

Considerable Message of Energy Basic Plan - JCRE

At first, we sincerely express our condolence from the heart for all the persons having lost fate, and we will do our best to do in each position for the recovery of persons, all the materials, and community.

On March 11, 14:46, tremendous big earthquake with magnitude 9 happened in Tohoku district of Japan, facing north-east pacific ocean. It gave 500km wide impact. More than 10m tide, say Tsunami, came just after 10-20minutes, resulted in close to 20,000 persons fatal loss, including missing and more than 200,000 persons lost house and still on May 20, more than 100,000 persons live in gymnastic stadium or similar instant temporary house. In addition, nuclear power plants, Fukushima and Onagawa damaged and stopped. Especially, Fukushima nuclear plant took a hard damage by the tsunami, exceeding 15m height. Three operated plants, No.1 to No.3 and turnaround plant No.4 fell into the tremendous trouble because of loss of all cooling systems. Government publicized level-7 incident.

About 20,000 households within circle 20km was enforced to move away from encircled area, in addition, 30km circle area also forced to move outside from there to other towns. Fishery, dairy and agriculture farmers, factory employees, town people, all were evacuated. When they can come back to own home is indefinite, though government states hoping it by next January. The mile stone program for nuclear power plant abatement was announced by Tokyo Electric Company, TEPCO. Based on this, action is under processing hardly everyday. Compensation funding program is also under big discussion.

Government decided also Hamaoka nuclear plant No.4 and No.5 under operation ordered to stop, and on May 18, it made shutdown until durable wave wall installation against tsunami, to be able to bear more than 15m height. It will take 2 years at least from now. Hamaoka is located above the crack line of underground lock, and earthquake probability is said 87% within 30 years in magnitude more than 8.

Japan has 54 nuclear plants, and now about 2/3 is stopped by turnaround, disaster in this time, or other local reasons, which is forecasted to be increase to 3/4 by this Autumn.

Reflecting on above the situation, many discussions have been boiled in Japan subject to energy onward. The most short time requirement to discuss is how to conquer this coming summer to cope with power shortage. Government submits the message to all the people of Japan and enterprises to save the energy equally by 15% during summer season.

Middle and long range discussions are focused in nuclear position in Japanese energy basic plan. JCRE stance states like below, but there are various opinions even in same network. However, the description is a majority and followed by Prof. Takao Kashiwagi, advisory committee chairman of JCRE, Japan Council for Renewable Energy.

Review of Energy Grand Design so far

Japanese government announced Japan Energy Basic Plan in June, 2010, where, the energy direction aims non-fossil fuel use in maximum with fossil fuel to be highly efficient use, which means best mix of energy. Subject to nuclear plant, its plan is composed of steep increase in Japan due to the 14 plants of new building by 2030 with 9 plants by 2020 in addition to current 54 nuclear plants. This is one of grand designs to achieve the commitment of prime minister, Hatoyama, at that time, saying 25% CO2 reduction by 2020 based on the 1990. In order to build low carbon energy society, core energy in power plant was defined to not only nuclear but also introducing renewable energy. In 2030, 70% of power comes from carbon free energy, 50% from nuclear, 20% from renewable energy. Others are fossil fuel. To achieve that, needs of energy saving program is emphasized especially in demand side. To make low carbon society, all collaboration among energy is required, which states in basic plan. It aims to create new type of industry cooperation toward future.

Looking at global world, energy demand is tremendously increased especially in China and India, further, many developing countries look same status. This phenomena can make clear only dependence on fossil fuel comes on the limit of control.. It has major risk of war to gain the energy and bad effect to global warming climate by CO2. Thinking globally, nuclear still needs to place in the key position of

energy onward too. It makes our grand design of energy to be the best mix of all kinds of resources. We will not give the consent of discussion like nuclear yes or not, while we really recognize the need of reviewing the nuclear power plant installation program shown in the current energy basic plan. There is nothing of almighty energy, and all energies have the part of sunshine and shadow. Considering this character, such grand design should be proceeded as industry growth and environmental contribution to be maximized.

Sunshine and Shadow of Energy

The merit of nuclear power is energy continuity. Only one gram uranium is equivalent to 3 ton of coal, and it can be recycled. Uranium is typical resource distributed in globe. Canada and Australia are main supplier and it has supply stability. Energy security, CO₂ measure, and cheap running cost are accounted for merit. Other side is a demerit. This time, we faced nuclear level-7 incident. Impact overrides not only exceeding liability of owner power company but also gives international affection. It is easy to say, therefore, no more nuclear, but we believe the responsibility as country is to conquer this difficult situation and to make this cause clear and to show its countermeasure toward the future to all over the world in concentrating every personal talent and intelligence.

The fossil fuel like coal and oil has a demerit of CO₂ and volatility of supply stability linked with global market prices, while it is relatively cheap and easy to gain in normal business. Among the fossil, liquefied natural gas, LNG is a relative alternative fuel when we choose fossil fuel in lieu of shortage of nuclear power until when it recovers position of energy. LNG contributes to systematize high efficient heat and power cogeneration. Shale gas is also one of candidates among fossil fuel. Technology development of CCS and IGCC must also continue to develop R&D as same as so far. Recognition should be put on always fossil fuel resources have limitation in availability and it is always volatile in both cost and availability.

Renewable energy is based on origin coming from natural resources commonly in the world such as solar, wind, biomass, etc., Among those, dissemination of photovoltaic has been progressed with priority in Japan for housing and industry support. Its potentiality is quite high, but the neck point is high cost and dependent on weather. The latter is to affect instability of power distribution network when its amount is introduced a lot into main power cable. The level controlled system to abate instability load is required when large amount is introduced. To make resolution, smart network system is one of tool which is identified in smart sophisticated demand control. The system is composed of, for example, advanced battery system, conjunction with electric vehicle and plug-in vehicle, smart meter, and so on. Smart energy network is also composed of connection with administrative and compatible supply control.

Need Quick and Strong Leadership by Government

Redesign of energy basic plan should build up contemplating all energy stakeholders in both merit and demerit faces, considering social cost and acceptability.

Professor Takao Kashiwagi states, based on his analysis, the 2030 best energy mix in power supply becomes roughly nuclear 30%, fossil fuel 30%, 20-25% of renewable energy including large scale hydro-power, and 15-20% of distributed power generation with cogeneration. Introduction of renewable energy in maximum is dependent on allowable social cost increase. Discussion on area based current structure of power supply system in Japan has been also commenced in various level.

We found out, this time in quite shortage of power, the effectiveness of in-house power generation plant installed in the factory, and some effectiveness of self-operated PV power. Investment toward smart community construction has been commenced in industry initiative. These activities aid to accelerate the recovery for the disastrous damaged sites also giving the vitality.

Structuring the low carbon society is indispensable both in climate change and resources as energy. It is not limited in Japan, but global issue. We should not allow the slowdown by this incident, and must go ahead. So as to draw the picture and materialization of energy grand design, we will do the best cooperation to the government. We will contribute to construct low carbon energy society not only for Japanese but also for all the people of world.