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Establishment of an Action Plan for the Electricity Business for Achieving a Low-Carbon Society

July 17, 2015
Federation of Electric Power Companies
J-Power
The Japan Atomic Power Company (JAPC)
Volunteering Power Producers and Suppliers

The ten member companies of FEPC, together with J-Power, JAPC and 23 power producers and suppliers (PPSs) (hereinafter referred to as "the participating companies") have established a new voluntary framework for achieving a low-carbon society (Attachment 1), and formulated the Action Plan for the Electricity Business for Achieving a Low-Carbon Society (Attachment 2).

The participating companies have all positioned global warming as an important business challenge, and have been working on both the supply and demand sides of electricity, based on their own action plans for achieving a Low-Carbon Society.

Meanwhile, for the electricity industry to orchestrate collective action for achieving a low-carbon society and jointly tackle the expected changes in environment, the participating companies set up a study group in March 2015, and have considered specific plans.

With the announcement of the government's energy supply-demand outlook for FY 2030 and the draft GHG reduction target, the participating companies together decided to set a new target based on their integrated action plans, as described below.

Action Plan for the Electricity Industry to Achieve a Low-Carbon Society

- Reduce the user-end emission intensity to approximately 0.37 kg-CO2/kWh.
- Utilize the best available technology (BAT) affordable in new thermal power plants to secure a maximum reduction potential of approx. 11 million t-CO2.

* An emission intensity of 0.37 kg-CO_2/kWh is the national emission intensity estimated based on the energy mix indicated by the government's Long-Term Energy Supply-Demand Outlook, and is estimated to be 35% lower than FY 2013 levels.

$$\left(\frac{\text{CO}_2 \text{ emissions in FY 2030 (360 million t-CO}_2\text{)}}{\text{Estimated electricity demand in FY 2030 (980.8 TWh)}} = \text{approx. 0.37 kg-CO}_2\text{/kWh} \right)$$

* A maximum reduction potential of approx. 11 million t-CO_2 represents the effect of introducing BAT in major power source development since FY 2013.

Going forward, the participating companies will enhance their efforts to achieve a low-carbon society by steadily taking actions to achieve these targets, and following up on the progress each year.

Outline of the Voluntary Framework

Attachment 1

July 17, 2015

Federation of Electric Power Companies

J-Power

The Japan Atomic Power Company (JAPC)

Volunteering Power Producers and Suppliers

The ten member companies of FEPC, J-Power, The Japan Atomic Power Company (JAPC) and 23 power producers and suppliers (PPSs) have set up a voluntary framework, as described below, to take substantial corporate action based on the philosophy of the Keidanren's "Action Plan for Achieving a Low-Carbon Society" and the actions for reducing GHG emissions.

- ○ As of the time of this announcement, the framework consists of the ten FEPC member companies, J-Power, JAPC and the 23 PPSs that have volunteered (together accounting for over 99% of all electricity sales). The framework will be open to companies that wish to join in the future.
- ○ The target is to achieve the level (the emission intensity for FY 2030) required to fulfill the long-term energy supply-demand outlook indicated by the government.
- ○ Efforts such as the utilization of BAT in new thermal power stations will be assessed quantitatively.
- ○ The electricity industry will work collectively to achieve the target. The progress will be monitored each year, and reflected in the efforts the following year and beyond (promotion of the PDCA cycle), to increase the likelihood of meeting the target.
- ○ The participating companies will continue to hold discussions to improve the effectiveness of the mechanism for achieving the goal.

List of Participants, Action Plan for the Electricity Industry for Achieving a Low-Carbon Society

General electric utilities Wholesale electric utilities	Volunteering Power Producers and Suppliers (PPSs)	
Hokkaido Electric Power Co., Inc.	eREX Co., Ltd.	ITOCHU ENEX Co., Ltd.
Tohoku-Electric Power Co., Inc.	Idemitsu Green Power Co., Ltd.	F-Power Co., Ltd.
Tokyo Electric Power Company	eneserve Co., Ltd.	ENNET Corporation
Chubu Electric Power Co., Inc.	Osaka Gas Co., Ltd.	Orix Corporation
Hokuriku Electric Power Company	Kanden Energy Solution Co., Inc.	Summit Energy Corporation
Kansai Electric Power Company	JX Nippon Oil & Energy Corporation	Showa Shell Sekiyu K.K.
Chugoku Electric Power Co., Inc.	Nippon Steel & Sumikin Engineering Co., Ltd.	Diamond Power Corporation
Shikoku Electric Power Co., Inc.	Tess Engineering Co., Ltd.	Tepco Customer Service Corporation Limited

Kyushu Electric Power Co., Inc.	Tokyo Gas Co., Ltd.	Nihon Techno Co., Ltd.
The Okinawa Electric Power Company	Japan Logitec	Premium Green Power
J-Power	Marubeni Corporation	Mitsui & Co., Ltd.
The Japan Atomic Power Company	Mitsuuroko Green Energy Co., Ltd.	

Attachment 2

Action Plan for the Electricity Industry for Achieving a Low-Carbon Society

		Description
1. Target of Domestic Corporate Activities for 2030	Target Action Plan	To achieve an optimum energy mix which is in line with the S + 3E principle that seeks to achieve Energy security, Economic efficiency and Environmental conservation premised on Safety, the participating companies will continue their efforts to achieve a low-carbon society by working on both the supply and demand sides of electricity. In accordance with the government's long-term energy supply-demand outlook for FY 2030, the target was set to achieve a nationwide user-end emission intensity of approx. 0.37 kg-CO_2/kWh in 2030.[*1, *2] For newly constructed thermal power plants, the best available technology (BAT) affordable to match the scale of the plant will be used to secure a maximum reduction potential of approx. 11 million t-CO_2.[*2, *3] *1 The Target and Action Plan are based on the generation mix and electricity demand indicated in the long-term energy supply-demand outlook of the government, and assume that the outlook will be achieved by 2030 through the joint efforts of the government, the power companies, and the public. *2 The Target and Action Plan will be revised as needed based on changes in the energy and environmental policies as well as technological development in Japan and other countries as the PDCA cycle advances. *3 The maximum reduction potential representing the effect of introducing BAT in major power source developments from FY 2013 onwards compared to conventional technologies.
	Grounds for the Target	The efforts of the participating companies that are based on their respective forms of business will be orchestrated to achieve a low-carbon society. ○ Utilizing nuclear power premised on safety ・ Implementing thorough safety measures based on the lessons learned and knowledge obtained from the Fukushima Daiichi accident, while improving safety voluntarily and continuously beyond the requirements of the regulation standards ・ Providing detailed explanations to the hosting communities and the people of Japan to gain their understanding, and operating the plants safely and stably once their safety has been confirmed and they have been restarted ○ Utilizing renewable energies ・ Utilizing hydropower, geothermal power, solar PV, wind and biomass ・ Developing technologies for addressing output fluctuations of renewable energies − Studying measures to address output fluctuations of solar PV − Considering enhanced introduction of wind power using inter-area connection lines ○ Improving the efficiency of thermal power ・ In developing thermal power, using the best available technology (BAT) affordable based on the scale of the plants ・ Maintaining and managing the thermal efficiency of existing plants at an appropriate level ○ Providing energy-saving and CO_2-reducing services to customers to contribute to a low-carbon society ・ Providing energy-saving and CO_2-reducing services in the electricity retail area needed by customers in a low-carbon society
2. Enhancing Alliances between Entities (Efforts through the expanded use of low-carbon products and services and		Believing that CO_2 reduction and improvement of emission intensity in the electricity department cannot be achieved without the government's involvement in the energy policies, including nuclear and renewable energy policies, as well as a joint effort involving the power generation, transmission & distribution and the retail departments and the customers who use electricity, the alliances between entities will be strengthened together with the efforts of

employee training, and the reduction potential in 2030)	the power companies themselves. ○ Contributing to CO_2 reduction by customers by promoting high-efficiency electric appliances and energy-saving and CO_2-reduction activities, to enable customers to use electricity efficiently ○ Completing the introduction of smart meters as part of improving the environment for customers to use electricity more efficiently
3. Promoting International Contribution (Efforts through the expansion of energy-saving technologies overseas for 2030, and the reduction potential overseas)	Contributing to CO_2 reduction in other countries by expanding overseas the technologies and know-how of the power companies developed in Japan ○ Transferring and providing the electricity technologies of Japan to help decarbonize developing countries, through activities such as the diagnosis of coal thermal facilities and CO_2 emission reduction activities through the GSEP (Global Superior Energy Performance Partnership) activities ○ Advancing decarbonization on a global scale by developing and introducing advanced and feasible electricity technologies, taking into account the developments in international systems such as the Joint Crediting Mechanism (JCM) (Reference) The CO_2 reduction potential for coal thermal in the OECD countries and developing countries of Asia achieved by introducing high-efficiency plants and improvements in O&M is a maximum of 900 million t-CO_2/year.
4. Development of Innovative Technologies (Medium- to long-term efforts)	Continuously developing technologies that contribute to preserving the environment for both the supply and demand of electricity ○ Developing technologies for utilizing nuclear power ○ Thermal technologies such as A-USC, IGCC and CCS for reducing environmental burden ○ Responding to the introduction of large volumes of renewable energies (improving the load followability of thermal power plants, stabilizing the transmission and distribution systems, and introducing more biomass and geothermal power) ○ Developing technologies for the efficient use of energy