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Author: Betty XU
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China Electric Council: Review on 2014 Smart Grid Standardisation Work

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Implementing national energy development strategy and carrying out national and industry standards, the 2014 China electric standardization work adapted its requirements to the electric power development trend, constantly strengthened regulation and general guidance on standardization system, and further advanced the work of smart grid standardization. Achievements were made in the following areas: establishment of standardization system; integrated standardization, establishment of standardization bodies and international standardization work.

1. Smart grid standardization work included in the national plan

In order to carry out the *Development Plan for Strategic New Industries* published by 10 ministries including Standardization Administration of the P.R.C. (SAC), National Development and Reform Commission (NDRC), and Ministry of Science and Technology of the P.R.C. (MST), 12 government agencies, including SAC, NDRC and National Energy Administration (NEA), jointly released *2014 Directory of Strategic New Industry Standards*, Solar Trough power stations, smart grid power grids, Photo voltage power station operation maintenance, e-vehicle charging infrastructure etc. smart grid-related content were incorporated into the national directory.

2. Standardization work on wind power grid integration was further advanced

Placing high importance on wind power standardization work, National Energy Administration (NEA) took the lead and established wind power standardization technical committee in energy industry. In order to strengthen the administration of the wind power standardization technical committee, NEA commissioned China Electricity Council to provide technical support to the secretariat of the wind power standardization technical committee. The secretariat conducted the work of revising the wind power standardization system. Based on its 2012 version, the newly approved wind power standardization system addressed the demand for standards in the news areas such as distributed wind power, off-grid wind power as well as off-shore wind power. 378 standards were established, covering 7 areas including plan and design for wind farm, construction of wind farm, operation and maintenance of wind farm, management of wind farm grid integration, mechanical equipment for wind turbines, electric equipment for wind turbines, and wind energy resource measurement and forecast.

The category of wind power grid integration is comprised of 25 standards including technical specification, assessment and evaluation, and dispatching operation of wind power grid integration. Standards such as *Standard Practice for testing high voltage ride through capability of wind turbine* and *Specification on Wind Power Plant Operation and Management Information Exchange* were added into the category. 6 standards in the category

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of wind power grid integration were approved and published, 12 standards were in development, and a complete standardization system is expected to be established in 2016.

3. Pilot work of integrated standardization of smart grid under smooth development

According to the Plan for Pilot Work of Integrated Standardization of Smart Grid, 12 pilot institutes and enterprises, such as National Electric Power system Management and information exchange Technical committee and State Grid Jiangsu Electric Power Company, embarked on constructing standardization system in professional fields such as smart dispatching operation, establishing preliminary plan for standards syntheses.

In accordance with the arrangement of integrated standardization work, a series of meetings were convened, aimed at constructing standardization systems for smart dispatching and operation, smart substation, electric vehicle charging and battery-changing facilities and the new power grid integration. Related standardization committees, pilot enterprises and institutes as well as experts in the related field were all involved in the work of constructing the standards syntheses. As a result, the following sets of standards syntheses were established, namely: a smart substation standards syntheses containing 137 standards; a smart grid dispatching and control system standards syntheses containing 33 standards, an electric vehicle charging and battery-changing standards syntheses containing 81 standards and a wind power grid integration management standards syntheses containing 25 standards.

According to the 2014 national standardization plan for strategic new industries, the pilot project of integrated standardization of smart grid includes 31 planned standards.

4. Complete the construction of technical bodies working on smart grid standardization

The national technical committees on smart grid user interface and on electric energy storage convened meetings in 2014, symbolizing the new standardization committees officially coming into operation.

The national committee on standardization of power demand side management, which recently applied to be established, passed the expert Q&A session. National committee on micro grid and distributed power grid integration has completed the process of call for comments during the public notification period.

5. Actively involved in the development of smart cities and smart energy

Joined the national smart city work group of the SAC to research on how smart grid can support smart city standardization work. Smart grid, integrated into the smart city system, will mainly play its role in the following professional fields including power distribution automation, distributed power and micro grid integration, distributed energy storage system integration, two-way interactive services, electricity information acquisition, smart energy consumption services, smart electricity measurement, electric vehicle charging and

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discharging, energy saving and energy efficiency, communication network, information application and security etc., with a focus on smartisation of electricity supply infrastructure, making public services more convenient, increasing interaction between grid and user, and encouraging green energy utilization. Standardization work group of smart grid in smart cities was planned to be established, mainly focusing on the position, function and coordination of smart grid in smart cities.

According to the approval and reply from SAC, China Electric Council, acting as the central technical body in China in this particular field, will represent China and participate in IEC systems committee on smart energy for related international standardization work.

6. Remarkable progress was achieved in cooperation work of smart grid standardization

In February 2014, an IEC special work group (ahG53) on micro grid, leaded by China, was founded. The special work group held a discussion on micro grid international standardization work plan with related countries, formulating a micro grid standardization work plan. In IEC general assembly convened in November 2014, it was agreed to transform ahG53 to micro grid system evaluation group (IEC/SEG6) with China as the secretariat country.

The general assembly of IEC/TC8/SC8A on grid integration of large-capacity renewable energy was convened in July 2014 with China as the secretariat country. The strategic plan, with China taking the leadership role in its compilation, set out the scope of work for the TC and the key areas of next-stage work.

The General Administration of Quality Supervision, Inspection and Quarantine of the P.R.C. (AQSIQ), and relevant Taiwan organizations held a joint meeting on Cross-Strait Standard Inspection Certification Cooperation Agreement in November 2014. At the meeting, both sides agreed on incorporating smart grid into standardization cooperation work, establishing smart grid standardization work group to promote cross-strait technical communication and cooperation on smart grid. It was also agreed by both sides that power demand side management and automation of distribution network were the key standardization cooperation areas to work on.