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## **I. New Year Message from Chairman & CEO Toyoda for 2012: Japan's Challenges**

Looking back on the year 2011, it started with disturbance and ended in disorder. The uprisings collectively called “Arab Spring” cannot simply be characterized as democratization movements. They appear to be rooted deeply in problems such as widening wealth gaps and citizens’ rankling resentment against political corruption, and have spilled over even to demonstrations in Europe and occupation of Wall Street in New York in addition to harsh protests in emerging countries. The high U.S. unemployment rate has inflated disappointments with the present administration. The Eurozone Crisis has brought Europe to the brink of breakup. China and India have been fretting over accelerating inflation behind their high economic growth. Furthermore, the Great East Japan Earthquake and tsunami and the serious Fukushima Daiichi nuclear power plant accident in Japan shook the world. And in late December, the report of North Korean leader Kim Jong Il’s demise rushed around the globe.

Two currents seemingly have led to such destabilization as the above:

One is the beginning of the second stage of globalization. The fall of the Berlin Wall brought the globalization current into full swing. In its first stage, the United States as the superpower led the global governance waving the flag of the “New Economy” toward prosperity. It took the leadership in concluding the Uruguay Round, creating the World Trade Organization and finalizing negotiations on the Kyoto Protocol for global warming prevention. The United States, however, lost its national power later on the Iraq War and other international engagements, receiving a decisive blow from the Lehman Shock of 2008. China, while proud of its world’s second largest GDP, is not necessarily stable on its feet. The Group of Two arrangements, where the United States and China would consult with each other to properly manage the world economy and international politics, seems to be nothing more than an illusion, at least at present. The COP-17 global warming negotiations in South Africa have left many problems unresolved and the WTO’s Doha Round trade liberalization talks are evidently drifting. The second stage of globalization features an absence of leaders.

The other current represents the world-view of New York Times columnist Tom Friedman who has aptly pointed out: "Dictators are falling. Democracies are failing." He has noted that, while there is no surprise to see despotic governments failing to listen to their

citizens, democracies by a similar token have more or less put emphasis on individual group interests with pressures from special interest groups and have forgotten the national interest. He has precisely identified the factors behind the poor performance of industrialized countries.

What will the year 2012 be like, then? The two abovementioned currents would not change easily. Meanwhile, many major countries such as the United States, China, France, Russia, South Korea and others will see elections or leadership replacements, with expectations of a vacuum in the status of leadership for some time. In order to overcome this quagmire, it is imperative for the governments to deploy national policies based on the national interest and future visions. Such policies would be painful for some interest groups. Unless we overcome this quagmire, however, no bright future will come.

Not a small number of people at home and abroad place great expectations on the new Japanese administration as a government capable of tackling the difficult challenges above.

First, one of the greatest challenges for the Japanese government is the revision of the Basic Energy Plan. The most important issue is how to reestablish the best energy mix that until last year assumed dependence on nuclear power for 50% of the energy supply in 2030. In the aftermath of the Fukushima nuclear accident, treatment of nuclear energy is key to the revision. In addition to the three “Es”, i.e. energy security, economic efficiency and environment, Japan may have to also take into account an “S” for safety and an “M” for macroeconomic performance (including GDP growth and employment) as important elements in the revision. Thus, the revision of the best energy mix will amount to simultaneously solving an equation in which the number of variables has increased substantially due to the accident. The Advisory Committee for Natural Resources and Energy, which advises the Minister of Economy, Trade and Industry, is now seriously deliberating on the revision. At present, committee members are wide apart over their views. Through the process of sharing objective and quantitative analyses, however, we hope that they will eventually establish common and balanced understandings.

The key to the above exercise is not individual group interests but the national interest. A balanced mix of the core elements would include: (1) greater but comfortable energy conservation, (2) cheaper renewable energy, (3) cleaner use of fossil fuels, and (4) safer nuclear power. Also important are the support for technology development, grants and

subsidies for new technology introduction, and reform and restructuring of safety regulations as well as industrial structure. What Japan should pursue is to create and develop world-leading industries in those four areas mentioned above. In the past, the 1973 oil crisis prompted Japan to achieve the world's No. 1 energy efficiency and enhance its competitiveness. Now, the 2011 nuclear crisis could provide a precious opportunity for Japan to regain the world's No. 1 competitiveness once again. As discussed below, Japan's participation in the proposed Trans-Pacific Partnership (TPP) free trade agreement could buttress the above objective from the trade and investment aspects.

Secondly, it is also important for Japan to firmly express participation in the TPP negotiations. The TPP talks will be strategically important for Japan in an effort to recover its substantial lag behind South Korea in promoting free trade negotiations. As proof of such strategic importance, free trade negotiations are accelerating movements including negotiations among Japan, China and South Korea, between Japan and the European Union, and among the ASEAN+6 (Japan, China, South Korea, India, Australia and New Zealand) nations. Even China has become proactive toward free trade talks, reportedly expressing its frustration that the country has not been invited to participate in the TPP negotiations.

The TPP talks represent rule-making negotiations of the 21st century style, covering a total of 24 negotiation fields including investment, intellectual property, services, environmental protection and competition, in addition to trade. While liberalization of trade is important for Japan, liberalization of investment is even more so today, as we are coming into an era in which most sectors ranging from manufacturing to services and energy industries are required to make overseas investments. In this context, Japan could be one of the greatest beneficiaries from the TPP initiative, which is an attempt in the Asia-Pacific region to achieve what the WTO has pursued under the Doha Round, with a great possibility to develop into a WTO-wide initiative.

Anxiety in Japan over its agriculture in developing the TPP initiative is understandable as a short term issue. For this reason, the TPP initiative provides a good opportunity for Japan to introduce income support for farmers, consistent with the WTO rules, and to expand the size of farming entities in order to strengthen the competitiveness of Japanese agriculture and develop it into an export industry which is also attractive for the young generation as quickly as possible. All Japanese taxpayers should shoulder the financial burden for the income support for farmers. Some Japanese people are also worried about issues concerning Japanese healthcare in that the existing system would be distorted by

pressures from the United States. This fear apparently reflects the disagreeable experiences in the past when the United States threatened Japan for trade sanctions with the Super 301 provisions (Section 301 of the Trade Act of 1974). But we do not need to worry about this. Since the creation of the WTO in 1995, it has been proven through the auto trade talks that the U.S. Super 301 is a breach of the WTO rules and is not workable.

The global trend toward deeper destabilization will remain unchanged in 2012. Nevertheless, we trust that Japan has the potential might to become the first country in the world to overcome the trend, when its government and private sectors are united to address these two challenges from the viewpoint of the national interests, rather than pursuing individual group interests.

At the IEEJ, we will make our best efforts to challenge the issues discussed above, in particular in our quest for the best energy pathways that Japan and the world should pursue. We wish to ask for your continued support and cooperation.

## **II. Special Topic: Key Points of Outlook for 2012**

### **0. Summary -- Key points of this issue**

#### II-1. International oil market

The international crude oil market will be shaken by three categories of factors – supply/demand factors affected by the growingly uncertain global economic trends, geographical risk factors including international tensions over the Iran's nuclear development problem, and financial factors such as credit squeeze fears triggered by the European sovereign debt crisis.

#### II-2. Domestic oil situation

Japan's oil refining industry, which has been recovering into a peacetime mode since the March 2011 disaster, will be required this year to realistically address a medium-term capacity reduction as well as short-term supply/demand problems including falling gasoline demand amid the diffusion of fuel-efficient vehicles and rising kerosene demand under a sharp increase in oil heater shipments and growing demand for fuel oil for thermal power generation.

#### II-3. Electric utility industry

The electric utility industry will have to take various measures to prevent the summer electricity supply-demand relationship from tightening while watching whether nuclear power plants halted for regular checkups could be restarted. In discussions on an electric utility system reform, policy priorities should be separated from policy implementation timings to avoid any institutional reform failure.

#### II-4. Natural gas

Key points in natural gas for 2012 are the impact of European economic downturn on gas demand, demand developments in transportation sector, South East Asia as an emerging demand region, and final investment decisions on new LNG projects. Japan will have to take integral measures covering all stages of the value chain of LNG production in order to secure its stable natural gas supply.

#### II-5. World nuclear power generation and Japanese industry's international development strategy

Various unclear and uncertain factors exist with regard to whether and how nuclear reactors halted for regular checkups could be restarted in Japan. In this serious situation, no

optimism can be justified. It is important for Japan to consider its nuclear policy from the international viewpoint while watching the impact of the Fukushima Daiichi nuclear plant accident on nuclear policies in the world.

#### II-6. Developments involving Asian coal market

In the Asian coal market in 2011, torrential rains in Australia's Queensland brought about a tighter supply-demand balance for coking and steaming coal. The balance later eased as demand for coking coal imports slackened globally. No sharp increase was seen in demand for steaming coal imports. The Asian coal market has thus remained relatively stable.

#### II-7. Intensifying competition in solar panel market and expectations on Japan's renewable energy law

As the European solar power industry shrank, solar panel inventories increased with their prices slackening. Renewable energy ventures failed while large companies entered the solar panel industry to enhance the relevant business infrastructure. As expectations grow on Japan's feed-in tariff system as a new market, efforts may be stepped up to design FIT programs and consider how to introduce them.

#### II-8. Japanese and international energy conservation trends

As energy policy has been reconsidered comprehensively since the March 11 Great East Japan Earthquake, discussions have grown on the necessity of measures for the energy demand side. Specific measures such as the assessment of electricity conservation measures at demand peaks and energy conservation requirements for housing are expected to be considered for their implementation.

#### II-9. Global warming: International negotiations on climate change at turning point and Japanese policy measures

As international negotiations on climate change have reached a turning point on the growing importance of emerging countries, the world is shifting to negotiations on a more effective framework to prevent global warming. Japan is required to make its energy and environment policy reform after the Great East Japan Earthquake consistent with such international trend.

#### II-10. APEC energy and environmental challenges

In a run-up to the planned APEC summit in Russia, the Asia-Pacific Energy Research Centre plans to enhance (1) its positive participation in energy intensity reduction

policy reviews and (2) efforts to promote the APEC Low-Carbon Model Town project in the wide APEC region including Southeast Asia.

#### II-11. Developments in the Middle East & North Africa

As the Middle East and North Africa is expected to take more time to stabilize, we will have to closely watch the military's moves in such countries as Egypt. Regional tension affecting the international energy market is feared to linger, including the expanding turmoil in Syria, Iraq's regional isolation and tougher sanctions on Iran.



## II-1. International oil situation

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In the international crude oil market in 2012, the biggest focus of attention regarding supply and demand is the global economic trend and its impact on oil demand. The oil supply-demand balance in 2012 will depend on how concerns about a combination of European sovereign debt and potential credit crunch and the U.S. economic situation before a full-fledged recovery will affect China and other emerging economies and on what impact the effects will exert on oil demand. In the United States seeing the presidential election and in China planning to replace its top leaders, the possible introduction of economic stimulus packages and their impact on oil demand will attract attention. On the supply side, OPEC's production policy will remain a key pricing factor amid growing output of Libyan crude oil and U.S. shale oil.

The most important geopolitical risk factor is developments regarding Iran's nuclear development issue. Direct military attacks on Iraq are seen as less likely to be implemented. If tougher U.S. financial sanctions on Iran lead to an effective Iranian oil embargo, however, it may exert a great upward pressure on international crude oil prices. In such event, the problems may not be limited to Iran's response. Such emerging countries as China and India could excessively respond to the embargo, racing to obtain alternative crude oil sources. Such development may work to further boost crude oil prices. In addition to the Iran problem, another geopolitical risk factor is the so-called "Arab Awakening" antigovernment movements seen in various Arab countries between late 2010 and mid-2011, which are not negligible. A government change came in Yemen last November, following such changes in Tunisia, Egypt and Libya. In Syria, the government is intensifying confrontation with antigovernment rebels. The "Arab Awakening" movements could bring about new political tensions in the Arab society in the Middle East, working to further push up international crude oil prices.

As crude oil is growingly characterized as a financial asset, crude oil prices will retain their tendency to fluctuate wildly on financial market factors in 2012. As the global economic situation including the European budget problem deepens its confusion, the world's

investment money flow into and out from markets for crude oil and other commodities considered “risk assets” may greatly affect crude oil prices. If a crisis like the 2008 Lehman Shock comes, a financial market credit squeeze may spread to exert great downward pressure on crude oil prices. Meanwhile, the abovementioned economic stimulus packages could be accompanied by monetary easing in China, Europe and the rest of the world, prompting some newly created money to flow into the oil market and affect prices. Therefore, we may have to closely watch monetary policy trends and their impacts in various countries. Given the abovementioned points, the average price level for 2012 may be around \$100 ( $\pm$ \$10) per barrel for the West Texas Intermediate crude futures and around \$110 ( $\pm$ \$10) for the Brent futures.

## II-2. Domestic oil situation

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The March 11 Great East Japan Earthquake disrupted overall energy supply including electricity, oil and gas, shedding light on the vulnerability of Japan's energy supply system. In response, the government has launched a comprehensive energy policy review in a bid to put forward a new basic energy plan this summer.

The traditional energy policy has positioned the reduction of Japan's dependence on oil as one of the central challenges. Based on lessons from developments after the disaster, however, a key point for the present energy policy review is the effective utilization of oil and other fossil fuels with considerations given to their environmental load.

In this respect, Japan is required to develop arrangements to secure the provision of petroleum products for disaster-hit regions by enhancing disaster response capacity and distribution functions to maintain and strengthen the oil supply chain. In part of such efforts, the government is expected to reform its present reserves centering on crude oil by expanding the range of products subject to reserves to cover gasoline, diesel oil and other petroleum products. Reserves may expand to a level equivalent to four days' domestic demand.

The oil refining industry, which has been recovering into a peacetime mode on the restoration of the Sendai and Chiba refineries after the disaster, will be required this year to realistically address a medium-term capacity reduction under Act on Sophisticated Methods Of Energy Supply Structures as well as short-term supply/demand problems including falling gasoline demand amid the diffusion of fuel-efficient vehicles, rising demand for kerosene for heating under a sharp increase in oil heater shipments and growing demand for fuel oil for thermal power generation.

Domestic prices of gasoline and other petroleum prices remained high until last summer before gasoline's profitability was shaken by crude oil prices' wild fluctuations amid slack demand under an unseasonable weather and the European sovereign debt crisis. According to the Oil Information Center's weekly survey, the average gasoline price's peak for 2011 in Japan was 152.7 yen per liter on April 25. As the yen's sharp appreciation in the second half of August reduced crude oil import costs, however, the average gasoline price

continued weakening until November, losing more than 10 yen from the April peak. On November 14, it rose to 142.7 yen per liter, the first rally in three months and a half since August. But the rise was limited. In December, it seesawed above 143 yen per liter. Over the past year, gasoline, kerosene and diesel oil prices rose by around 10 yen per liter. Recently, however, slow moves to pass cost hikes on to gasoline prices have become a matter of concern.

Depending on international market developments, crude oil prices could increase, leading futures and spot prices of petroleum products to surge up. Oil refiners could be prompted to upwardly revise wholesale prices every week. They will have to create a proper market environment to pave the way for eliminating delays in passing cost hikes on to product prices.

### II-3. Electric utility industry

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The biggest matter of concern to the electric utility industry for FY2012 will be summer supply and demand conditions. At a meeting of the Energy and Environment Council in November 2011, supply is estimated to fall about 10% or 16.56 GW short of peak demand for the case where no nuclear power plants are restarted with demand standing at the 2009 level. The council recommended that the government avoid electricity consumption restrictions and rolling blackouts by cutting demand by 9.80 GW and increasing supply by 6.42 GW, while striving to restart nuclear power plants with safety secured. Challenges include the progress and feasibility of specific measures.

Regarding the electric utility industry policy, the Nuclear Damage Liability Facilitation Fund is considering business operations reforms and an electricity charge hike for Tokyo Electric Power Co. in a bid to give a conclusion in the spring of 2012. The Energy and Environment Council, the fundamental problems committee, the electricity system reform group and other government panels are expected to present electric utility industry policy recommendations this summer. In policy discussions, (1) demand structure reform, (2) diversification of supply sources, (3) promotion of business efficiency through electricity system reform and (4) a desirable distributed energy system based on the utilization of nuclear power generation under safety measures will remain as key points, as cited by the Energy and Environment Council.

The distributed energy system has yet to be defined clearly. It may be designed to hold down electricity charge hikes as much as possible, expand the deployment of renewable energy and secure users' flexibility including supply-demand adjustment contracts and sophisticated energy management. An apparent challenge in the realization of the distributed energy system may be the utilization of the pricing mechanism based on competition principles. In this respect, we may have to take note of two points – (1) electricity wholesale prices can easily rise under a tightening supply-demand balance and (2) a medium to long-term supply-demand balance is unclear with the extent of renewable energy power generation expansion remaining uncertain under the feed-in tariff system for utilities'

purchase of renewable energy-based electricity at fixed prices.

Given Japan's economic conditions, we may have to take into account various factors including electric industry players' characteristics, medium to long-term capital investment providers and the feasibility of technology development. Northern Europe is known for its relatively successful electricity utility industry system reform. In California that has built on the Northern Europe model to reform its electricity business system, however, electricity crises and the Enron scandal have emerged on prolonged system reform discussions, market design for easy market manipulation and a growing number of players seeking to maximize profit rather than stabilizing supply. In order to avoid any institutional reform failure, the government is required to separate policy priorities from policy implementation timings while giving full consideration to maintaining a stable summer supply-demand balance in a manner to exert no adverse effects on economic activities.

## II-4. Natural gas

Tetsuo Morikawa

Manager, Gas Group, Oil & Gas Unit

As far as the international natural gas market in 2012 is concerned, we believe the impact of the economic downturn in Europe, demand development in transportation sector, and growing importance of Southeast Asia as a gas demand region will attract attention on the demand side. On the supply side, final investment decisions on new LNG projects will be critical.

If Europe plunges into a recession again, it will surely affect the world economy as well as ease the natural gas supply-demand balance. Such easing will have impact on discussions on natural gas pricing in continental Europe. Oversupply will naturally work to the advantage of importers who demand spot pricing.

In 2012, Indonesia and Malaysia, major LNG exporters, will start utilizing LNG for each domestic market. This symbolizes Southeast Asia's emergence as a potentially significant LNG market. Additionally, whether natural gas could be utilized in a large scale as transportation fuel, especially LNG-fueled tanker and truck, is also important.

In LNG market, progress in LNG projects to start production around 2014 or 2015 should be watched closely. Particularly, Australia's Gorgon, Queensland Curtis, GLNG and Australia Pacific projects will be important because Japanese importers are to lift significant volume from these projects with delay risks that result from material and labor shortages.

The expansion of shale gas production in North America is unlikely to slow down at least in 2012. We would rather pay attention to shale gas development in Poland and Argentina. While their commercial shale gas production is unlikely to start within 2012, we expect various potential and challenges will emerge in terms of reserve, environmental impact, and development policy. They will provide useful hints for globalization of shale gas revolution.

In Japan, it is important to watch how policy discussions at the government committees such as Advisory Committee for Natural Resources and Energy will support new LNG-fired power plants, gas based CHP, and infrastructure development. In response to growing concerns over natural gas supply security, policy discussions will cover collaborative

purchase of LNG and upstream investment. For natural gas supply security, Japan will have to coordinate such measures as promoting upstream development, securing transportation capacity, and developing domestic infrastructure. From the medium to long-term viewpoint, it is also important to examine a concept of gas pipeline network in Northeast Asia.



## **II-5. World nuclear power generation and Japanese industry's international development strategy**

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The nuclear renaissance seen in many countries of the world from around 2006 may have come to a lull, as fervor in such countries appears to have waned. While countries those give priority to the energy security and industrial policies have continued to positively promote nuclear energy, those that have a wide range of alternatives to nuclear energy have seen cool arguments at government and at industry sectors based on long-term perspectives. Under the situation, China has approved many new nuclear plant construction plans in 2010 and is expected to develop and expand its relevant industry arrangement as well as promoting technical alliances with foreign companies to realize these plans in and after 2011. India has indicated its hopes to positively promote nuclear energy cooperation with such countries as France and Russia.

In contrast to Asian nations, the United States and Europe are less positive about new nuclear plant construction planning. In the United States, the government loan guarantee system for the construction of new nuclear plants has come under fire. Since the first adaption in 2010 to subject a nuclear plant construction plan to the system, the next decisions have been left uncertain. Nuclear power generation has lost its cost competitiveness and is no longer selected positively for a power source by private electric utilities. In Europe, investment priority is given to wind power and smart grids. No motivation to place greater emphasis on nuclear energy is seen. Therefore, competition is growing intense in the limited market for new nuclear plants. Japanese nuclear industries have increasingly been required to analyze overseas nuclear markets and the industry strategies.

South Korea, which was identified by the World Nuclear Association in April 2010 as the fifth largest nuclear power generation technology exporter in the world, has intensified nuclear technology sales promotion in resource-rich countries in the Middle East and Southeast Asia in a bid to obtain more orders. China's strategy is to export domestically developed and standardized nuclear plants, and has vowed to export them mainly to Asian countries. France and Russia, which have strong state-run nuclear energy companies, have retained their proactive attitudes toward the international development of their nuclear business. Japanese nuclear industry parties should analyze the business environments of foreign countries and take advantage of their respective strengths for their international development.

In October 2010, International Nuclear Energy Development of Japan Co. (JINED) was created. It has decided to support Vietnam's introduction of nuclear power, and its sales operations there are just about to start. JINED should consider not only selecting a main contractor in Japan but also building an extensive strategy covering Japan's nuclear plant engineering, construction and operation technologies, and safety regulations and their implementation. It should integrate its knowledge of relevant organizations so as to expand its business operations and enable it to contribute to Japan's energy security and the improvement of Japan's industrial competitiveness.

## II-6. Developments involving Asian coal market

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Let us review the Asian coal market in 2011. In early 2011, the supply-demand balance in the Asian coal market was tight due to intermittent torrential rains in Australia's Queensland since the second half of November 2010. Particularly, the balance for coking coal was tighter as Australia was covering nearly 60% of coking coal supply in the world, with Queensland playing a key role in exporting coking coal. Later, the coking coal supply-demand balance became less tight as coking coal demand slackened globally on Japan's disaster, the European economy's deceleration and massive floods in Thailand. The supply-demand relationship for steaming coal has remained relatively stable in the Asian coal market in the absence of sharp import demand growth. The overall coal supply-demand balance has been easy since last summer.

In response to such coal supply and demand conditions, coal prices in the Asian market soared in the beginning of 2011 before leveling off. Since last autumn, coal prices have followed a downward trend. The spot price for steaming coal remained below \$100 per ton until October 2010 and exceeded \$130 in early 2011 and later remained around \$120. In the third week of December, the price fell to \$110. Among coking coal prices that were subjected to quarterly price negotiations since FY2010, the high-grade coal price rose from \$225 per ton in the January-March quarter of 2011 to an all-time high of \$330 in the April-June quarter (against the previous high of \$300 in FY2008) and fell back to \$315 in the July-September quarter and to \$285 in the October-December. It is reported at \$235 for the January-March quarter of 2012.

Coal imports for major East Asian economies in the first 10 months of 2011 included 138.9 million tons for China (up 3.8 million tons from a year earlier), 105.6 million tons for South Korea (up 7.4 million tons) and 56.1 million tons for Taiwan (up 3.4 million tons). Japan's coal imports in the period totaled 146.1 million tons, down 7.1 million tons.

Over the past years, China's fast expansion of coal imports has had a great impact on the Asian coal market. But the small expansion in China's coal imports in 2011 was one of

the factors contributing to driving down coal prices after their hikes in the beginning of the year. In the Asian coal market in 2012, the economic slowdown emerging from the European economic turmoil is a matter of concern. But demand for steaming coal imports is expected to increase, supported by growth in demand for such coal for power generation. Meanwhile, coking coal demand is likely to slacken on a steel demand plunge. On the coal supply side, major coal exporting countries are proceeding with coalmine development. There may be no coal supply problems unless natural disasters disrupt coal supply. Therefore, the coal supply-demand balance is expected to remain easy for the immediate future.

## **II-7. Intensifying competition in solar panel market and expectations on Japan's renewable energy law**

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In 2011, competition intensified in the solar panel market. European countries reformed feed-in tariff systems to apply a brake on the expansion of the market, revising downward feed-in tariff levels for solar power generation and imposing caps on such generation. Their economic crisis prevented them from setting feed-in tariffs at high levels and their reaction against Chinese products' market occupation prompted them to reform their FIT systems. Solar panel makers looked to the U.S. market after their capacity expansion. But global inventory growth and slackening panel prices prevented them from securing sound profit margins.

U.S. solar panel maker Solyndra Corp.'s failure in August symbolizes the difficult situation for the solar panel industry. Regarding a \$500 million debt guarantee provided by the government for Solyndra, questions emerged on the advisability of government support for renewable energy. After trying to use wood chips for making second-generation ethanol, U.S. firm Range Fuels Inc. announced its shutdown of a relevant plant in December. The company also benefitted from government subsidies and debt guarantee. This development coupled with the Solyndra failure lead people to become disappointed with the renewable energy sector.

Meanwhile, large companies conspicuously entered the solar panel industry. French oil giant Total S.A. acquired SunPower Corp. of the United States in April and South Korea's SK Group announced an equity participation in a U.S. solar panel maker in September. General Electric Co. vowed to start solar panel production in October. These developments may indicate that the solar power industry has developed into a sufficiently attractive business for giant companies. On the other hand, venture companies' limits were indicated by the U.S. business failure as well as a comment publicly made in June by Q-Cells, a major German solar panel maker, struggling with its lowered stock price that it would consider its sell-out. The solar panel industry may continue to see large companies' entries and business infrastructure enhancement through mergers and acquisitions including vertical integration.

While interests are growing in Japan's feed-in tariff system for renewable energy-based power generation set to be implemented in July 2012 amid the easing supply-demand balance for solar panels, there are deep-rooted concerns about electricity charge hikes and Chinese products' fast-expanding share of the solar panel market. Depending on a FIT system design including specific feed-in tariff levels and feed-in periods of time, the FIT system may become a big controversial issue. Not only tariff levels are important for promoting the deployment of renewable energy but efforts to reform regulations and clarify rules are also important. Such efforts have already been invigorated. In 2011, a draft guideline was released to apply drilling permits under the hot springs law to geothermal energy development. Intensive discussions are expected on how the existing regulations can be applied to photovoltaic power plants and how water right licensing procedures for hydropower generation can be simplified. To what extent will the "new" Strategic Energy Plan emerging next summer expect renewable energy to expand its share of power generation? Will feed-in tariff levels meet such expectations? How far will relevant regulations be reformed? We will see even more heated discussions on renewable energy in 2012.

## II-8. Japanese and international energy conservation trends

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Since the March 11 Great East Japan Earthquake, discussions have grown heated on the necessity of measures on the energy demand side. In summer electricity-saving campaigns, in fact, Japan achieved more-than-expected electricity consumption cuts through national efforts to combine energy efficient improvements with life and working style changes as energy-saving efforts were expected to produce immediate effects.

In the past, the industrial sector had made remarkable progress in energy conservation, while the commercial and residential sector had achieved far less visible progress. Based on such situation, the Energy Efficiency and Conservation Subcommittee of the Advisory Committee for Natural Resources and Energy resumed its operations on November 7 for the first time in 17 months under a plan to consider stronger energy conservation measures than existing policy and measures. Key topics at the subcommittee are (1) the assessment of measures for electricity demand peaks and (2) compulsory energy conservation standards for housing and other buildings. The importance of energy conservation measures has been appreciated through summer electricity supply shortages. The panel expects to introduce some system for assessing specific electricity conservation measures at demand peaks. Compulsory energy conservation standards for housing and other buildings have been considered as one of the effective measures for the commercial and residential sector. Specific challenges in this respect include (1) the establishment of standards for assessing measures for electricity demand peaks and (2) measures to alleviate cost hikes accompanying compulsory standards. We may have to closely watch the direction of discussions at the panel.

The FY2012 tax reform outline, as decided on by the cabinet on December 10, included (1) the extension of tax cuts for eco-friendly vehicles, (2) the revival of subsidies for eco-friendly vehicle purchases, (3) the expansion of deductions from the donation tax on energy-saving houses, and (4) tax breaks for housing loan borrowers living in qualified energy-saving houses. These measures are expected to make progress in energy conservation and promote relevant industrial operations.

Outside Japan, the European Union released a draft energy efficiency directive to achieve a 20% energy saving by 2020. China has included a 16% energy conservation target for the 2010-2015 period into its 12th five-year development plan and is proceeding with specific energy-saving measures. In an international effort, the Group of Eight major nations, China, India and South Korea have established the International Partnership for Energy Efficiency Cooperation (IPEEC). At present the members are 14 countries and one region. Member countries lead and participate in dedicated eight task groups promote the exchange of information on Financial Mechanisms, Industry, Utilities and Energy Supply, Coordinated Action on Energy Performance, Energy Efficiency Indicators, Super-efficient Appliances, Sustainable Buildings and Cities, Policy and Capacity Building and National and International Action Plans and support participating countries' voluntary energy conservation measures. Member countries are expected to proceed with energy conservation measures meeting their respective conditions and share information about these measures to promptly diffuse energy conservation measures. Japan is an advanced energy-saving country and is expected to make international contributions by providing relevant information abroad and promoting technical cooperation.



## **II-9. Global warming: International negotiations on climate change at turning point and Japanese policy measures**

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As international negotiations on climate change have reached a turning point on the growing importance of emerging countries, the world is shifting to negotiations on a more effective framework to prevent global warming. Japan is required to make its energy and environment policy reform after the Great East Japan Earthquake consistent with such international trend.

The year 2012 is a milestone year that comes 20 years after the adoption of the U.N. Framework Convention on Climate Change (UNFCCC) and 15 years after the adoption of the Kyoto Protocol and represents the final year of the first commitment period for cutting greenhouse gas emissions under the Kyoto Protocol. During the past 15 or 20 years, environments surrounding international climate change negotiations have changed dramatically. Particularly, the United States has withdrawn from the Kyoto Protocol, while China and other emerging countries have become more important for global warming measures due to their rapid economic growth. Through U.N. climate change negotiations, it has been widely recognized that the world has come to a turning point to reconsider the future path for achieving ultimate goals under the UNFCCC.

At the 17th conference of parties to the UNFCCC (COP17) meeting in late 2011, Parties agreed to launch a new process called the Ad Hoc Working Group on the Durban Platform for Enhanced Action and set GHG emission reduction targets after 2012 under the Kyoto Protocol. Japan, Canada and Russia have vowed not to take part in setting the new targets under the Kyoto Protocol, leaving a limited range of countries including EU member countries to be bound by transitional emission reduction targets. In parallel with such transitional measures, the parties have agreed to consider a new framework replacing the Kyoto Protocol. As for the new framework consideration process, however, the Parties left the details to be considered in future discussions. The details include how to develop the framework, the legal position of the new framework and specific topics (such as GHG emission targets for developed and developing countries, the duration of the new framework, market mechanisms, funding and technology transfer). Will the Parties be able to pave the

way for launching the process at the COP18 meeting scheduled for late 2012 in Doha, Qatar? International negotiations on climate change will remain difficult.

The COP17 agreement roughly met Japan's position that a wider range of major countries should take part in a new framework for their fairer efforts, as a simple extension of the Kyoto Protocol would have only limited effects. But the United States, the EU, China and other emerging countries, and developing countries have many different views over the new framework. It may not be easy for them to agree on the new framework by the deadline of 2015. Under such circumstances, Japan should proactively engage in building a desirable framework while continuing efforts to design bilateral emission credit systems and other GHG emission reduction mechanisms and acquire understanding from relevant countries. It will be important for Japan to emphasize its own domestic policy measures during the transition to the new framework in a bid to persuade other countries to consider an effective framework. As its energy and environment policies are being reformed in response to the Great East Japan Earthquake, particularly, Japan should review its GHG emission target in line with the policy reform. Discussions are expected to emerge again on whether to introduce a carbon tax and other policy measures to achieve a domestic GHG emission target and on the need for enhancing relevant policies.

## II-10. APEC energy and environmental challenges

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In 2012, Russia will host a series of APEC meetings, including a conference of APEC energy ministers in St. Petersburg in June, in a run-up to the September 8-9 APEC economic leaders' meeting in Vladivostok.

The Honolulu declaration adopted at the November 2011 APEC economic leaders' meeting in Hawaii cited the following measures for promoting green growth in the APEC region:

- (1) The APEC economies will raise their aspirational APEC –wide energy intensity reduction goal adopted in their Sydney declaration in 2007 to reduce the energy intensity (energy consumption per GDP) by 45% from 2005 by 2035 for the entire APEC region.
- (2) The APEC economies will promote energy efficiency by taking specific measures regarding transportation, buildings, electric grids and employment to support the creation of energy-smart, low-carbon communities.
- (3) The APEC economies will include low-carbon (low-emission) strategies into the APEC economic growth plan so that the APEC forum will be used as a leverage to promote a low carbon-oriented growth plan including the Low-Carbon Model Town projects.

The abovementioned measures were specifically taken up at an APEC ministerial meeting just before the Hawaii APEC economic leaders' meeting. An APEC ministerial statement said (1) that new targets were established to substantially reduce the energy intensity to further promote energy conservation efforts and (2) that APEC economies were encouraged to create low-emission strategies as part of their economic growth plans in order to take full advantage of their green growth potentials and carry out bold actions against climate change. These measures are expected to make visible progress in a run-up to the 2012 APEC economic leaders' meeting in Russia.

In response to these measures, the Asia Pacific Energy Research Centre at the Institute of Energy Economics, Japan plans (1) to contribute to achieving higher energy intensity reduction targets for the entire APEC region through its proactive participation in peer review of energy conservation policies and (2) to enhance its research and analysis operations for policy support to allow the APEC Low-Carbon Model Town project to make

progress in the wide APEC region including Southeast Asian economies. The project started in 2011 with a project in China's Tianjin chosen as the first one.

## II-11. Developments in the Middle East & North Africa

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While the turmoil that followed the so-called Arab Spring has yet to be settled, the Middle East and North Africa region are expected to continue imposing many challenges on the global energy market throughout 2012.

Countries that have made certain achievements in removing authoritarian governments will each face national elections and enactment of a new constitution. Although the military has maintained its attitude of non-intervention in politics in Tunisia, civilian government-military relations serve as a destabilizing factor in Egypt, Libya and Yemen. No optimism can be warranted in these countries until the way is paved for a democratic transition. In these countries, conservative Muslims tend to join government or expand parliamentary influences. This tendency could cause confrontation with their values' and other values in their countries and with that of the West.

In Syria where the government has continued a severe crackdown on protesters, the Assad regime is expected to face a critical situation within 2012. While its relations with neighboring Turkey have soured, Syria under the present regime is clearly going in the direction of political and economic ruin. Depending on the expansion of Syrian turmoil, environments surrounding Middle East peace process may change dramatically. In the Persian Gulf region including Bahrain, anti-government movements are lingering. In Bahrain, the Sunni royal family is increasing its division with Shiite citizens, adding fuel to a confrontation between other Gulf states and Shiite-dominated Iran. Western governments support the royal family in a bid to maintain the status quo, stimulating citizens' anti-America and anti-Europe sentiment. Bahrain's unstable situation could be prolonged.

Iraq, in which Japan's energy industry is growingly interested, is required to manage its government in a united manner beyond ethnical and sectarian walls to achieve stability on its own following U.S. forces' withdrawal. In fact, however, Prime Minister Nouri al-Maliki may have to demonstrate his power in leadership to make political progress. But his political approach itself could become a cause for further tension. No prospects have emerged for solving his differences with others over key bills including a proposed oil law. Iraq may thus

delay its infrastructure development that is indispensable for its economic recovery. Since the Iraqi government is seen as Iran's puppet, it may fail to improve relations with Arab neighbors. Iraq could thus have more opportunities to feel its isolation in the Middle East.

As Iran is unlikely to make any concessions regarding its nuclear development program, the U.S. government is growingly feared to impose Congress-led sanctions on foreign banks dealing with the Central Bank of Iran. It may become difficult for Japan to maintain its trading relations with Iran. Japan will have to find alternative oil supply sources. Furthermore, the tough U.S. and European attitude against Iran could encourage Israel to launch preemptive military attacks on Iran, leading to another Gulf crisis. Bearing in mind such instability and uncertainties in and around the Middle East and North Africa, Japan must consider its comprehensive stable energy supply measures covering LPG and LNG as well as crude oil.

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