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Smart Grid

Background

Electrical energy generation, distribution, consumption is inefficient. In many parts of the world it is based on decades old infrastructure. It is not ready to integrate new renewable sources of energy generation and does not give consumers information that encourages them to conserve energy. Both climate change and energy conservation goals can be addressed by making the grid more efficient.

A major component of making the grid efficient is to introduce Information and Communication Technology (ICT) as part of a substantial upgrade to electrical grids world-wide. Governments around the world have recognized this important opportunity, and many are encouraging progress through stimulus funding and other forms of government sponsorship.

Definition

According to Wikipedia, an "electricity grid" is not a single entity but an aggregate of multiple networks and multiple power generation companies with multiple operators employing varying levels of communication and coordination, most of which is manually controlled. A smart grid delivers electricity from suppliers to consumers using digital technology to save energy, reduce cost and increase reliability and transparency. Such a modernized electricity network is being promoted by many governments as a way of addressing energy independence, global warming and emergency resilience issues.

The IEC defines the smart grid as "the concept of modernizing the electric grid. The Smart Grid is integrating the electrical and information technologies in between any point of Generation and any point of Consumption."

Standards

Upgrading the electrical grid to become "smart" requires standards. Standards are needed to allow products from multiple vendors to interoperate, to ensure that investments will have a long life, to ensure good quality solutions. And because smart grids are needed around the world, there is an important role for international standards.

Many standards developing organizations have recognized this need and have initiated projects to study or pursue the opportunities. The IEC SMB has initiated Strategic Group 3 (SG3) to consolidate the work related to smart grid that is underway in various IEC committees. The IEEE has existing standards (IEEE 1547) and standards in development (IEEE P2030) that are relevant to the smart grid. The work of other organizations could be added to this list.

JTC 1 has an existing program of work that is relevant to the smart grid. Work underway in SC6, SC25 and studies being conducted in the SGSN can be utilized. In addition, SC27 is in a position to address some of the cyber security needs of the smart grid.

Recommendation for JTC 1

JTC 1 should consider taking on the following actions:

- Coordinate with IEC and other SDOs that are developing standards for the smart grid.
- Encourage JTC 1 SCs to address the need for standards in the smart grid where such work falls within their scope.
- Promote JTC 1 developed standards for the smart grid and encourage them to be recognized and utilized by industry and by other standards developing organizations.