The 18th IERE General Meeting and Japan Forum
May 21-24, 2018, Kyoto, Japan

Noteworthy examples of the use of ICT technology to support power transmission and distribution system in New York State

Masaya KUBOKI
Research Associate, Research Department, Japan Electric Power Information Center
Tokyo, Japan

Keywords: *ICT, New York, transmission and distribution, Reforming the Energy Vision*

Abstract

The electricity industry is in the midst of transformation. The electricity companies are required to reduce more carbon emission, while keeping the affordable electricity price and resilient energy system. The rapid increase of renewable energy introduction is becoming the worldwide trend, mainly led by the necessity of the CO_2 reduction to slow down the global warming. Moreover, the lowering generating cost also accelerates the implementation of renewable energy. However, due to the increase of renewable energy, the grid operators have confronted with new issues, such as flicker caused by demand-side embedded solar power generators.

Meanwhile, digitalization is another trend in the electricity industry. The new technologies such as IoT and AI have been developing rapidly, and these technologies help to make the grid operation more efficient and resilient. Furthermore, IoT and AI are also expected to be the solution for the intermittency issue above, and will promote the mass implementation of renewable energy.

New York is one of the most aggressive states embracing the advanced technologies to the electricity system. The electricity system in New York has faced several issues, such as the necessity of replacing the aging infrastructure, the need to reduce carbon emissions, and more frequent extreme weather. In response to these issues, in 2014, the State developed the comprehensive energy system reforming policy, called the “Reforming the Energy Vision” (REV), to build cleaner, more resilient and affordable energy system. REV set several goals, such as 50% of electricity must come from renewable energy and 40% reduction in greenhouse gas emissions from 1990 levels by 2030, which makes grid operators to manage more intermittent energy resources. The States’ utilities and grid operators considered the digital transformation as the critical solution to meet the State’s requirement. For instance, the utility installed the IoT platform, which optimizes the operation, avoids the unexpected downtime and also supports installing more renewable energy.

This report focuses on the use of ICT technology and its impact on power transmission and distribution systems, and introduces the use of cutting edge technologies to support the electricity system in New York State.