**Keynote Speech**

Jiao Weiran

Thank you.

Honorary Mr.President,

Honorary Professors,

Dear colleagues and friends,

Ladies and gentlemen,

Good morning.

With the development of the economy and society, we are facing the issues on energy security and environment issue. We need to find a way to better use the all kinds of energy resources to avoid the threat of a climate disaster or environment issue. The accommodation of renewable energy has become a worldwide problem restricting the development of power grid. Therefore, the development of energy internet will provide a new way to solve this problem.

Today, I will analyze the key factors influencing the accommodation of renewable energy in our country, as well as some accommodating technologies of renewable energy orienting to energy internet, such as optimal dispatch, integrated energy system, market consumption and so on, to provide reference for the optimization of future power grid operation and accommodation of renewable energy.

**I. SITUATION OF CHINA’SRENEWABLE ENERGY CONSUMPTION**

China’s renewable energy has developed rapidly in recent years. The increasing speed is number one in the world. However, there exists the consumption issue for the great deal of renewable energy sources. As of 2016, the abandoned renewable energy power reached over billion kWh, where the abandoned amounts for several major provinces are listed in PowerPoint. It can be observed that the serious areas that have abandoned renewable energy power are north parts of China as well as Yunnan and Sichuan provinces. The discarded power in the north parts of China mainly include wind power and solar energy sources, while the curtained power in Yunnan and Sichuan provinces mainly include hydropower. The key factors that impact China renewable energy consumption are: Load Demand, Limitation of Transmission Interface, Shortcoming of Flexible Adjustment Capacity.

**II. BASICCONNOTATION OF ENERGY INTERNET**

Energy Internet is complex multiple network flow system, where power system is its core and renewable energy is major power supply type that is closely coupled with gas network and transportation network, etc.

Modern power system is a mixed system with multiple energy sources. It combines all kinds of primary energies such as coal, gas, hydro resource, wind power, nuclear power and solar energy. The deep fusion of multiple energy sources of Energy Internet mainly reflect in the field of terminal energy, which implements the cascade utilization of energies and guarantees the operation of comprehensive energy system with economy, flexible and high efficiency.

From the view of markets, Energy Internet will provide a platform for flexible trading green energies. This will form a market environment with open, freedom, and full competition, which is able to excite the enthusiasm of the commercial subjects in the markets.

**III. ACCOMMODATING TECHNOLOGY OF RENEWABLE ENERGYORIENTING TO ENERGY INTERNET**

The outputs of renewable energy sources such as wind power, solar energy and small hydropower are easily impacted by the weather, topography and temperature, etc. They have randomness and volatility. At present, under the condition of safe operation of power grid, renewable energies are fully accessed to the grid, and the fluctuations caused by renewable energy are stabilized by thermal and big hydropower. However, the adjustment ability of the conventional power sources is limited. In this case, the measures of discarding wind, solar or hydro have to be taken. The development of Energy Internet brings new chance for renewable energy consumption.

China’s renewable energy has developed rapidly in recent years. A new chance for renewable energy consumption under the background of Energy Internet is presented, which will provide a reference for the optimization of future power grid operation and accommodation of renewable energy.

That’s all. Thank you.

**Question:**

Thank you, professor. Comprehensive energy system is one of the important features in Energy Internet. Its purpose is push the utilization and sharing of distributed renewable energy. Can you share us what makes up comprehensive energy system?

**Answer:**

Oh, it’s an interesting question. Well, comprehensive energy system consists of the following four meanings.

* The physical entity consists of power system, transportation system, and gas network.
* There exists the reciprocal transformation among multiple energies such as electric energy, chemical energy and thermal energy.
* Local consumption of renewable energy will be changed to wide area coordination.
* Open information network will play more important role.