change the future of the Mongolian energy sector – putting an end to many years of repealing investors. If the speed is maintained and the investment climate improved, energy officials will probably welcome the increase of mining operations in Mongolia. In the future, the Government will even have the opportunity to export electricity. Only with the realization of this goal Mongolia will achieve the rapid economic development which has been promised. ■

## Speech

## T.Tserenpurev: Energy sector will become a sector, which contributes to state budget, but not the one, which depends on government subsidies

We interviewed Mr.Tserenpurev T., Director-General of Energy Policy Department, Ministry of Mineral Resources and Energy.

-How do you assess current status of energy sector?

-We are fulfilling our main obligations of supplying consumers with reliable supply of electricity and heating. On other hand, it is true that this sector will require new generation capacities, undertaking technical rehabilitation and improving economic capabilities. If we review technological state of our power plants we still operate the assets and equipment with technologies installed in 1960-70's. Mongolians repair and drive "Excel" model of the car, production of which stopped since 1995. Already three new models of this car are on the market. As this sample, we are still operating and maintaining our power plants, which were in use more than 40-50 years. The thermal power plant No.4, the "youngest" of these plants is welcoming its 27th year since its commissioning in 1984.

As we can see from practice of developed countries in the world, it can be observed that they operate these power stations for about 30 years and then start to introduce new techniques and technologies. In our country due to financial and economic constraints such possibilities have been limited. However, we shouldn't sitting with our hands crossed. Within Mongolia Integrated Power System Program we are working on this issue and we are taking concrete actions. For example, we are expanding capacity of thermal power plant in Darkhan by 30 MW, our domestic engineers in cooperation with Harbin steam works expanded capacity of 80 MW turbine of power plant No:4 up to 100 MW, and in total they have increased capacity of two turbines by 40 MW. On other hand, the "Energy Resource" LLC is putting into operation 18 MW capacity of power plant at Ukhaa



Hudag, which will be scaled up in future. In addition, within the Government action program the Government and the relevant Ministerial authority made a decision to build a new power station based on the Mogoin gol coal deposit, to connect consumers of Zavkhan and Gobi-Altai aimags with reliable sources of energy and it's becoming clear that additional 60 MW of power will be supplied with the approval of concession agreement. For example, at the Dalanzadgad power plant, which is poorly functioning and creates many difficulties in winter time, there will be initiated rehabilitation works to build new block of 3 MW capacity and boiler related works. These works will start this year and will be finalized by fall. Consequently, we are working in energy sector, and there are ongoing operations to increase capacity of existing power plants as much as we can afford and supply increasing demands for power. Here we should also mention hydro power plants. Currently, Durguun hydro power plant 12 MW, and Taishir hydro power plant 11 MW are being put into operation and supplying its customers with power.

- How do you see prospects of private sector entering into energy sector in recent years?

-Actually, even today we can see private sector involvement in energy sector. For example, the "Darkhan and Selenge electricity distribution network" company was privatized in 2003, and Sharyn gol coal Mine Company was privatized. The Law on Concessions adopted in February 2010 created favorable legal environment to increase private sector participation, especially, in regard to domestic and foreign investors. 16 concessions and privatizations in energy sector have been included in the

► list of concession projects approved by the Government. For instance, within this framework, the Mogoin Gol power station project is being implemented. Also projects for thermal power plant No.5 and Tavan Tolgoi power plant will be implemented within framework of the Law on Concessions.

-Experts say that there are many benefits with the increased private sector participation in energy sector. Could you elaborate this argument more in details?

-The benefits can be expected in terms of improved efficiency, management, labor force, and reduced operational costs. This will in turn provide economic incentives for reducing operational expenses. Actually, the Government maintains a policy of transferring wherever possible the burden of responsibilities from its shoulders to private sector. On other hand, this is an opportunity for private sector. Of course, the energy sector will not be given away to whoever expresses such a desire due to the fact that the consumers need to be provided with electricity and heating without disruptions. Such decision should be based on professional capacity, labor workforce, techniques and technologies, financial capability, and relevant experiences. This issue will be resolved by the joint decisions of the State Property Committee, relevant Ministerial authorizes, agencies and other organizations. Actually, it is time to stop putting everything on Government shoulders. However, power plants and electricity transmission grids of strategic importance will remain under state ownership.

-We can observe how private companies are establishing themselves in energy sector. For instance, the "Energy Resource" LLC is quickly building power plant and introducing a progressive technology suitable for Gobi region. On other hand, there are many people who criticize the Government of not making efforts other than rehabilitating its old energy assets of socialist times. Why the Government is not paying enough attention to introducing new technologies?

-It cannot be stated that the Government is not paying enough attention. It would be more appropriate

to say that financial conditions and opportunities were not created. There are financial constraints, which limit these efforts. For instance, in order to build a power plant of capacity of 100 MW there is a need for investments of US\$ 100-150 million and previous Governments did not have such funding and economic resources. Of course, the 21st century brought new technologies into energy sector. There are already power plants which are more efficient and economical, consume less water, with fewer personnel and have higher capacity. For example, in Republic of Korea, China, and Japan only 200 people work at thermal power plants with

the capacity of 600-1,200 MW, which is similar to our thermal power plant No.4. In comparison, 1,400 people work at thermal power plant No.4. In other words, with benefits of new techniques and technologies they are able to save on workers' salary and welfare issues. Currently, we cannot afford to have 200 staff to operate thermal power plant No.4. Current technologies and operational procedures will not allow it. However, we should set goal of gradually, step-by-step, utilize our opportunities and build such efficient and economical supply of power. Our current activities aimed to direct our policies towards this goal. In short, old technologies have



» done their services, and have utilized their capacities in full. Therefore, we are organizing this forum to direct our attention towards the issues of introducing new technologies along with continuing to utilize our current establishments, and environmentally sound practices and benefits.

-Currently, we are entering the stage of rapid economic development, and there are discussions that we will reap the rewards of large-scale building and construction works. Large-scale mining projects and "100,000 housing" program will be implemented. However, how it can move forward without electricity and heating?

-It is true that thermal power plant No.5 has been discussed since 2004. However, as I mentioned previously, this project has not implemented until today due to factors, such as Government's financial constraints, and clarifications of requirement and demand for this power plant. In 2008 the competitive tender bid for CHP-5 was announced; however, the tender bid was cancelled due to the fact that only one company participated in the tender and the bid was not complied with the required documentations. Probably, due to lack of technical and economical feasibility study of this project, the participating companies could not submit well prepared bids for this project.

On other hand, the energy tariffs in Mongolia are lower than the global average. Some people say that no adequate conditions are created for investors to generate sufficient revenues to justify their investments. Therefore, it is necessary to gradually increase tariffs in order to create attractive conditions for investors.

In terms of power demand increase it started to increase since 2008. Only after signing of Oyu Tolgoi investment agreement it become certain that there will be a demand for power of 280 MW. Otherwise, the demand did not usually increase so sharply; it increased by average of about 3% per year. We could fully meet such demand growth with our current capacities. Implementation of 100,000 housing program intensified during the last two years. Previously, we could fully supply for electricity and heating demands of 40 thousand household

apartment program with currently installed capacities. However, this does not mean that we do not pay attention to issue of new sources of energy to meet future demand.

We haven't postponed development of power plant No.5. This project will be implemented in two stages. During first stage it is planned to commission about 450 MW in electric capacity and 600 GCal in heat by 2015. By the end of second stage in 2020, it is planned to come up with the electric capacity of 820 MW and 1100 GCal of heat.

-Government controls energy prices and tariffs. Our Northern neighbor Russia also periodically increased its tariffs and as of this year it has fully transformed into market principles. Can we conclude that within the Parliament resolution No.72 Mongolia will also make a transition in this direction to set tariffs independent from the Government intervention?

-Of course, this issue is directly connected with social issues, and only with the aim of not putting a burden on our consumers the Government tried to avoid from sharp increases of tariffs for electricity and heat. On other hand, we are definitely faced with urgent need to resolve the issue of how to maintain prices without putting pressure on our consumers and at the same time not failing the energy sector. Consequently, Parliament resolution No.72 passed on December of 2010 at the request of our Ministry and energy sector. According to this resolution, electricity prices of households, whose consumption rate stands at 150 kWh per month, at previous levels, but subject to indexation, while energy prices of industries, business entities and households, whose consumption is higher, will be periodically increased according to market demands. By 2014 conditions and opportunities in energy sector to operate without incurring losses will be established.

-Countries around the world are supporting and developing renewable energy as an environmentally friendly source of energy. What policies does Mongolia maintain in this regard?

-There is a national program on renewable sources of energy. In addition, we have adopted a Law on Renewable Energy in 2007. I already mentioned that within this framework large-scale hydro power plants have

been built at Durgun and Taishir. Today more than 10 soums are supplied their energy demands with renewable energy sources. In 2007 through direct contracting some companies with no professional background have been selected to construct renewable energy systems in remote soums, which installed cheap and low quality equipments. There were a lot of instances when these systems did not function properly. These systems were not suitable for extreme continental climate of Mongolia and due to low technological standards they constantly broke down creating a misperception among local people that renewable energy is not possible to use.

Even some Parliament members shared the same views and criticism against renewable energy. Such situations created a negative perception about renewable energy in the society. However, the situation in reality is totally different. If professional companies with international expertise make correct analysis and studies then the renewable sources of energy can be reliable, with small operational expenses, and environmentally friendly sources of energy. It has benefits such as not requiring expenses on diesel fuel, coal, and gas, and no need for regular labor force to operate such systems. Therefore, renewable energy has become one of the energy developmental priorities of the world. International Renewable Energy Agency (IRENA) has been established last year, where more than 100 countries joined its membership. Mongolian Parliament has become one first 20 parliaments which supported this organization.

- Many of energy sector employees "trait" to mining sector. Because of energy sector importance, what social and incentive policy measures are undertaken by your ministry?

- This is becoming a reality. Some directors of power plants complain that all good engineers are leaving for Omnogovi. Good welders, electricians and engineers trait because of higher salaries. We can't legally prohibit them because they are making their own choice. In order to keep experienced technical personnel, engineers and technicians and importance of energy sector we need to increase salaries and resolve social issues. In regard »

» to increasing tariffs and prices, we need to increase salaries as well. We are pursuing policy to gradually increase average salary levels to be competitive with mining sector. But there is a saying: "You stretch your legs as long as your blanket goes", therefore, we can do as much as we can afford. We hope that the situation will improve by 2014.

-The Government is providing subsidies to energy companies. Do you think the inter company arrears are reducing?

- There some positive economic changes in energy sector. The intercompany arrears were about 60 billion MNT in 2009, and it was reduced up to 20 billion MNT in 2010. It's worth noting here that the Government provided 15 billion MNT to energy companies. From other hand, some companies improved their performance by improving their efficiency and reducing expenditures. And the Government's Resolution No.284, which reduced interest rates for credits and postponing the payments, reduced burden to energy companies. These measures played positive economic role.

-How do you assess implementation of Mongolian Integrated Power System (MIPS) program?

- The Mongolian Integrated Power System (MIPS) program has been approved in 2002 and has been

revised after five years in 2007. In view on changes occurred recently, there is a need to revise it again this year, after five years. We believe that this program was an important policy document, which outlined major actions. There were many events occurred during last 10 years. The energy sector restructuring has been successfully implemented. All aimag centers have been provided with energy supply and all soums provided with some type of electricity supply. This was an important progress for the society. If in 1990 only 86 soums has been electrified, now all 333 soums have been electrified.

-How do you envision the energy sector in one decade?

-I am confident that by 2021 the energy sector will have a bright future. The thermal power plant No.5 will operate in full capacity, the Tavan Tolgoi power plant will also become operational supplying energy needs of the Gobi region. I hope that in the Eastern region there will be increase in the capacity by around 200 MW of energy, fully supplying demand for regional consumers, and further exploring opportunities for export. I also hope that in Western region power plants will be built near the Hushuut and Hotgor mining deposits, and this region will not be dependent upon the energy imports but will have capacity to export to Chinese Xinjiang or to Tuva. The Gobi region will,

probably, reach its mining production peak. I envision a picture when we will be able to fully supply our energy demands, and there will be created a fully integrated energy system connecting Ulaanbaatar city with Western, Eastern and Gobi regions.

In addition, large-scale renewable energy systems will, be put into operation. From 2013 Newcom's wind power plant with capacity of 50 MW will start its operations. In Sainshand also the 50 MW wind park will be put into operation soon after this. Actually, I hope that by 2021 the energy sector will reach its new stage of development with efficient and progressive techniques and technologies. And, actually, Mongolia will become a country which exports energy, not the one which imports it. I believe that energy sector will not be dependent on government subsidies, but become one of biggest taxpayers, which contributes substantial share to the state budget. Of course, it will, probably, become a sector with highly educated labor force operating power plants with modern techniques and complex technological mode of operations. In addition, I have no doubt that our country's development and our citizens' livelihoods will significantly improve and reach a new height in line with the economic development and development of mining activities. ■

## Price

# Debt-Ridden System Soon to Disappear

**F**ew people in Ulaanbaatar leave their home with the light on when they go out, and televisions switched on when they sleep. But for the citizens of developed countries, the concept of efficient energy use is part of their mentality. It is believed that Mongolians, who resolve their heating and power energy issues at much lower costs comparing to other countries, admit they are very close to facing an energy crisis. Fortunately,

it seems that the crisis has been avoided thanks to the Government's resolution to enhance the energy sector.

In developed countries, the cost of electricity is much higher than in Mongolia. In Denmark, 1kWh of electricity costs 36.6 cents, Italy 28.4 cents, in countries such as Cambodia and the Philippines, just over 10 cents. In Mongolia, starting from May 1st, the cost of electricity will reach

MNT71 to MNT84 (approximately 7 cents) per kWh.

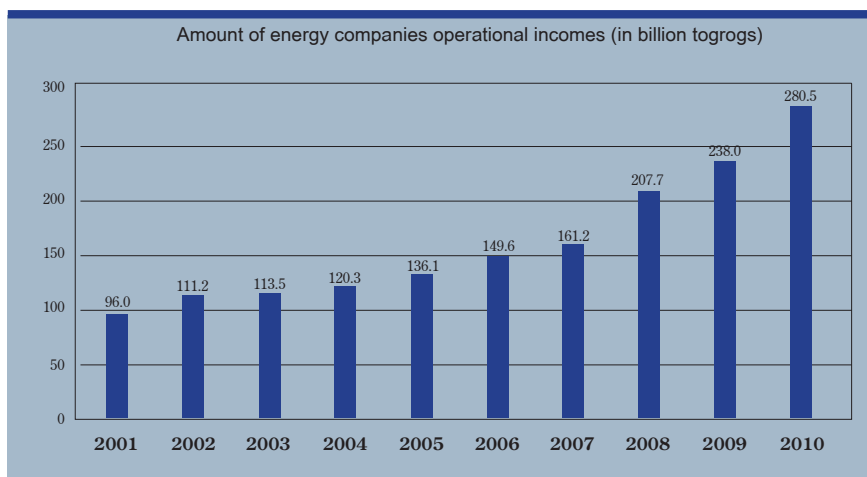
But the Government should recognize that it has firmly kept energy tariffs low, causing much damages to the country's energy sector development in addition to breaching market laws. Because of the Government fixed energy tariffs policy, energy plants could not carry out technological overhauls to the extend they intended due to the

► necessity to reduce their expenses. The energy sector was forced into a difficult situation in which it became indebted.

The actual cost of producing 1kWh of energy in the central region has reached MNT115. This energy is sold to households between MNT71 and MNT84, to economic entities at MNT88 and to mining companies at MNT100. The Dalanzadgad thermal power station produces 1kWh of energy at approximately MNT300 and sells it at MNT79.8. The Government makes up for the differences with money collected from taxpayers and from the budget fund. Last year it distributed subsidies worth MNT34.6 billion in total: MNT19.6 billion to local plants and MNT15 billion to the central region plants respectively.

In fact, were the energy sector healthy, it could significantly contribute to the state budget instead of being a burden. In 2010, the amount of value added tax and corporate income tax paid by larger energy companies exceeded MNT66 billion. An income worth billions of togrogs could be gained by improving the energy sector as large mining deposits of strategic importance are about to become operational. But the energy sector in Mongolia will only attract investors once the right conditions are created and tariffs revised to sell energy at prices higher than production cost.

It is praise worthy that the authorities have started to understand and support the energy sector. On December 9, 2010, the Parliament issued Resolution No.72 on Actions to Be Taken on Fuel and Energy Sectors. The resolution gives the opportunity to gradually increase coal and energy prices until 2014. However, the Parliament also included a clause in the resolution



Source: Energy Regulatory Agency

to protect the most vulnerable part of the society. Households whose monthly consumption of electricity reaches 150kWh will benefit from the same current tariffs until 2014. It has been estimated that 20% of the total income of the energy sector comes from households, of which 64% consume electricity up to 150kWh. Specialists have emphasized that the Government's decision to ensure that everyone be treated fairly is the basis of a healthy energy sector.

Representatives of the energy sector are glad that the debt system between coal mines and energy companies will be eliminated thanks to the Parliament resolution No.72. It will result in creation of opportunities to improve the debt and total capital ratio and renovate and upgrade facilities with long term loans from domestic and foreign sources. "However, it would be insufficient to say that tariffs will be fully liberalized under Parliament resolution," T. Tserenpurev, Head of the Energy Policy Department, Ministry of Minerals and Energy, explained. "It is important to understand that the

resolution will give Mongolia the opportunity to run its operations in the energy sector without loss by 2014." "The price increase starting from May 1st provides us [energy sector] with the capability to be prepared for the 2011-2012 winter," N. Myagmarsuren, Chairman of the Energy Regulatory Agency, noted before to announce that tariffs should reach MNT115 for 1kWh by 2014.

According to specialists, a little help from the Government can improve the sector. In 2008, the energy companies' debt exceeded MNT55 billion, but by the end of 2010, the debt was reduced to MNT29.3 billion. This is the consequence of the energy tariff increase which took place in the last two years in addition to governmental subsidies. Hence, thanks to a gradual increase of heating and electricity prices until 2014, energy companies will soon get rid of their debts and become profitable. Eventually, Mongolia will become a country which does not import but exports electricity; the energy sector will cease being a burden to the state budget and start generating profits thanks to which further investments will be made. ■





### Progressive technology

## No Water Waste for the Ukhaa Hudag Electric Power plant

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The electric power plant in Ukhaa Hudag - the first to be constructed independently by Mongolian engineers - will start operating this August. By introducing a cooling system suited to the Gobi region's harsh conditions, the Energy Resources Company once again confirms its achievements in the energy field. The Mongolian Economy has interviewed Ch. Davaakhuu, Energy Resources Vice President for Operations and Project Management.

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-What are the distinctive features of the Ukhaa Hudag electric power station cooling system? Were there any problems to adapt the new technology to Mongolia?

-We have chosen a dry cooling system after taking into consideration factors such as water resources scarcity in the Gobi region, a possible increase in water demand due to projects to be implemented there and the protection of the environment. Although this system is used in our country for the first time, a substantial period of time has passed since it is used internationally. The system offers the advantage of wasting 0% of water.

In terms of preparatory works, we carefully studied and evaluated technologies, equipment and facilities from various countries to choose the most reliable and most suitable ones to the conditions of our country. After careful deliberations,

» we selected the German GEA Company and its products as the best option. During the phase of installation, experts from GEA came to Mongolia to offer their advices, which was a good experience for Mongolian companies. Furthermore, the electric power station team went to several power stations with similar cooling systems to learn from their practices and attend trainings. Of course, difficulties are likely to emerge since this is a new technology; however, preparatory work is going well.

-It has been announced that the Ukhaa Hudag electric power station will provide for the energy demand of the Tsogtsetsii soum as well as the mining deposit. What is the quantity of energy used by your mine? Will you increase the capacity of the power station in the future?

-As well as meeting the energy demand of the Ukhaa Hudag mining site, we are planning to supply the energy demands of the Tsogtsetsii soum after the power station is operational. Last year, during preparatory works, we have connected the mining supply network with the soum's supply network. Today, the energy demand near the mining site fluctuates between 1.2 and 1.5 MW; however, due to tests at a coal processing plant nearby, the electricity demand reached 3

MW. When the plant is operational, it will alone consume from 5 to 6 MW of electricity. On the other hand, we estimate that once the second and third expansions are operational, the capacity of the power station will reach its maximum. Although this capacity stands at 18 MW, it can be further expanded to meet with the demand in energy of projects to be implemented in the area in the future.

-How much money has Energy Resources spent on the project? What are the costs of this energy produced with a new technology in comparison to other thermal power stations in Mongolia?

-The Ukhaa Hudag electric power station has a comparatively lower capacity than other stations built today, which makes its cost per unit of capacity higher. Although it is rather small, it will require all the supporting facilities that are built in a regular power station. These will include facilities for the processing of chemical water, for the cooling system and for a maintenance workshop. The dry cooling and the cleaning system are part of the station's most expensive features. The total cost of the power station approximates USD45 million. The electric power sub-station and the power grid required an additional USD10 million in order to complete the system.

-Apart from Energy Resource, other private companies pay a great attention to the energy sector. How do you assess the investment climate in this sector? Does the Government provide support to private companies' initiatives and their quest for introducing new technologies?

-The recent private sector's initiatives to build new sources of energy is driven by the need to meet with the demand and by the lack of adequate infrastructure. But due to rather high investment costs and as tariffs have not been transferred to a market system yet, benefits are long-term and direct investment into the energy sector seems to be risky. Therefore, the main option for private companies is to build small-scale electric power stations for their own use. Actually, if several large-scale stations were to be built, investment and utility costs would be low and cost effective.

Most importantly, the sooner actions are taken to transfer the energy sector into a market system, the sooner benefits will be made. I think that even if domestic and foreign investors have a growing interest in investing into this sector, the unfavorable tariffs as well as the legal climate hampers its development. ■

## PPP

# It is possible to introduce progressive technology in the energy sector

*We interviewed Mr. Zayabal B, Director-General, Public-Private Partnership and Concession Department, State Property Committee.*

-You gave presentation on PPP in the Energy Sector during the International Investment Conference - Mongolian Power 2011. How is the PPP implementation progress particularly in Energy Sector?

-Since the ratification of the State Policy on PPP

and the Law on Concession, we have been working to prepare necessary regulations, PPP guideline to give comprehensive understanding of PPPs, of its implementation in Mongolian legal framework, and conducted trainings to build capacity for officials from related Ministries, Agencies, Local governments and



the private sector. As for now there are 3 PPP projects announced for competitive bidding and already in the middle of first stage evaluation. I would like to stress the fact that our first Concession Agreement was signed for Energy sector BOT project - Thermal Power Plant at Mogoi River. There are 15 more Energy sector projects in the Concession list. As Mongolian economy is growing rapidly there will be huge demand for power generation, transmission, distribution and we need to implement these Energy sector projects as soon as possible to meet such demand.

-What are the advantages or importance of Energy sector investment through PPP rather than public investment?

-Making right decision on when, for what and how to use its limited resources is very important for a country like Mongolia which is at the verge of rapid development. Energy, infrastructure projects need huge amount of investment in order to be put in the place. Through PPP scheme we can start implementing such projects without taking actions like increasing taxes, cancelling other necessary projects and reduce government burden. As for the general public, they can benefit from timely supply of Energy sector, infrastructure projects, and improved service delivery through PPP. Governments of PPP advanced countries recently started promoting the use of PPP scheme not only in the power generation, but energy saving, efficient, and investment in 'green technologies'.

-Could you tell us more about foreign PPP experiences?

-UK, Korea, Spain, Australia, US, Hungary, Japan, Italy, Portugal, Canada have long years of expertise.

There is an example from Turkey, 30 of its total 68 PPP projects were implemented in Energy sector. PPP has been a successful mechanism for development of the Energy sector in Chile. As for the developing countries, total PPP investment in the Energy sector between 1990 and 2006 were in Indonesia USD13bln, Malaysia USD14bln, Philippine USD 16bln, Thailand USD12bln, and Vietnam USD3bln. Most of PPP projects in the Energy sector are Greenfield projects.

-How about taking example of Energy sector PPP projects?

-While studying UK's PPP experience we could see that they implemented number of waste-treatment/power-generation projects. They still announce many tenders for such projects. Taking example of developing country's energy sector PPP example, I would like to introduce Bangladesh's Meghnaghat Power Project. USD 289.6 million was invested under a build-own-operate arrangement. The power plant was completed ahead of schedule in 2002 and demonstrated successful- commercially viable, environmentally sound, and well-managed.

-What do you think is necessary for successful implementation of PPP in the Energy sector of Mongolia?

-The State Property Committee together with International Financial Corporation has assessed the project in the Concession items' list. There are many projects that cannot meet bankability requirement but has high priority for the government. With appropriate financial support or guarantee from the government, these high-priority projects can induce sufficient private sector appetite. In order to successfully implement the Energy sector PPP projects, we can use raw material or fuel supply contracts, power purchase contracts at guaranteed prices which are index linked, minimum revenue guarantee and many other methods. We have to understand that even if the Concession Agreements are well designed, without a "good environment", it is difficult to successfully implement projects and achieve objectives; therefore we have to take a look at the current situation of the Energy sector regulations.

-What are you planning to do in the Energy and other sectors through PPP?

-Tavantolgoi Power Plant, Thermal Power Plant No.5 and number of other gridline projects will be implemented. Implementation of special purpose road projects for transportation of mining products, a highway project to the new airport etc will be initiated. Of course other projects in Education, Environment protection, Health sectors will be implemented. We should not expect only thermal power plants, gridlines when talk about energy sector projects. There is a very good opportunity to introduce advanced technologies in energy sector such as renewable energy, waste-treatment/power-generation. ■

## LIST OF ENERGY SECTOR CONCESSION ITEMS

No.	Name of Concession Items	Description of Concession Items	Type of Concession	Works and services	Financial support or guarantees from state budget	Competitive bidding or direct contracting
1	Tavan Tolgoi Power Plant	Construction works of a Power Plant, at Tavan Tolgoi Coal Mine, capable to supply power in gobi region	Build-Own-Operate	To build power plant and facilities, to produce and own the production of power/electricity	Not required	Competitive bidding
2	Power Plant # 5	Construction works of a thermal power plant to supply power and heat to Ulaanbaatar city	Build-Own-Operate	To build power plant and facilities, to produce and own the production of power/electricity	Not required	Competitive bidding
3	Establish "Ikh Toiruu" loop gridnetwork	Improvement of power and energy supply to residents of Ulaanbaatar city	Design-Build-Finance-Transfer	To establish, operate and transfer 110 kWt power loop gridnetwork "Ikh Toiruu" in Ulaanbaatar city	To decide upon investigation	Competitive bidding
4	Improvement of heat supply	Improvement of heat supply to residents of Ulaanbaatar city	Design-Build-Finance-Transfer	To use steam resources/reserves of the Thermal Power Plant No.3 and Thermal Power Plant No.4 of Ulaanbaatar city, for heat production purposes, construct new and rehabilitate and expand existing heat pipelines, and operate and transfer	To decide upon investigation	Competitive bidding
5	Powerplant in Dornod province	Construction works of thermal power plant of 100 MWt capacity	Build-Own-Operate	To produce and own the production of power and thermal energy	Not required	Competitive bidding
6	Thermal Power Plant at Mogoi river	Construction works of power plant of 60 MWt capacity	Build-Operate-transfer	To build, produce power and thermal energy, and transfer	Not required	Renew contract
7	Shivee-Ovoo project	Construction works of a coal mine, thermal plant complex and power high voltage transmission lines for export of power/energy to People's Republic of China	Build-Own-Operate	To build power plant and facilities, to produce, operate and own the production of power/electricity	Not required	Competitive bidding
8	Overhead power lines for Ulaanbaatar-Mandalgobi route	Construction works of 260 km overhead power lines of 220 kWt, with steel footings, 2xAC-400/51 transmission lines with 2 reinforcing ropes	Design-Build-Finance-Transfer	Construction of overhead power lines	To decide upon investigation	Competitive bidding
9	Overhead power lines for Baganuur-Choir route	Construction works of 180km long 220 kWt overhead power lines and transmission of power/electricity	Design-Build-Finance-Transfer	Construction of overhead power lines	Not required	Competitive bidding
10	Overhead power lines for Choir-Tsagaan Suvarga route	Construction works of 280km long 220 kWt overhead power lines and transmission of power/electricity	Design-Build-Finance-Transfer	Construction of overhead power lines	Not required	Competitive bidding
11	Power Plant # 3 project	To improve the heat generating capacity, and renovation of technology	Rehabilitate - Operate -Own	The rehabilitation of existing power plant , to produce, operate and own the production of energy and heat	Not required	Competitive bidding
12	Erdenet Power Plant LLC Project	To improve the power generating capacity and renovation of technology	Rehabilitate - Operate -Own	The rehabilitation of existing power plant , to produce, operate and own the production of energy and heat	Not required	Competitive bidding
13	Establishment of Orhon-Gobi Reservoir	Construction of water reservoir and pipeline in order to improve the water supply and reclamation of environmental degrading in gobi region.	Build-Operate-transfer	To supply with piped water, build power constructions and facilities, produce power, operate and transfer it	Not required	Competitive bidding
14	Tuul-Songino Water Resources Complex	Retreatment (third threatment) effluent from the Central Waste Water Treatment Plant, which does mechanic treatment, and use the re-treated water for Power Plants and energy/power generation	Build-Own-Operate	To treat wastewater, supply with potable water, supply piped water, build power plant and facilities, produce power, operate and own it	Not required	Direct contracting
15	Producing energy out of waste processing	To build a plant of "Technology to Process Waste at High Temperature" and to produce energy out of waste recycling/re-processing	Build-Own-Operate	To build waste processing and power production facilities, to produce operate and own the production of power	Not required	Competitive bidding
16	Rehabilitation of Central Waste Water Treatment Plant of UB city and Pre-Treatment Facilities	To supply the population with reliable potable water and reduce environmental pollution and contamination of soil and water through rehabilitation of Central Waste Water Treatment Plant and Pre-Treatment Facilities of Ulaanbaatar city	Design-Build-Finance-Transfer	To rehabilitate, operate and transfer the Central Waste Water Treatment Plant and Industrial Waste Water Treatment Plant of Ulaanbaatar city with environmentally friendly technologies	To decide upon investigation	Competitive bidding



### Renewable energy

## Hydro Power Station Can Put an End to Energy Imports

Should Mongolia be alerted by the recent sharp increase in the amount of energy it imports from Russia? Mongolia's thermal power stations produce 4 billion KWh of energy annually and, so far, demands in energy during the country's peak hours have been met with thanks to Russian energy imports.

Mongolia usually buys around 130 million KWh of energy per annum, which leads to think that it has no particular reason to worry. But officials warned that last year its energy import sharply rose by 21% to reach 157.5 million KWh. It is estimated that this year, imports might even reach 200 million KWh.

INTER RAO UES Unlimited Joint Stock Company supplies Mongolia with energy and has been

constantly raising its prices. But last year, an increase of almost 60% in prices has surprised everybody and managed to stir panic in Mongolia. As a result of several discussions between relevant Mongolian officials and their Russian counterparts, a solution was found not to pressure the country. However, it cannot be guaranteed that the issue will not occur again. So why is Mongolia importing energy from Russia and putting itself at its mercy?

Every evening between 7 and 10pm, when people return home, cook dinners and watch TV, energy consumption in Mongolia sharply rises to 150 or 200 MW. Experts explain that although Mongolia's thermal power stations can provide for this demand in energy, 16 hours of operation are required in the

furnaces to accumulate an intensity capable of generating such quantity of energy, and the same amount of time to turn them off. Considering the amount of fuel which would be spent during this period and the cost of the labor force, importing energy to meet the country's demand during peak hours is more cost effective. Nevertheless, experts have been attempting to find a way out of this situation for the last 7 years.

A research from the U.S. Stanford University concluded that by 2030, global energy demand could be fully met thanks to renewable sources of energy. Among the renewable sources of energy, hydro-electric stations occupy, of course, an important place. Although the use of hydropower in the world started as

► early as the end of the 19th century, the sector has recently rapidly expanded. Hydro-electric stations are ecologically and economically beneficial and contribute to a sustainable development and the reduction of poverty, which explain why developing and underdeveloped countries have become attracted to this type of energy.

According to the World Bank, around 1.6 billion people worldwide cook and heat their accommodation thanks to hydro-electric stations. Furthermore, the energy supplied by hydropower stations is cheaper than that supplied by other types of thermal power stations. For instance, in Russia, the cost of energy produced by hydro-electric stations is twice cheaper than that of other type of power stations.

At present, around 20% of the world energy demand is supplied by hydro-electric stations, which contribute to reduce the amount of greenhouse emissions resulting from the burning of coal, while generating the same amount of energy. Experts believe in the possibility to eliminate air pollution in Ulaanbaatar, Darkhan and Erdenet cities by building such hydro-electric stations on the banks of the Selenge River, the largest river in Mongolia. The construction of a hydro-electric station in the Western region of Durgun has confirmed the possibility to sustainably operate

and use hydropower throughout Mongolia's four seasons cycle.

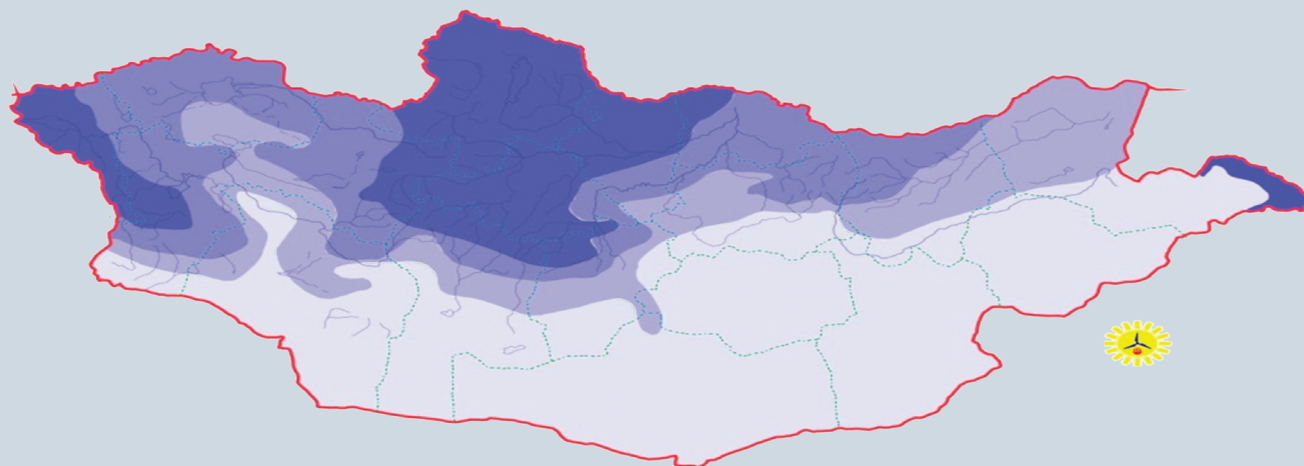
On the other hand, the 12 megawatts capacity of the Durguun hydro-electric station and the 11 MW capacity of the Taishir hydro-electric station are, undoubtedly, unsatisfactory when Mongolia's hydropower reserves are estimated to approximate 56 billion Kwh - 14 times the total amount of energy produced in Mongolia per annum! This is why experts insist in reminding the need to turn the wealthy energy reserves of the country's Central and Eastern regions into economically viable projects. The Energy Master Plan and the Program on Integrated Power Energy in Mongolia developed in cooperation with the Asian Development Bank include recommendations for the implementation of large-scale hydro-electric stations projects. For Mongolia, hydro-electric stations could not only constitute a source of clean energy, but also become a source of cheap energy to substitute imports and a mean to meet with electricity demand during peak hours.

For a hydro-electric station with a capacity of 220 megawatts to be built at the Egiin River, around USD350 to 400 million of investment are said to be required. 220 MW is no small matter! The thermal power stations No.4 and No.3 which

supply the central energy system have a capacity of 580 MW and 136 MW respectively. More importantly, almost four million tons of coal are required to operate these station at full capacity. Furthermore, these thermal power stations have to be rehabilitated every 30 years, while hydro-electric stations can operate for approximately 100 years and more.

Hydro-electric stations have proven their capacity to provide for a sustainable development. By building hydro-electric stations, Mongolia can meet with its increasing demand in energy and forget about energy imports. Even though it is certain that the country's wealthy coal reserves will provide for its energy demand in the near future, it is vital to make every effort to follow global development trends. However, the technical and economic feasibility studies of the Egiin River which were conducted with the support of the Asian Development Bank were 'ignored' for some time. Following experts estimates that the Selenge River has a production capacity of 200 MW of energy and the Orkhon River, 100 MW of energy, T. Tserenpurev believes in the necessity to carry out one of these three projects first. No matter what, Mongolia needs to implement these grand projects now more than ever. ■

## Hydro power resources of Mongolia





### Challenge

## Russian Oil 'Crisis' Sends Warning to Mongolia

A recent decision taken by the Russian Federation panicked everyone in Mongolia, from taxi drivers up to the Head of State. As soon as the news broke that Russia had agreed to halt its fuel exports, the Mongolian National Security Council convened, ministers started calling their Russian counterparts, and the media spent several days knocking at the doors of the Petroleum Authority and the Ministry of Mineral Resources and Energy to find out more about what was going on.

But news was quickly released stating that Russian restriction will not affect Mongolia, which had for effect of calming everybody. But the small wind of panic which momentarily blew over Mongolia raises serious questions about the country's reliance on Russian oil and Russia's power to balance in its favor Mongolia's most critical decisions. Mongolia is about to take crucial decisions on matters where the interest of the nation and also of its neighbors are at stake. A "winner" for the Tavan Tolgoi deposit

will be announced any day soon. There could not be a better time for Russia to halt oil exports and in the meantime, for Mongolia to be remembered of its dependency on its northern neighbor.

The situation in Mongolia

The wind of panic which blew over Mongolia following the Russian Federation to stop exports of petroleum products starting from May 1st is understandable as the country is 100% reliant on petroleum imports, of which over 90% is supplied by Russia itself.

Since the end of last April, one major issue on the mind of Mongolians has been that of petroleum. Effectively, construction works, road repairs and mining operations are intensifying, and cultivation of spring crop is about to start, all leading to the skyrocketing of the nation's demand and need in petroleum. Coincidentally, this is also the time when Russia decides to cut oil exports...

Mongolian Government officials hurried to clarify the issue with the Russian Federation's Government, who then officially stated that their decision to halt petroleum exports will not affect Mongolia. To what Deputy Head of the Fuel Policy Department of the Ministry of Mineral Resources and Energy Mr N. Boldkhuu added that Mongolia "can continue to meet its demands in petroleum from Russia."

However, petroleum importers announced that petrol-pump prices will rise by MNT80! Of course, the search for a "culprit" is now ongoing and reports accusing importers of overpricing although the Russian Federation was "looking after" Mongolia have multiplied. The Authority for Fair Competition and Consumer Protection did not sit still and started to take a closer look at petroleum importers.

The situation in Russia

Although the Russian Federation ranks high in the world when it comes

» to oil resources and production, it came surprisingly short of fuel for its own consumption. The fuel shortage which started in the Siberian Altai region rapidly spread to other regions, leading to a crisis. Russians citizens, of course, have all the rights to be upset about the increase of fuel prices in their oil rich country.

The reasons leading to fuel shortages in Russia were already lurking by the end of 2010. At the beginning of 2011, the Russian Government issued a resolution to make Euro 3 standard petroleum the only petroleum to be sold on its territory. The decision intended to give the Russian citizens the opportunity to use the high quality fuel and petroleum, but unfortunately, it soon entailed a fuel crisis.

The task of producing Euro 3 standard products constituted too difficult a challenge and issue for many Russian oil producing companies. After many closed their doors in search of the appropriate techniques and technologies, the market experienced a fuel shortage which led to a soar in prices. The Russian government was forced to pegged fuel prices last February in order to regulate constantly increasing petroleum prices.

Consequently, most of the petrol stations had to sell their fuel at depressed prices; and the independent petrol stations which did not benefit from the protection of other large monopolistic companies had to stand still. Meanwhile, monopolistic companies preferred to export their petroleum and generate profits of 2,000 to 3,000 rubles per ton rather than sell it at a cheaper price on the domestic market. According to a statement from the Ministry of Energy of Russia, the fuel crisis was the result of a 67% increase in petroleum products exports. In order to solve the crisis, it was simply agreed to halt petroleum export.

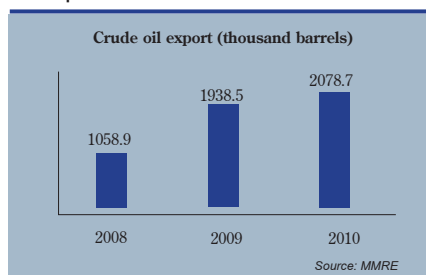
Russian news agency RIANovosti published the statement made by the Deputy Minister for Energy in Russia Mr Sergei Kudryashov in which oil producing companies promised officials that they will stop exporting their products starting from May. To guaranty this agreement, Prime

Minister and iron fist of the Russian state Mr Vladimir Putin announced on April 28th that export duties on petroleum products will be increased by 44% starting from May 1st, as result of what one ton of petrol will amount to USD408.3. Although there are uncertainties over the period of time for which the regulation will be in effect, the Russian newspaper Vedomosti reported that according to some experts, it shall probably be in vigor for 2 to 5 months.

Meanwhile, Interfax informed that market prices of AI-92 fuel type sharply increased by 18.8% last April it can be seen on the web link <https://www.eoil.ru> how wholesale prices for one ton of AI-92 skyrocketed from 23,600 rubles to 28,900 rubles between April 10th and May 10th of this year. Russia's Federal Anti-Monopoly Service or FAS has inspected its oil producing companies but reported to have found nothing. The price for one litre of AI-92 reached 28 rubles (approximately MNT1,260) in some Russian regions and the front pages of Russian newspapers abound with news that price increase is set to continue further... Like in Mongolia, the hunt for a "culprit" was launched, and this time the "monsters" were indentified in the oil monopolistic companies such as Rosneft, LUKOIL, TNK-BP, and Gazprom Neft.

A real paradox

According to the foreign trade review carried out by the Mongol Bank, Mongolia imported USD678 million of petroleum products last year, which represented no less than 20.7% of the country's total imports. From this it can be concluded that the price fluctuations of fuel and



petroleum products can have a tremendous impact on Mongolia's economy. But it was also established

that during the same period Mongolia exported 2,078, 000 thousand barrels of crude oil, which amounted to USD154.9 million.

Moreover, graphs and statistics shows that oil exploration and exports in Mongolia have steadily increased during the last few years. So how can it be that one of the main export products of a country which does not produce a single drop of petroleum domestically is oil?

In order to maintain price stability on the domestic market the Mongolian Government increases or decreases petroleum and diesel fuel excise tax depending on Russian customs duties. However, due to the Russian decision to sharply increase export duty taxes by 44%, Mongolian officials understandably decreased the country's excise tax. On the other hand, how can it be made sure that prices will not increase any further and supplies of petroleum become more substantial? At a time when Russians themselves cannot control their oil prices, who can guarantee that Mongolians will have the opportunity to continue purchasing oil at a low price? The Mongolian Government?

During spring 2008 and as petroleum products prices sharply increased, oil importers had a zero tax preferential treatment and were even given subsidies. Nevertheless, prices continued to soar; so how will Mongolia – who does not produce a single drop of petroleum and is 100% dependent upon foreign oil supplies - maintain stable oil prices when prices soar on the world and Russian markets?

A way out

The Russian fuel crisis and resulting turmoil in Mongolia show the necessity to introduce and develop the technology to distill petroleum domestically and extract liquid fuel from coal. Prior to the financial and economic crisis and at a time when prices of petroleum products had substantially increased, talks about the urgency of building such oil refineries were common. However, everything was forgotten as soon as the prices had dropped again. Now talks about building an oil refinery

and by-product coking coal factory within the Sainshand industrial complex have started again, but will these projects ever be completed? According to Mongolian Prime Minister Mr S.Batbold the oil refinery in Sainshand will be operational in 2014.

Three years ago, the Mongolian Industrial Corporation signed a cooperation agreement with Uhde, a branch of the German Thyssen Krupp Company, on the implementation of a project to set up a refinery to extract liquid fuel from coal. A feasibility study has even been prepared. According to representatives of the Mongolian Industrial Corporation, the refinery will rely upon the Tugrug lake coal deposits located in the Tuv aimag's Bayan soum and will produce one million tons of petroleum and diesel fuel as well as produce USD1.1 billion worth of products per annum, all thanks to the aid of the Coal-to-Liquid - or the CTL - technology. In other words, it will have the capacity to fully supply the country's domestic demand and contribute to the growth of its GDP by 20 to 25%. But the project has yet to be completed.

Since 2004, the Ministry has received 13 projects and proposals for the establishment of oil refineries. For many years the Mongolsekyu Company intended to establish an oil refinery in cooperation with its Japanese counterparts in Darkhan-

Uul and obtained the license to do so in 2007. The refinery was planned to start its operation in 2012, but the date turned out to be wrong. Nevertheless, hopes arose again with the news that the Mongolian company established a cooperation agreement with Japanese Toyo Engineering and Marubeni corporations last year. Construction works to set up the refinery which will have the capacity to process 44 thousand barrels of oil per day will start within the year and the refinery should be operational by 2014. According to media, investments will amount to USD600 million.

More than ever Mongolian's demand in fuel and petroleum is rapidly increasing. If in 2003 the country imported 441 thousand tons of petroleum products, last year this data came close to 864 thousand tons. Experts believe that demand will steadily increase due to the implementation of large mining projects and will reach 1.1 million tons in 2012, and 1.5 million tons by 2015. They also point out that when the price of oil on world markets increases by 1%, Mongolia's GDP decreases by 0.1%. So how will the Mongolian Government meet with this demand? Will the current situation and dependency upon Russian oil be satisfactory?

Petroleum products are strategically important products

which constitute the basis of economic prices for consumption. "Mongolians need to provide for 50% of its domestic consumption demand, and if this is not possible then to provide for at least 30%," the Head of the Department of the National Development and Innovation Committee Mr B.Ganbaatar said. There was an opportunity to gain independence by setting up an oil refinery with MNT805.2 billion issued by the Human Development Fund. On the other hand, officials also know Mongolia - once proclaimed by Mr Robert Freedland as the "Coal Saudi Arabia" - already has the technology to extract fuel and gasoline from coal.

So should Mongolia continue exporting its crude oil and coal at very low prices while importing fuel at much higher prices for its own consumption? Should it stay dependent on Russia? If this situation continues, it is more than likely that Mongolian hopes of opening up its reserves and experiencing rapid development will be annihilated. Although decisions made by the Russian Government did not affect Mongolia and everything is so far under control, this 'crisis' should be interpreted as a serious warning that now is the time for Mongolia to put an end to its dependency on foreign oil. ■

## Finance

# Bank to Support Mongolia's Development Opens its Doors

12 May 2011. This day marked the opening of the Development Bank of Mongolia (DB). One can feel the smell of fresh paint when entering its locals situated on the first floor of the right wing of the Government Building No.2, which also houses the Ministry of Finance.

The Korean Development Bank (KDB) was selected to manage the DB after an open international tender

bid. The DB board of directors is presently working to complete the drafting of the executive management agreement with KDB and confirmed that the provision of the DB Law which states that Mongolian citizens should account for no less than 50% of the DB executive management would be followed. "This year, over MNT680 billion will be invested from the state budget. The fact that

MNT800 billion worth of bonds will be issued too also acts as a guarantee of the country's economic growth and vast opportunities. Mongolia will have the opportunity to further increase investments in the future and the Development Bank should act as the main mechanism for directing revenues from the mining sector into Mongolia's development," Prime Minister S. Batbold said during the



opening ceremony.

As well as finding out who will buy MNT800 billion worth of bonds, media were eager to know what will be the first projects funded by the DB. "Initially, the bank will fund projects related to the Short-term Target Program for New Reconstruction and Development, to Government Policy on Railway Transportation, to the Sainshand Industrial Complex, and to the construction of roads and energy supply networks across the Mongolian territory," Ch. Khashchuluun, Chairman of the Board of Directors of DB, Chairman of the National Development and Innovation Committee, said. "Mongolia is at the start of a rapid economic development and a special organization to support an economic growth resulting from the profits of the mining sector is necessary. This role will be incumbent to the Development Bank. Consequently, our country has acquired a strong economic incentive to improve its infrastructure and competitive capacity, develop its national processing industries, and support sectors that create value-added products."

The Government decided to issue bonds for a total value of MNT800 billion to give the DB the capacity of appropriately investing into large-scale projects and thus accelerate Mongolia's economic development. MNT250 billion worth of bonds will be issued over a period of five years, MNT250 billion worth over a period of 10 years, and finally, MNT300 billion worth over a period of 15 years. "We are studying how to determine bonds interest rate and assess the criteria of future buyers. In that respect, we will soon conduct an Investors' Forum," Ch. Khashchuluun said during the opening ceremony to answer journalists' questions regarding the sale of the bonds and their interest rate.

Since Mongolia does not have a history and experience of establishing and leading a development bank and although the KDB has been selected as the DB's management team, Mongolia is also cooperating and consulting with Japanese experts on the matter.

Among the representatives of the Government, Parliament, and Mongol Bank who participated to the opening

ceremony, one woman stood out: the Deputy Director of the Development Bank L. Bolormaa. Short hair and medium height, she graduated from the National University of Mongolia in the field of banking and finance, after which she received her advanced degrees in the same field in the U.S. and Japan. She acquired substantial experience working for the German Deutsche Bank and returned to Mongolia after 15 years. "My reason to work in Mongolia was the DB project. I came back to my country with my own project and I am happy to be provided with an opportunity to realize this project," L. Bolormaa said, dispelling journalists' allegations that she might have been appointed as the Deputy Director of the DB thanks to some ministers or other people in high office.

The DB flag and logo include ornaments of happiness on a sky blue background to symbolize the bank's goal to undertake (re)construction works on all the Mongolian territory, accumulate capital and conduct productive activities to bring wealth to the country. ■

## Monetary policy

# Central Banks under Threat from Inflation

After more than a year, the Central Bank of Mongolia - or Mongol Bank - finally gave in and decided to raise its interest rate by 0.5% up to 11.5%. Inflation is the reason behind the Mongol Bank's failure to stick to its promises to decrease the loan interest rate, resulting in its subsequent rise.

Many people were surprised to learn last March that inflation had decreased as the country's annual inflation rate was estimated at 7.4%. However, representatives at the Mongol Bank were quick to link the contraction to a decrease in meat prices, stating that the inflation rate could well reach 15 to 20% by the end of the year. Consequently, Mongol Bank warned that Mongolia could experience a financial and economic crisis once again.

At a time when warnings of 'overheating' in the economy start to appear, it seems a strict monetary policy is the only way to reduce the rampant inflation rate. The 67% increase of cash - or MNT1.98 trillion - as of March 2011 in comparison to previous year data, is set to continue and has led to a consequent and substantial increase in the financial system credit balance. "The rapid increase of loans and high budget expenditure will continue to influence the growth of inflation," Mongol Bank First Deputy President Mr B. Javkhlan confirmed.

However, it would be erroneous to think that an increase of the interest rate by 0.5% will keep inflation under control once and for all. Inflation is an issue not only facing Mongolia but the world in general. As well as an increase of domestic money supply, Mongolia experiences substantial pressure as it also "imports inflation" from foreign countries upon which it is dependent. 70% of its food supplies



come from abroad and 100% of its fuel consumption is imported from Russia. As such, price fluctuations in other countries have direct repercussions on Mongolia's economy.

The Asian Development Bank warned that staple food prices increased by 31% within this year's first two months in comparison to the previous year (see link <http://www.radioaustralia.net.au>); an information which leads to fear that developing Asian countries - home to two-thirds of the world's poorest people - will be greatly affected by the increase in food prices. But the impact of the price increase in staple food, like inflation, has not limited itself to under developed countries and is also significantly affecting more developed and wealthier countries such as India, China and other oil rich Persian Gulf countries.

This year, it has been estimated that consumer prices of food products will increase by 9% in a country as rich and wealthy as Saudi Arabia. Even supermarkets in the United States, United Kingdom and other major European countries,

which had so far escaped inflation, now regularly resort to increase the price of staple food products even if it means alienating their customers. But prices of oil, wheat, and coffee continue to rise on world markets and, according to the UN, seriously endanger the lives of one billion people estimated to be suffering from hunger and malnutrition today in the world. Unfortunately, the situation is likely to continue and even deteriorate as, partially due to climate change, harvesting is poor and food supplies are shortening.

What are the measures taken by do other countries?

It would be a mistake to assume that only the Central Bank of Mongolia is tightening its monetary policy under the pressure of inflation. The Central Bank of the Russian Federation has already raised its interest rate twice this year, reaching 8.25% since May 3rd. When the news of inflation reaching 4.2% from April 25th of this year spread, the Russian Government became anxious to confine inflation to 7.5% per annum.

Meanwhile, the Central Bank of

the People's Republic of China has also announced that it is raising by 0.5%, starting from April 21st of this year, the amount of emergency funds allocated to its banks. According to Bloomberg, this is the fourth time that the Central Bank of China takes such measure this year.

Inflation rate in China reached 5.4% this March, its highest peak over the last 32 months. For the Chinese leaders, who aim to confine the inflation rate to 4% this year, there is no other option than to tighten their monetary policy, and they have accordingly raised the policy interest rate up by 0.25% since last April 6th. It results from all this that Mongolia's neighboring countries have opted for the adoption stricter monetary policy. But are other countries following the same steps?

The European Central Bank did not pay much attention to increasing its interest rate since the financial and economic crisis. However, the

increasing inflation could not be ignored. The annual growth of the inflation rate in the euro zone was up to 2.6% as of March of this year, which constituted a record over the last 29 month period. Consequently, last April 7th, the European Central Bank had no other way than do what it had refused to do for the last two years: increase its interest rate too.

However, despite the fact that developed countries such as the United State, United Kingdom and Japan also experience inflationary pressure, they are in no hurry to change their free flowing monetary policy. If the British's principal aim is to significantly increase their GDP, which was reduced by 0.5% within the last quarter, the Japanese are working to recover from the earthquake tsunami nuclear crisis which hit the country last March. These issues are more important for the Central Banks of Great Britain and Japan than fighting inflation. Meanwhile,

the management of the US Federal Reserve System declared that they "will raise the policy interest rate," but that the time was "not right yet..."

For many Central Banks around the world, staple food continued prices increase on world markets and the necessary tightening of monetary policies to decrease a growing inflation constitute their principal issue and a true headache. Like them, the Mongol Bank directs its efforts upon tackling this problem. For business entrepreneurs, on the other hand, the most important issue is to figure out whether the Central Bank intends to increase interest rates once only this year, or does it intend on periodically tightening its monetary policy.

Meanwhile, only one issue truly concerns every citizen throughout the world: what will be the cost of today's bread and meat? Everyone has their own priorities and worrying issues to tackle... ■

## Trade

# Speed of Mongolia's Development to Dependent on the Strength its Engine

Along with the country's development, the role of the trade sector in the economy has grown and substantially changed over the last 20 years, which resulted in both advantages and disadvantages. To celebrate the 90th anniversary of the trade sector at the end of the year, the Ministry of Food, Agriculture and Light Industry (MFALI) approved a long list of activities to improve its legal regulation and policy.

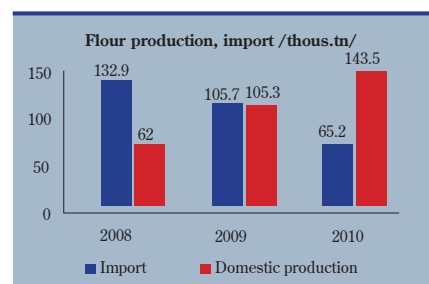
Part of these activities will be the organization of the Mongolian Trade Policy – Innovation International Research Conference on June 10th of this year. Although all sectors are concerned by the issue of trade and commerce, an independent Law on Commerce is actually still lacking since the birth of the trade sector 90 years ago. This can be interpreted as a major drawback, especially when rapid development is being

discussed. In Mongolia, every sector issues its own policy on foreign trade and implements it. No less than 50 laws deal with the issue of trade and commerce, some of them only devoting merely one to two sentences to the matter.

It is evident that the creation of a comprehensive legal environment on trade is necessary and the MFALI and MFAT jointly drafted a Law on Trade which they submitted to the Government for discussion. "All of the provisions on trade and commerce reflected in many laws cannot be included into the Law on Commerce. It needs to be in coherence with the main - as well as specific - laws," Head of the Food Production and Trade Services Policy Implementation Department, MFALI, Mr. Ch. Enkh-Amgalan said.

"Trade is the main driving force of the economy," Deputy Head of

the Foreign Trade and Economic Cooperation Mr. S. Javkhlanbaatar once said. The economic development should be dependent on the strength of its engine. Looking at some data on the state of Mongolia's foreign and domestic trade, the country limited its foreign trade to only few countries until 1990's. However, today Mongolia trades with more than 130 countries in the world. In addition, some statistical data also show the rapid development of the Mongolian commercial sector. For example, by 2010, its total trade



turnover reached USD6.2 billion, meaning the country's trade volume equaled its GDP. However, by 1990's, it amounted to a mere USD200. It is certain that in the near future, thanks to its development and reconstruction, trade volume will further increase. It has been predicted that in 2013, Mongolia's foreign trade turnover will double its current amount and reach USD12 billion. Relevant officials also remark that at that time, exports will intensify and the foreign trade balance will be positive.

In terms of imports, Mongolia's two neighboring countries each constitute around 30%. Experts see it as a sign that Mongolia is maintaining its foreign trade balance. For a landlocked country situated between two large markets, this is considered to be a normal situation. However, in terms of exports, it is a major drawback. More than 80 % of its exports are destined to the People's Republic of China. Of course, China is the main buyer of its mineral resources products, which constitute more than 70% of Mongolia exports. For instance, exports of coal reached 30%. The Government, in order to diversify the range of mineral products, prioritizes a policy of processing mineral resources domestically to produce value-added products. But will the exports of other sectors be supported too? Should Mongolia continue to export all of its products to China? The opening of new export markets has become an issue that decision-makers need to resolve rapidly.

Although progress in foreign trade has been made, the variety of export products has slowly decreased for the past 20 years to reach a low point today. It is especially worrying that exports of agricultural products have almost stopped. For example, in the mid-80's, Russia constituted 83% of Mongolia's foreign trade turnover. Its weight on the country's exports amounted to more than 80%. However, in 2010 Russia does not even make up for 20% of Mongolia's foreign trade turnover. According to statistics, exports from the Russian Federation reached 28%, while imports stood at 32.7%. This shows that Mongolia's foreign trade experiences losses, and confirms the loss of its traditional trade relations with Russia.

Mongolian imports can decrease, but exports should increase in line with the speed of economic development. What types of products were exported to Russia for exports to be so high in the 1980's? All types of agricultural products were supplied to Russia including 10.8 thousand tons of sheep wool, 3.0 thousand tons of camel wool, 65,315.1 thousands of horse hide, goat and sheep skin, 54,717.5 thousands of goatskin leather and leather products, carpets, woolen fabric, woolen textiles, woolen blankets, marmot skin, wheat, alcoholic beverages, meat, cattle, and so on.

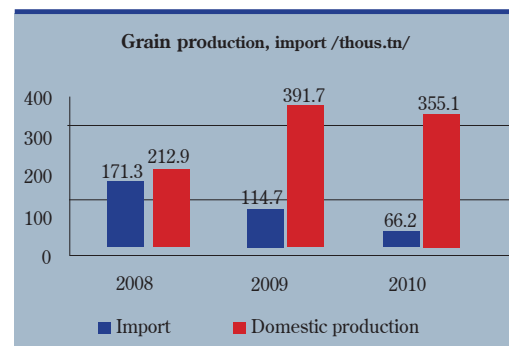
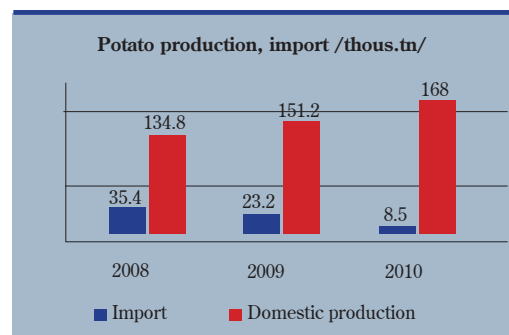
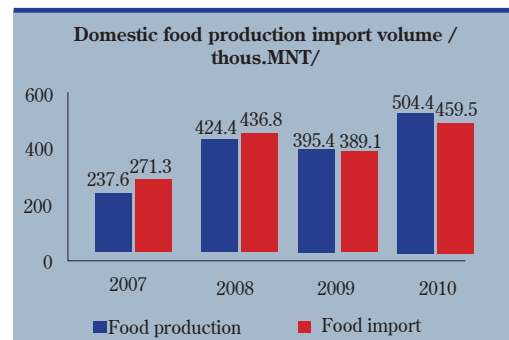
Five years later, around 1985, exports of mineral resources, including copper concentrate and molybdenum concentrate, increased. In 1988, 1,040.8 thousand tons of coal were exported to Russia. Even though the amount of these export products fluctuated up until 1990, these were continually supplied to Russia. However, according to 2010 data, the number of products exported to Russia was inferior to 10.510 thousand tons of spar concentrates and 5.3 thousand tons of coal were exported; few agricultural products were exported. Further exports included sheep wool (0.1 to 0.5 thousand tons) and camel wool, woolen textiles, woolen blanket and meat. The largest amount of exports is constituted by meat products, which decreased to a mere 13.8 thousand tons last year.

Nevertheless, Mongolia has the capacity to increase exports of agricultural products. In recent years with the Campaign to Bring Virgin Lands under Cultivation III, significant progresses were made in crop production. Currently, it provides for 100% of its domestic demands in potatoes and wheat, and 60% of its demand in vegetables. In addition, encouraging results in the production of import substituting products were noticed. Head of the Food Production and Trade Services Policy Implementation

Department, MFALI, Ch. Enkh-Amgalan specifically remarked that the production of pickled vegetables is developing well.

In 2001, the Government approved the Wholesale Network Program to supply the population with good quality food products and the factories with raw material, to provide optimal storage facilities, and to enhance the shipment of goods and raw materials. Since its approval, the program has been implemented in 18 aimags and about 100 soums. The creation of a wholesale network in Mongolia's vast territory has led to the establishment of actual market prices and the reducing of price difference between cities and remote areas.

Moreover, the bill on the Exchange of Agricultural Products and Raw Material initiated to develop a system for the preparation of livestock raw material and the regulation of its trade, is now under discussion at the Parliament.



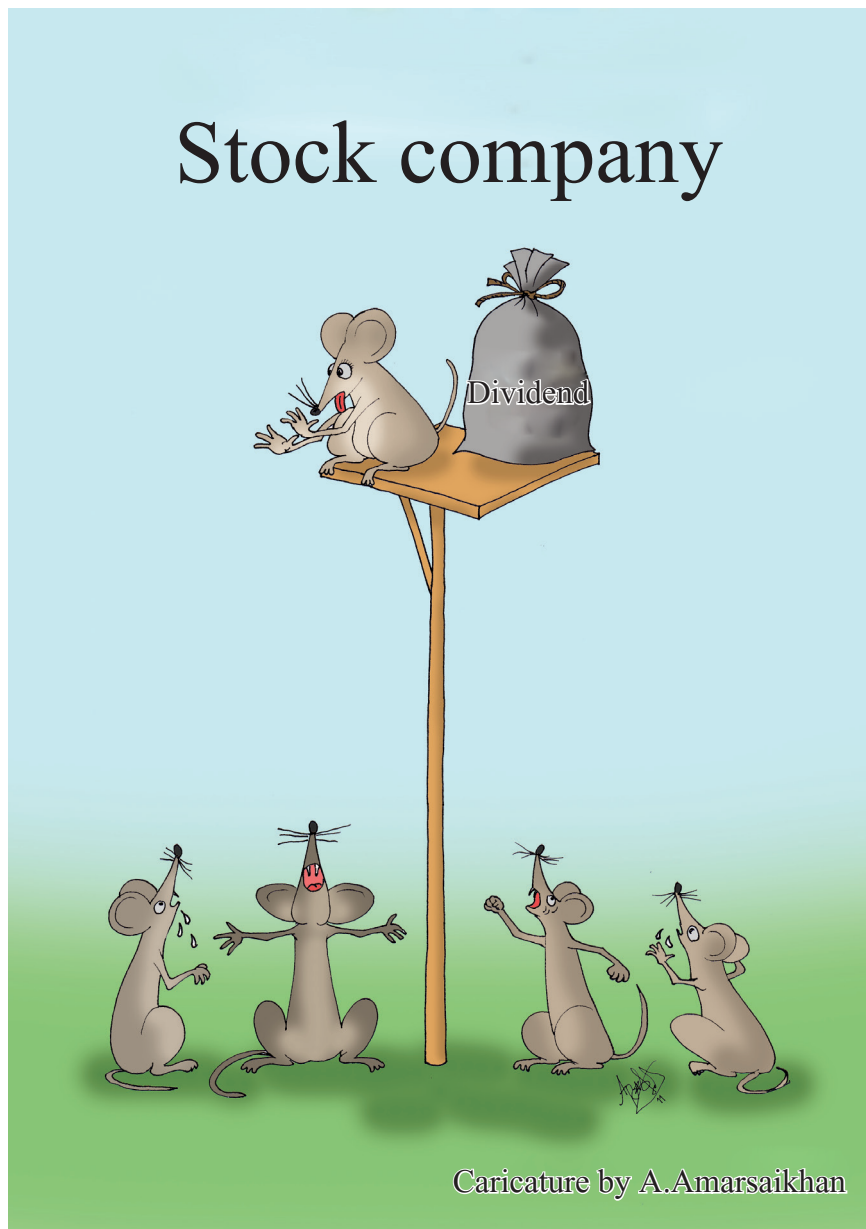
Source: MOFALI of Mongolia

## Farewell Inefficient Board of Directors

For its fourth edition, the Mongolian Economy is introducing a new section to its magazine. As its title "Law" indicates, the section will discuss numerous issues related to the country's legal environment and provide regular updates on the types of law amendments under discussion. The Company Law will be the first subject to be dealt with in this edition.

The Company Law, which was last amended and adopted in 1999, is currently under study by a working group to be amended - amendments which should be submitted for adoption during the Parliament spring session. In addition to the rapid capital market development and substantial increase in the amount of foreign direct investments in Mongolia, national companies are growing wealthier and the state budget is increasing. Mongolia's economy has increased by 10%, and is likely to keep growing unabated. Considering the pace of development in Mongolia, amendments to the Company Law were necessary.

"The amendments to the Company Law will aim at improving corporate governance, providing for more transparency, building stronger managerial capacity, raising responsibilities and accountability and providing for the protection of shareholders' rights," B. Ayush, a member



Caricature by A.Amarsaikhan

of the working group, said. "In short, the amendment shall raise the profile of the companies and their shareholders' rights. The Economic Standing Committee had planned to discuss the draft law this week between May 9th and 13th but it was postponed. Members of the Parliament and members of the working group R. Bud, Zorigt, Bayarsaikhan, Munkh-Orgil and Z.Enkhbold, display great resolve and effort to improve the Company Law by considering it as the legal foundation of the country's modern economy," he added. The draft law includes many new complex articles and provisions. However, due to the fact that it is still at the stage of discussion by the working group and has not yet

been discussed by the Economic Standing Committee, only the main amendments can be discussed in this article.

It seems the draft law amendments are unlikely to touch upon the issue of limited liability companies too much, but they sure paid a great deal of attention to the issue of joint stock companies as they affect the interests of many people. The draft law includes provisions which specifically concern the strict regulation of joint stock companies to improve corporate governance, provide for transparency and make companies management accountable for their actions. Joint stock companies effectively bear greater responsibilities than limited liability companies ▶

► and the law strives to impose them with the duty of being accountable. Therefore, the most important is to raise the level of corporate responsibility of the companies or businesses such as banks, financial institutions, insurance organizations (...) as they touch upon the interests of the public at large, and to make them abide by the law.

The next important amendment concerns shareholders' rights. Today, despite the fact that thousands of share holding companies conduct their operations in Mongolia, many banks and financial organizations have violated the rights of small shareholders. These violations will, undoubtedly, become a lesson to improve and strengthen the Company Law. For joint stock companies, they should uphold the rights of all of their shareholders regardless of their size. Experts warn that if companies continue to disregard the rights of their small shareholders by only catering to the needs of large shareholders, the consequences will be very negative for Mongolia and its society in general. Once the legal conditions are created, the citizens will become the largest investors. In developed countries, citizens carry the role of investors to the economy, which seems to justify the saying "If citizens are wealthy, so is the Government."

Capital market theories consider that citizens are the most important and reliable investors; theories followed and applied by most countries, but Mongolia. The fact that only foreign investment companies are growing and expanding in Mongolia today while locally invested companies grow insufficiently is intrinsically connected to the non - or poor - respect of shareholders' rights, good governance, and corporate transparency. Consequently, current amendments to the Company Law will include many articles and provisions to regulate these issues.

It has been stated that on the Mongolian Stock Exchange, around 100 companies are registered which do not conduct any operations and whose whereabouts are unknown.

Many people raise criticisms about these companies' registration and wonder why their registration with the Stock Exchange is not automatically cancelled? But the Government seems to keep silent on the matter - as if these companies were operational - because if the registrations of these companies are cancelled, they will go unpunished. The relevant authorities and experts consider that it is appropriate to make these companies accountable for their actions according to the law. "Companies can attract capital only by abiding by the law. Corporate governance provides for favorable conditions and protects the interests of investors. Actually, the transparency and objectivity of information are intrinsically connected to the development of the capital market. Information feeds investors. Here lies the importance of corporate governance. The issue of corporate governance matters not only to the companies but also to the banks, public and governmental organizations," former president of Mongol Bank J. Unenbat clearly explained.

The concept of corporate governance that spreads around the world since the 1990's is only at its early stages in Mongolia. Despite the fact a Code of Corporate Governance was adopted by the country at the end of 2007, the situation seems to be embarrassing in terms of its implementation. The majority of Mongolian companies completely disregard the fact that the law provides for a shareholders' meeting to be called and held within four months following the end of the company's fiscal year, and a financial statements to be sent accordingly. "The shareholders' meeting is very important not only for the exercise of the shareholders' voting rights but also to provide a platform where shareholders and others can obtain information and make investment decisions," B. Ayush pointed out. In 2010, out of the 336 companies registered at the Mongolian Stock Exchange, only 33 sent their financial statements and merely 19 paid dividends. Hopefully, the new

law will put an end to this embarrassing record.

The next amendment in the draft law concerns the board of directors. Today, there is hardly a business entity - whether banks, public and governmental organizations - that has not appointed a board of directors. The main issue is who and under what criteria is the board of directors appointed? Do the members of the board of directors understand their responsibility? Do they undertake any liability for their actions? Maybe or not are the only answers to these questions. Of course, we are not disputing the existence of small numbers of companies which exercises good governance, conduct transparent operations and consider important to include in its board of directors capable personnel including proficient lawyers or economists. "The amendments to the draft law have for goal to increase the numbers of companies which understand their responsibility and accountability. The draft will include a principle to allot one third of the board of directors to the large autonomous shareholder and executive management," B. Ayush said.

Experts criticize the provision of the 1999 Company Law which states that the board of directors should have no less than nine members, which makes it inadequately composed of too many people who do not know or do not want to accept their responsibilities. Although Mongolian companies do not understand or disregard the duties and obligations of the members of the board of directors, they follow rigidly the provision. Any company's large shareholder tries to fill the board of directors with their own relatives in order to make the number of members conformed to the legal provision, not hesitating to write the names of their granddaughters who just turned 18 years old.

But times are about to change and very soon Mongolia will be rid of its "puppet" board of directors. A necessary and welcome riddance thanks to the new amendments about to change the Company Law. ■

PPP

## Ulaanbaatar and PPP

To develop a mutually beneficial cooperation between the Government and the private sector and to resolve the problems faced by the Mongolian Government and Ulaanbaatar city, a second Ulaanbaatar city – Public Private Partnership (PPP) consulting meeting was organized. A total of 120 people - Mongolia's Prime Minister, cabinet members and foreign ambassadors, residential representatives of international organizations running their operations in the country, representatives of domestic and foreign private sector participated in this annual meeting organized at the initiative of G. Monkhubayar, Ulaanbaatar Governor and City Mayor.

"The issue of the development and progression of Ulaanbaatar, a city with a population of more than one million people, should come into the limelight of the Government," S. Batbold, Prime Minister, noted in his opening remarks. "Having studied international standards, legal environment, planning and developmental policy in newly developing cities, certain actions are being implemented. A loan of USD500 million from the Development Bank should be spent on the construction of roads and housing in the capital city. The Government openly supports the private sector which should follow governmental policies. With this regard, it will demand them to fulfill their duties," he continued.

47 projects were presented during the first consulting meeting last year. This year 71 individual works of 44 package projects to be implemented in 8 different fields were discussed.

List of local property concessions approved by the Capital City Citizen's Representatives Khural

Out of the 44 projects approved in 2010 to be implemented in the capital city, bids to implement the following projects were announced: projects to build 18 km of road from Yarmag bridge to Ulaanbaatar Airport and from



Songsolon Bridge to Yarmag; 22.5 km of road from Ulaanbaatar Airport to Biocombinat and to the Poultry farm; 3.8 km of road from the Ar Zaisan to the Great Mongol Empire Street; 5 km of road from Shargamorit crossroad to Gunt passage; an elderly sanatorium to be built in the Songinokhairkhan district; and a Vocational Training Center and a kindergarten to be built in the Baganuur District. The Capital City's Citizens Representatives Khural also granted the permission to the Capital City Governor to complete the building of a new capital city police department under the concession agreement. Preparatory work to upgrade public transport stations facilities and projects to build parks, underground crossings, hockey and ice skating facilities, schools and kindergartens in districts under concession agreement have been completed and bids for granting concession are about to be announced.

"Firstly, the company shall have enough money not to require a loan and secondly, it shall have the adequate professional human resources, equipment and work experience," the General Manager of Ulaanbaatar City Ch. Bat says, describing criteria according to which bidders will be selected. "another criteria is the company's understanding of their social responsibility, their willingness and dedication to serve citizens and not see the contract only as a way of making money," he added. The Public Private Partnership is a long term cooperation to implement projects through contracts with terms of 10, 20, 30 and 40 years periods. In England, some road construction companies have been contracted for a period of 56 years period. "Contract terms depend on the peculiarity of a project, the investment

made, and the reimbursement of the money spent. Under international standard, it continues for 40 to 50 years. For Mongolia, contract will have a duration of 2 years minimum and 30 years maximum," the head of the Concession Department, State Property Committee B. Zayabal said. "Concession work must be done based on international practices. It needs to make the involvement of the private sector more specific. If we lack experience, we should not lack initiative," G. Monkhubayar, City Mayor, emphasized.

International practices

The issue of cooperation between the government and the private sector is relatively new for the country and it is very important to cooperate with foreign partners to benefit from their higher technology and know-how. During the meeting, foreign consultants shared their experience and spoke about the difficulties they faced when they implemented projects under concession agreement. Edgar Saravia, IFC Program Manager for Advisory Services in PPPs in East Asia & Pacific, Philip ter Woort, EBRD Residential Representative in Mongolia, and Stephan Hanselmann, Director of Investment Policy Advisory Service Project, GIZ, made presentations on the Public and Private Sector System and Fundamental Concepts and Preparation and Organization of Actions to be Implemented, on the Public-Private Partnership – EBRD Experience and on the Public-Private Partnership – Experience of the Federal Republic of Germany respectively.

Relevant organizations conduct trainings, seminars and actions to develop and set the PPP on the right course. ■