

## ***Japan's Role in Energy Collaboration in the Asia-Pacific region***

Since the beginning of the 21st century energy problems appear before the humankind in all their frightening variety: alternation of hazardous to secure energy supply inadequate low or high fuel prices; earthquakes and hurricanes, terrorists and pirates attacks, threatening the transport facilities and infrastructure; transit failures, owing to escapes from contractual obligations; political conflicts and military operations in major oil and gas provinces.

In spite of all this, the main questions of world energy are not moved from the agenda. There are limited natural resources and particularly perturbing well-developed countries the problem of uneven distribution of energy resources between the countries and territories. To the problems of the energy sector proper the need to protect the environment from the damaging effects of energy is added.

The Japanese political leaders and business quarters understand the existence of these and other risks and contradictions, and they jointly offer the ways to address the situation, focusing on international cooperation. This position is based on understanding that the Japanese economy is a part of the global economic system with one of the centres located in the Asia-Pacific region. An important goal of energy policy of Japan is a peaceful coexistence with the other countries which interests may be largely in conflict with the interests of Japan. This approach stems from the dual-faced status of Japan in the Asia-Pacific energy markets: it remains a profitable customer for some countries and a competitor for the others.

We ought to begin analysis the problem identified in the title of the article, with a brief description of the situation in Japan's energy sector.

### **Status and problems in the energy sphere**

As one of the largest consumers of energy on the planet, Japan has a tiny domestic production of energy resources. The energy sector is fully focused on the import of gas, coal and oil. According to the IEA data, in Japan the share of import in total primary energy supply was 81.7% in 2006. Because of the high dependence on energy imports Japanese energy sphere is very vulnerable.

Especially with great concern the Japanese government looks at almost complete dependence on imported crude oil, which is essential for Japan's energy, providing about half the country's energy supplies. According to the Petroleum Association of Japan, the country depends on imports of this type of energy at 99.7%. Realities are such that now the "land of the rising sun" is one of the largest importers of oil in the world and it will remain for the foreseeable future.

The significance of «black gold» for the Japanese economy is enormous. First, some sectors of the economy (transport, fishery, agriculture, construction) can not function without supply of oil products. This is primarily due to the lack of an alternative source of energy for different types of internal-combustion engines. Secondly, oil is an effective feedstock for the petrochemical industry. In the third place, the prices of other energy sources are following after changes in oil prices. Some of these are directly tied to the oil mixtures. For example, the price of liquefied natural gas (LNG) procured by Japan for the long-term contracts are calculated based on the Japan Crude Cocktail (JCC) - the average cost of crude oil in Japanese ports on terms CIF.

The dependence on oil from the Middle East is one of the factors that cause profound concern in Japan. A lot of problems in the Middle East, mostly non-economic, are a threat to break oil supply from the mentioned region.

But, despite the awareness of threats and actions taken after the “oil shocks” to reduce the level of risk, Japan has not solved the problem of dependence on oil from Persian Gulf: today, nearly 90% of imported oil comes from the Middle East countries. Besides oil deliveries from Iraq are far from the maximum possible volume, share of the region may increase.

Also a low level of Japanese companies’ involvement into the oil and gas upstream business cause alarm in Japan. In 2007, 75.3% of consumed in Japan oil were produced by national oil companies of exporting countries, 18.0% by so-called «majors» (the world largest non-state oil companies) and only 5% by Japanese oil companies. The Japanese Ministry of Economy, Trade and Industry, set a goal for domestic oil industry that by 2030 40% of consumed (i.e. imported) oil must be produced by companies that are independent from the governments of exporting countries. Under pressure of global trend towards strengthening the “resource nationalism”, for Japanese companies the task to increase supply of “black gold” to the country is not easy. As ill luck would have it, in recent years the largest overseas projects of Japanese companies failed. Thus, Arabian Oil Company, capital of which has Japanese origin, under pressure from oil giant Saudi Aramco in 2000 lost the right to extract oil in the neutral zone between Saudi Arabia and Kuwait. A similar situation was observed in Iran. After winning in 2004 the tender for the development of one of the world’s largest oil fields “Azadegan”, Japanese oil company INPEX began to work, but under pressure of NIOC (National Iranian Oil Company), the Japanese share in the project was reduced to 10%.

## **Energy deficit region**

Researchers who specialise in energy sphere note that in the Asia-Pacific region competition for energy will increase. In the near future the developing countries of the region will become the largest group of energy consumers.

Now we can see a rapid economic growth in developing countries of Asia, increased consumption of energy in the industry and significant increase in energy demand in the residential sector. Motorization makes a great share of increase in fuel consumption in transport. According to the IEA, only in China car park will reach 270 million units by 2030. Increased consumption of fuel resources causes anxiety and experts pay attention to the following circumstances.

Rising in 1970's oil prices created problems for the industrialized countries, through increased tension of their trade balances. Since then, developed countries have been forced to take measures to ensure national energy security that led to serious changes in the energy sector and in the whole economy. In efforts to get rid of oil dependence developed countries, especially European countries, Japan and the US made great progress in such areas as energy efficiency, nuclear energy, alternative energy sources and "clean" technologies.

In Japan, one of the first crisis management steps was the establishment in 1976 the system of strategic oil stocks, and by the beginning of the "second" oil crisis in 1979 the strategic oil reserve was equivalent to 85 days of imports.

Also, as a result of long-term measures the country has made great progress in using energy efficient technologies in industry: from 1973 to 2006 energy consumption per unit of production had been reduced by 20% in the steel industry, by 24% in the cement industry, by 29% in the chemical industry, by 52% in the pulp industry.

Observed in the middle of this decade growth in oil prices had no effect on the trajectory of the development of Asia industrializing countries. It is connected with the fact that the low production costs allow developing economies to buy fuel with higher prices. In addition, developing countries, especially India and China, did not have the experience of "oil shocks" and their measures to protect against energy crises are disputed.

In any case, economists are predicting a deep transformation in the energy markets under pressure from the developing countries of the Asia-Pacific region. During last decade, growth in energy consumption in the region was significant, and those countries which export coal, oil and gas, are scaling down the energy exports. In the early 1990's China ceased to be a net oil exporter and during short period pressed Japan from the second position in the largest oil importers list. It is expected that in 2009 China will become a net importer of coal. Indonesia also became a net oil importer and from 1 January, 2009 country's membership in OPEC is

suspended. The impressive growth in domestic energy consumption we can observe in Malaysia, Thailand and Vietnam.

Demand for energy from the developing countries in the Asia-Pacific region increases aggregate demand in the world markets and growing dependence of these countries on energy imports is seriously affecting the distribution of energy resources. Large regional fuel importers, such as China, Japan and South Korea are forced to supply energy resources from other countries, and this leads to longer routes and price increase in the domestic markets. The rupture of logistics chains becomes a real threat. Thus, the lengthening of delivery routes can lead to widespread disruptions of supply schedules. All of this puts Japan into a very difficult position. The country is forced to seek new solutions for energy issues.

### **Turn of energy diplomacy**

Generally, in Japan the term of “energy (resource) diplomacy” is used when describing a wide spectrum of problems that Japanese government is trying to decide, acting on the world energy scene. From a practical point of view, energy diplomacy is an activity of the state bodies, supporting the efforts of national companies to penetrate into the extractive industries of energy exporting countries.

Currently, we can talk about the turn of Japan’s energy diplomacy: an analysis of official Strategy and Approaches of Japan’s Energy Diplomacy shows that Japan’s policy goes from “competition for energy” to “energy cooperation”. Partly, energy diplomacy should provide strengthening of integration processes in the region. The Japanese government brings regional cooperation to a focus of the national energy strategy and strives to build a long-term partnership with foreign countries, primarily with the Asia-Pacific countries.

In our opinion, for Japan with its problems with access to energy resources, it is a rational measure, based on understanding that it is important to have stable partnership relations not only with the countries on the supply side, but also with the countries on the demand side. The problems with energy security in a globalizing world force Japan to pay more attention to regional cooperation. A significant shift is related to the hope that the strengthening of integration processes on a regional scale would benefit more through efficient use of natural resources and reducing the environmental load. Later in this paper we will call as “energy integration” the part of regional integration, which affects the energy sector.

New Japan’s energy diplomacy in the Asia-Pacific area includes activities aimed at:

- strengthening the structure of the Asia-Pacific energy sector, improving the overall energy balance in the region;
- cooperation in the fields of the environment, energy conservation and nuclear energy;

- cooperation in oil stockpiles;
- sea transport safety.

## **Energy integration in the Asia-Pacific region: the preconditions and characteristics.**

Vigorous flows of primary energy resources run through the Asia-Pacific region. It is not only transit of energy resources from the Middle East to China, Japan, the Republic of Korea and Taiwan. Crude oil, coal, natural gas - all of these important resources are mined in the Asia-Pacific region, and primary energy trade has a significant impact on the national economies. Some countries of the region are recognized champions in the exploration and exporting of primary energy resources.

So Australia being in the fourth place in the world with suitable for the exploration coal reserves has become the world's largest coal exporter as far back as 1984. In 2007, Australia exported coal around 244 million tonnes, of which about half was coking coal. According to the IEA, in Indonesia the coal production rose to 202 million tons in 2007 and was focused mainly on export: to other countries sent nearly 90% of coal. Indonesian coal is characterised by high quality, it has high-calorie and low impurity content. Because of the excellent quality of the Indonesian energy coal, production of this type of raw material in Indonesia grew 20 times since 1990, making Indonesia the world leader in the energy coal sales.

Also appearance of new major coal producers is expected. In 2007, Vietnam took place in a first dozen of the biggest coal supplying nations. Exports from Vietnam grew rapidly: in 2005 the country exported coal about 15 million tons, in 2006 - 22 million tons and in 2007 - 30 million tons. Significant quantities of coal are supplied to the regional market from China and Canada.

We should not forget about the energy potential of the eastern regions of the Russian Federation. Until now, major oil and gas regions of Russia were Western Siberia and Volga-Urals, but it seems that they had reached a peak of extraction. It means that in the future, the main burden will fall on new oil and gas fields of yet undeveloped regions in Eastern Siberia and the Russian Far East.

The most powerful persons of the Russian oil business declare that the development of the Russian Far Eastern oil fields and delivery hydrocarbons to the Asia-Pacific markets are the priorities of Russia's present-day energy strategy. In support of these words, Russian energy exports from the Far East areas significantly increased in recent years. According to Russian customs authorities, in 2007 the commodity classification group "minerals and fuels" became the

leader of Russia's exports to Japan (49.3% of all exports in terms of value). In 2007, to Japan was delivered crude oil 8 million tons (USD 3.7 billion). Compared with 2006, an increase was more than 5 times, both in quantity and in value terms.

Regional energy products trade is also actively growing. In Japan for example, in contrast to crude oil trade, petroleum products trade (over 60 Mtoe per year, or 1/3 of the country's oil needs) is within the ambit of the Asia-Pacific region.

If to take as a starting point the assertion of some scientists that the main principal of energy integration is electric power systems, and apply the history of successfully integrated systems to the conditions existing in the Asia-Pacific region, the energy integration in Asia-Pacific is impossible. Only in some cases we can speak about successful regional energy integration: certainly the European alliances NORDEL (includes Sweden, Norway, Finland, Denmark) and UCTE (covers most of continental Western and Central Europe), a single grid of the former Soviet bloc, consolidated energy system in Northern America, gas supply networks in Europe and North America. So far, the process of territorial energy integration was limited to the creation of cross-national electricity and gas supply systems.

The countries of Asia-Pacific significantly differ in their political and socio-economic development and, more importantly, the geographical location of the countries, isolation and seclusion of their energy systems impede energy integration by known samples. Power interchange between the countries isn't strong. According to "The World Factbook", in graphs electricity exports and imports "zero" is in the following countries: Australia, Brunei, Vietnam, Indonesia, Korea, New Zealand, Papua New Guinea, South Korea, Singapore, Taiwan, Philippines, Japan, which geographically is quite explainable. The energy systems provide only the internal needs of the countries and being closed systems heavily dependent on energy imports.

Even Japan has no a single electricity grid. In fact, transmission system is divided into two separate frequency areas: one operates with 50 Hz, and one with 60 Hz. The interconnection between the two areas is supported with three frequency converter stations, situated in the heart of the country. This division of power system limits the flow of electricity between the regional networks, especially between the two major industrial areas of Kansai and Kanto. Similar is the situation with the pipeline systems. Table 1 presents data on the extent of gas and oil pipelines in some countries in the Asia-Pacific region.

As can be seen, the length of gas and oil pipelines in a particular country is due not so much the level of economic development, but the presence of the oil and gas extraction industry. Thus, the pipeline network of the second world's economy is slightly developed - the length of the gas pipeline network in Japan is only 3939 km. Also the length of pipelines under

construction is small: 252 km of pipelines will be built in Japan until 2013. South Korea has short gas pipelines – 1482 km, for example the UK - 18980 km, Germany - 25084 km.

**Table 1. The length of gas and oil pipelines, in some Asia-Pacific countries**

Country	Gas pipelines (km)	Oil pipelines* (km)
Australia	26 719	3 720
China	26 344	17 240
Indonesia	9 003	7 471
North Korea	-	154
South Korea	1 482	-
Malaysia	5 273	1 750
New Zealand	1 896	288
Papua New Guinea	-	264
Philippines	565	135
Japan	3 939	170

Source: The World Factbook

\* Not including pipelines for petroleum products

Only extreme necessity compels the countries of the region to participate in joint infrastructure projects. For example, 320 km oil pipeline will run through the northern part of Malacca Peninsula and connect the west coast with the east. The construction of this route is planned to reduce the risks of navigation through congested Malacca Straits, which are crucial for the supply of hydrocarbons to Eastern Asia. This shipping lane is vulnerability for energy supply due to the threat of international terrorism, piracy and technical failures.

Energy is one of the most capital-intensive industries. Investments in energy sector even in a stable economic environment are considered to be unattractive because of the long payback period and high risks. The world economic crisis squeezes energy sector: on the one hand, energy consumption is falling, while shrinking demand and falling prices for energy call into question the return of existing projects. Difficult access to funds needed for new energy projects is on the other hand.

To date, from the economic point of view to pattern the energy integration in Asia-Pacific (or even in one of the subregions, for example, in North-East Asia) upon traditionally integrated energy systems in Europe and North America remains problematic.

First, there is no allusion to the harmonious architecture of the regional energy. Secondly, high capital costs make construction of high-voltage power lines, gas and oil supply pipelines in the region economically unjustified. And thirdly, the European and North American experience

shows that even if there are reliable and well-designed transmission systems, energy supply may be unstable. The interruption of Russian gas transit to Europe through Ukraine and Belarus - it is only one example.

So, energy integration in Asia-Pacific is impossible to arrange according to the well-known models, operating in Europe and North America. Only the uniting process, built on new principles, can overcome geographic isolation of the Asia-Pacific countries. In modern conditions the integration based on the “hardware”: gas and oil pipelines, high-voltage power lines gives way to a unifying process that focuses on the maximum activity of economic agents and the mobility of primary energy and products, technologies and “know-how”. The only option that is acceptable to the conditions of the region which includes countries in different stages of economic development, with mainly isolated energy systems, is integration based on the dissemination of technological innovations and the strengthening of market principles.

Such a trajectory of regional energy integration does not indicate that the basis for building closely connected energy systems in Asia-Pacific is weak. On the contrary, the scientists see in it new features of power systems acquired under the influence of globalization.

Liquefied natural gas (LNG) trade is an example of the uniting role of advanced energy technologies. By the way, countries of the Asia-Pacific region are pioneers in the introduction of LNG trading. LNG market does not depend on the main gas pipelines and has a unique manoeuvrability, i.e. gas in liquid state can be delivered to any terminal worldwide. Japan staked on this quality of LNG market in 1969, when the country set in operation the first LNG receiving terminal. Since then, the production of LNG turns from a venture with a questionable future into the industry of global prevalence and significance. Currently, more than a quarter of world gas is trade as LNG. In the period between 1995 and 2005 the global LNG market has been growing with the average rate of 7.3% per year, and as it is expected the global LNG market will grow rapidly in the future.

The countries of Asia-Pacific set the tone in the industry, with the most powerful facilities on the supply side, and on the demand side. To date, Indonesia is the world leader in liquefied gas industry with declared plant capacity of 28.3 million tons per year. Capacity of Malaysian plants 22.7 million tons per year, Australian 15.4 million tons per year. In general, the LNG market in the Asia-Pacific region almost two times more than the Atlantic market (89.4 million tons and 48.5 million tons respectively in 2005). Russia also became the LNG exporter, with Sakhalin-2 LNG plant started in February 2009.

It is necessary to emphasise the active role of Japan in the formation and development of the LNG market. In an effort to reduce dependence on oil, Japan was pursuing a policy of fuel diversification, and investing significant resources in developing the LNG market, being the



driving force of the industry. Notable, that 27 of the world's 56 LNG receiving terminals are located in Japan, and next to the leader the United States and Spain have five receiving terminals each.

## **The development of energy markets**

One of the important conditions for the energy integration in the Asia-Pacific region is general reorganization of the energy sector. We see the potential for growth of Asian countries' competitiveness in improving the trade system with accent on market principles.

Manifested in relation to the world economic crisis, the tendency of protectionism is a serious danger to the integration process. Cost-driven market environment would enable the countries to solve some of the economic and environmental problems. Introduction of modern energy technologies will help to saturation of the region's energy demand. With escalating international competition for resources this is becoming an important point which seems to be aware by all the countries.

Typically, that Japan is not imposing market reforms to the countries of the region, as well as its own energy sector is not yet fully liberalized. However, the country can demonstrate that business competition, conducted on clear and stable rules, provides a fertile ground for enhancing the international competitiveness of sectors of the national economy. For example in Japan, tough competition followed after liberalized import of oil products had improving effect on the domestic oil market and changed the structure of foreign trade in oil products with the Asia-Pacific countries.

We would remind that in Japan the partial liberalization of the energy sector was started in 1990 with the oil refining industry and the most important factor affecting the market was the possibility to import final oil products. Free import of petroleum products was enabled under "cheap oil" era, and owing to attractive prices refinery products imports very quickly won a significant share of the Japanese domestic market. In 1990, 10% of final oil products consumed in the country were imported.

By these days, the picture of the Japanese market of oil products has changed. According to data of the Petroleum Association of Japan, in 2007 the share of imports slightly exceeded 1%. Japan's refineries have won back from foreign competitors a large share in the segment of the final products: the aviation fuel, diesel fuel, gasoline. In 2007, Japan imported petroleum products 32.1 million litres, mainly from Indonesia, Malaysia and the Republic of Korea. Light products imports were slight, and 81.7% of total imports accounted for naphtha. Simultaneously, exports of oil products from Japan have grown markedly since 2005, largely driven by demand from the coastal areas of China. In 2007, Japan exported refinery product 29 million litres, of

which aviation kerosene 9.3 million litres (32.0%), diesel fuel 9.0 million litres (31.1%) and heavy oil 9.5 million litres (32.8%). Diesel fuel was exported mostly to Singapore, the United States, Australia, China; heavy oil to China, Singapore, and kerosene to the Republic of Korea, China.

What led to such a positive change? In 1990, restrictions on import of finished petroleum products were cancelled and increased competition led the Japanese oil refining companies began to use all available means to increase economic efficiency. Market participants started a corporate strategy aimed at enlarging the business. In the 1990's and early 2000's companies of this sector have been particularly active in mergers. As well some alliances were formed to take advantages of positive effect, called "economy of scale".

As a result, if the production capacity of oil refinery decreased slightly, the organizational structure has undergone significant changes. The number of employees in industry decreased almost twice from 36 thousand at the end of FY 1995 down to 20 thousand people at the end of FY 2008. Tank fleet in distribution has also been optimized. At the end of FY 1993 Japan has about 600 terminals for the storage of oil products, and at the end of FY 2004 there were about 190 bases. Acute competition has forced operators of oil refineries to carry out the modernization of production facilities and increase the capacity of equipment. As a result, the Japanese oil refineries produce high value-added products (gasoline, diesel, aviation kerosene), which satisfy the demand within the internal market and successfully exported to the Asia-Pacific countries. This illustrates that the development of markets provides for the regional economies an opportunity to strengthen international competitiveness.

Thus, the expansion of spot trading in LNG will help procuring natural gas countries to get rid of tying gas price to the price of oil, because now the price of LNG directly depends on the price of oil mixtures. In other words, it would mean the elimination the discriminatory "Asian premium", because the spot rates is evaluated on the basis of market principles as the equilibrium price of supply and demand, and do not depend on the buyer country or region.

## **Energy Efficiency and Technologies Market**

We see that the markets of primary energy and final products offer a mechanism, which closely connects national economies of the Asia-Pacific region. According to the Japanese position, it is necessary to supplement the primary energy markets with the developed market for energy technologies that will facilitate the efficient use of energy. In the Asia-Pacific region, there are great opportunities to increase energy efficiency, taking into account existing technologies and ways of energy saving.

We set much hopes on the scientific and technological progress. It is expected that technological achievements on the one hand lead to the appearance of new sources of energy, on the other hand to increase the efficiency of extraction and use of traditional energy resources. From the economic point, saving energy is equivalent to production, and often energy saving is more economical way to fill the demand for energy. The transition to mass energy saving can reduce the load on the infrastructure and contributes to healthier environment. Among the technologies under development may be claimed as follows:

- superconductive electrical grids;
- “clean” coal technologies;
- new generation of oil-refinery equipment;
- use of electric or hybrid power in vehicles (in densely populated areas and cities).

Countries in the region have a favourable climate for cultivation of plants, processed into liquid biofuels, but the existence of the food problem severely limits the prospects in this direction.

In Japan, the proportion of funds allocated to R&D relative to the nation’s GDP is the highest not only in the region, but among developed countries. In 2006, the research budget in the energy sector was about USD 3.6 billion, and this figure is only the government spending. On the nuclear energy research has gone 62% of the amount, on energy conservation 12%, renewable energy 7%.

Basing on these achievements and offering programs that take into account the peculiarities of the region, Japan has a claim on the role of moderator for regional cooperation in the energy field.

Watching the mechanisms of the Kyoto Protocol (which were expected to stimulate the largest emitters of greenhouse gases to accelerate the development of new technologies) stand idle Japan diversified its activities in this direction. An important initiative was the establishment in January 2006 the Asia-Pacific Partnership on Clean Development and Climate Technologies (APP), which include Australia, India, Canada, China, South Korea, USA, Japan. The partnership is aimed at cooperation in the dissemination of energy-efficient and “clean” technologies, and operates in eight areas:

- fossil fuels;
- renewable energy;
- electricity generation and transmission;
- steel production;
- aluminium production;
- cement production;

- coal mining;
- building construction and appliances.

To date, APP launched 165 different projects.

Japan also participates in bilateral technology exchanges with such countries as Vietnam, India, Indonesia, China, Malaysia, Myanmar, Thailand. For example, advanced coke dry quenching technology was transferred to the Chinese steel industry for test. Furthermore Japan is accepting trainees from East Asian countries. Japan sends to Vietnam coal mining specialists, whose experience is not in demand at home due to the liquidation of Japan's coal industry.

Construction of nuclear power stations is expected in Indonesia and Vietnam. Indonesia, for example, plans to construct four nuclear reactors up to 2025, in Vietnam is scheduled to build two reactors until 2020. These projects are aimed to meet the growing demand for electricity. The Japanese government funded the costs associated with dispatching the nuclear power experts from Japan overseas. The Japanese company will be directly involved in the construction and assembly stations. Japanese industry has already begun to prepare for increased demand for equipment for nuclear power plants.

In January 2008, at the Economic Forum in Davos, Japan presented the new "Cool Earth" initiative to develop the UN Framework Convention on Climate Change. In accordance with the program, the government is ready to spend USD 30 billion to create technologies that can reduce greenhouse gas emissions, and USD 10 billion for the dissemination these technologies, mainly in the Asia-Pacific region.

But we assume, that the Japanese government has no intention endlessly to allocate significant resources from the treasury to the distribution energy technology in the countries of Asia-Pacific and expects that the formation of the technologies market in Asia-Pacific will bring full dividends for Japanese industry through the increased presence of Japanese companies on the power equipment market. According to the international specialization, Japan is a leading supplier of high-tech energy engineering solutions and electrical industry products. In the developed market of technologies and "know-how", Japan has the opportunity to benefit the national economy on the basis of technological advance, which has been acquired through continues and extensive funding for R&D in the energy field.

## **Oil stockpiling cooperation**

Japan has well-developed reserve system of oil and petroleum products, with stocks that are able to ensure the running of the economy (with the usual level of consumption) within 184 days. This is the highest level of man-made oil stocks in the world.

Gas conflict broke out in Europe in January 2009, reminding that the reserves of energy resources (oil, oil products and gas) are an important element of energy security, both at the national level and internationally. In light of this, the Japanese government looks hopefully at creating a collective energy security in Asia-Pacific region. For this purpose, it is important for regional energy collaboration to establish coordinated system of oil stocks, with participation of the growing consumption nations, including India and China. Nevertheless, by this time so far such cooperation has succeeded only with OECD nations. Thus, the November 5, 2007 Japan signed a bilateral agreement with New Zealand on the issue of cooperation in strategic oil reserves. Under the terms of the agreement, New Zealand, with its commitment to the IEA to maintain 90-day reserves of oil, may conclude oil storage contracts with Japanese companies. According such contacts, New Zealand's oil reserves will be deployed on the territory of Japan. For obvious reasons Japan is interested in disseminating this experience in the Asia-Pacific region.

Creating a coordinated system of oil stocks in Asia-Pacific is hailed by OECD countries, but from the Russia's position this direction of regional cooperation has never been considered as a priority. Incidentally, to participate in energy integration in the Asia-Pacific region Russia has the most important, its energy potential. According to the experts, despite the fact that the study of the prospects for energy cooperation in Asia continues during the second decade, Russia does not always take advantages of the collaboration in the energy sphere, because there is no clear understanding neither self-interest, no benefits and horizons of cooperation.

Though, in Russia the initiative to create strategic oil stockpiles has powerful supporters in the government. For example Igor Sechin, the vice-premier of the Russia's government, repeatedly focused an attention on the need for oil stockpiles, and even have instructed the Ministry of Energy to elaborate this issue.

Sechin's idea was criticized in the press. The first question was for what to establish the oil reserve system in the country-exporter. The world's largest oil reserves held by the importing nations (the United States, Japan and in Western Europe) serve as a source of energy in the event of disruptions in energy supply due to unforeseen circumstances. By the plan of Russia's vice-premier, the purpose of strategic oil reserves in Russia is commodity intervention, which means accumulation of oil when the price is low, and off-loading from the reserves when the price is at the peak. Secondly, it is not clear, will commodity interventions be on the world market or domestic? If on the world, Russia is unlikely to be able to address the market, because of the need for large amounts of reserves. If on the domestic, the question is how the mechanism would work and whether it would not prejudice the interests of consumers? Then there is the problem with tank fleet. Only few bases are ready to take oil to storage, and it is obvious that

without massive capital investment in the construction of special storage facilities the idea become falderal.

In our view, despite many problems, the idea to create the oil stockpiles in the Russian Far East not only makes sense, but must be realized in the near future. Of course, large and well-estimated government investments as well as the creation of a special agency required. Exactly in the Russia's Far East the concept of oil reserves with an emphasis on commodity intervention, proposed by Igor Sechin, will fit organically into the mixed Asia energy market. Such a move is consistent with the objectives of regional energy integration and enables Russia to extract economic and political benefits. The establishment of oil stockpiles will be a significant Russia's contribution to strengthening of regional energy security. Russia will show that it can not only rely on oil prices following after OPEC's policy, but also can share the important beginnings of the oil importing nations.

## **Summary**

Economic globalization is expanding throughout the world, accompanied by the tight race for access to natural resources. Seems that the world markets of natural resources can not reach Pareto equilibrium. Breakthrough in economic development in the Asian countries makes the Asia-Pacific region very sensitive to the scarce of energy. Active fuel consumption in the most of Asian countries is not accompanied by adequate measures to reduce dangerous emissions and the risk of a full-scale environmental disaster increases.

With the tightening of conditions on world energy markets we see awakening goodwill of the political establishment and business elites of Asia-Pacific countries, aimed at jointly solving the energy and environmental problems.

Particular countries have their own objectives in the energy sphere. At the same time it is necessary to emphasise that countries can effectively solve their energy problems only being coordinated within multilateral framework. Energy security problem has the global features not only because of the interdependence between energy producing countries, countries of transit and energy consuming countries, but also because of overall responsibility for environment protection and prevention of climate change.

In regards to Japan, to date it is one of the largest world economies. Simultaneously the country has nearly complete reliance on import for its energy needs. This makes the island country rank energy issues at the top of its national priorities. The main question is where this huge amount of energy resources is going to come from. Also, a great attention is paid to the problem of sustainable development and influence of the ecological factors on the energy policies. Modern energy policies of Japan balance between the trifecta of economic growth,

environmental sustainability and energy security. The Japanese government's increased interest in the energy sphere has important implications for the whole Asia-Pacific energy market. And the country itself is very active in this field and offered several programs for cooperation.

In recent years the concept of energy integration in the Asia-Pacific region continues to evolve. Because of the economic and geographical features of the region "hardware" integration, which took place in Europe and North America, has no future in Asia-Pacific. To pattern energy integration in the Asia-Pacific region or even in one of its subregions upon European and North American integrated energy systems remains problematic. In well-developed Japan, for example, electricity grid is divided into two separate zones, interconnected with only three frequency conversion stations in the centre of the country.

Energy collaboration in the Asia-Pacific region assumes a special character. We can see the maintaining role of mobility of resources, equipment and technologies. LNG industry has made a path from the undertaking with unclear economic perspective to the business of the world's importance and scale. Now a strong focus is put on the conducting the model projects for increasing the effective use of energy resources. This strategy also meets responsibility for environment protection. In accordance with the general direction on innovation in the energy sphere, in the process of integration in Asia-Pacific the emphasis should be made on the mobility of modern technologies and the increasing role of the market regulation. There is no doubt that in the Asia-Pacific region we will see such integration process.

Japan is interested in regional integration, not less than other countries.

Japan's experience in the implementation of advanced technologies that reduce energy consumption in industry makes the country a leading power of regional energy integration. The model of energy cooperation, proposed by Japan, can reduce the energy problem in the region. It should be understood that the effect of integration process, especially in context of the deep global economic crisis will not be immediate. Any regional energy integration is a long and difficult way. A balanced energy development in Asia-Pacific requires overcoming the inertia of the fast industrial development of the leading countries in the region. Japan demonstrates to the neighbours in the region the example of self-restriction and efficacy, and these two virtues are the keys to the problem of finding a balance between economic growth, environment protection and energy security.