

IESO SENIOR MANAGEMENT UPDATE

To: Stakeholder Advisory Committee

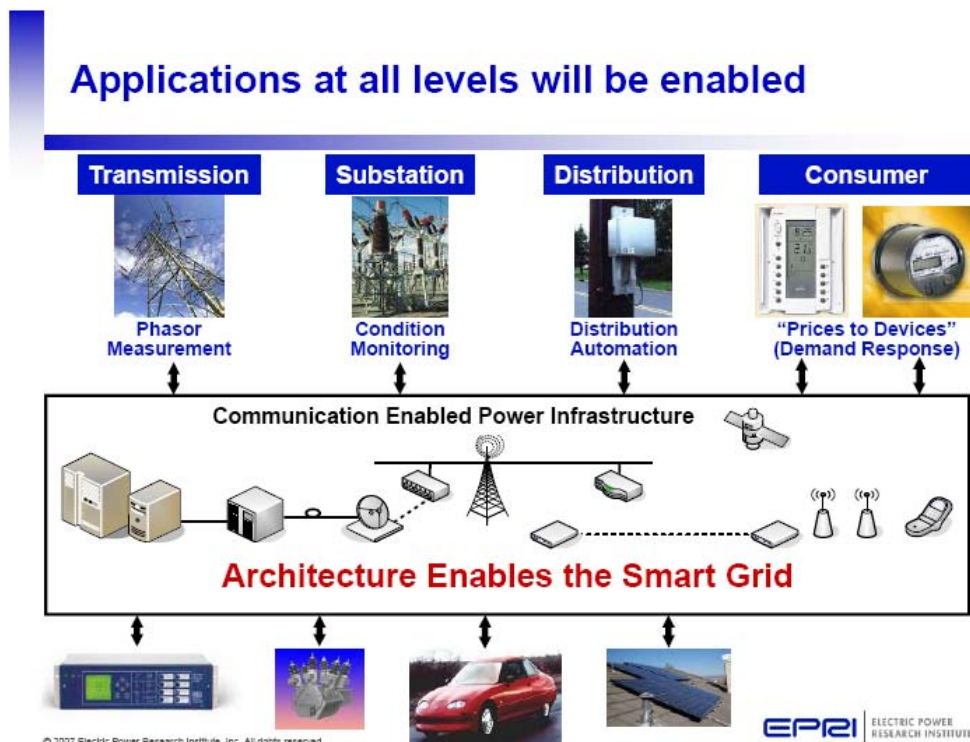
Date: August 20, 2008

Subject: **Ontario Smart Grid Forum**

Information Item

What Is A Smart Grid?

This is one of the key questions that the smart grid forum will wrestle with. Over the last few years, much thought has been given to the concept of a smart grid by research and consultant organizations in Europe and in the US. However, there is no universally accepted simple definition of a smart grid. The attached diagram attempts to show in a picture, what a smart grid might look like conceptually. In essence it is the application of advanced communication technology that allows the exchange of information among electrical devices from generators to consumers. This allows more informed decisions to be made about the use of electricity and the deployment of the infrastructure needed to supply it.



What is the Smart Grid Forum?

Twelve prominent members of Ontario's electricity sector have agreed to form the Ontario Smart Grid Forum to collectively examine issues related to the use of smart grid technologies. This effort represents broad industry, government, and public interests in this field. Members of the forum include:

Paul Murphy, President and CEO, IESO, and Chair, Ontario Smart Grid Forum
David Collie, President and CEO, Burlington Hydro Inc.
Norm Fraser, Chief Operating Officer, Hydro Ottawa Limited
Anthony Haines, President, Toronto Hydro-Electric System Limited
Wayne Smith, VP, Grid Operations, Hydro One Inc.
Paul Shervill, VP, Conservation and Sector Development, Ontario Power Authority
David McFadden, Chair, Ontario Centres of Excellence
Michael Angemeer, President and CEO, Veridian Corporation
Dr. Jatin Nathwani, Professor and Ontario Research Chair in Public Policy and Sustainable Energy Management, Faculties of Engineering and Environmental Studies, University of Waterloo
Peter Wallace ¹, Deputy Minister, Ministry of Energy
Aleck Dadson, Chief Operating Officer, Ontario Energy Board
Keith Major, Senior Vice President – Property Management, Bentall Real Estate Services

The Forum will be supported by Don Tench and Derek Beamer from the IESO, a small working group of approximately 6 industry representatives, and facilitated by Joel Singer of Singer&Watts.

Why Smart Grid and Why Now?

Convergence of a number of factors led to the establishment of the forum at this time.

1. Ontario has made a substantial investment in smart meters, a key part of the smart grid. This investment will be seen and felt by consumers increasingly as the deployment completes in 2010. Smart grid is a means to build on the benefits of the smart meter investment and Ontario's leadership in this area.
2. Transmitters and Distributors have identified the need for significant investment in their systems to sustain service to existing customers and to meet the needs of growing communities. These investments have begun but grow in future years as existing facilities must be replaced. We observed an opportunity to improve

¹ Discussions are being held with the Ministry of Energy regarding their continued involvement with the Smart Grid Forum as a result of the recent appointment of Peter Wallace as the Deputy Minister of Finance and Secretary of Treasury Board, effective September 15th, 2008.

coordination with respect to these investments and to establish a vision to facilitate the 'right' investments to meet the provinces changing needs.

3. The supply mix is changing. Provincial goals for clean energy, renewable energy, conservation, and demand management are enormous both in terms of timing, amount and the fact that much of it is directed at facilities outside the IESO's traditional oversight and control (i.e., distribution). This creates several opportunities. First, alternative approaches to system operation are necessary to ensure efficient and reliable market operation. Second, the sheer volume of CDM required compels a different relationship between wholesale and retail markets. Both of these aspects depend on smart grid to be successful. And third, the integration of distributed supply and demand management requires changes to the 'wires' businesses to accommodate – changes made possible by smart grid.
4. Facilitating technologies are available. Never before have robust and universal communications been so widely available. Today's children, the consumers of tomorrow, are growing up using information technology and expecting it to enable the things they want to do. In addition, 'smart' equipment and systems integration are available to enable the required changes to the 'wires' businesses at increasingly reasonable cost.
5. Electricity commodity prices are going up. Increasing cost pressure on the commodity side results in increasing emphasis by consumers on all aspects of electricity cost containment. Smaller consumers are just starting to demand different services to manage their costs – lessons learned by wholesale consumers when they were deregulated. These services can be facilitated by the communications which are an essential part of the smart grid of the future. Intelligent communication and device controls will better enable customer demand for smart home and smart transportation demands of the future to be met, all the while contributing to meeting the provinces goals for clean supply and conservation.
6. Meeting environmental goals ahead of us are critically important. An engaged and aware consumer, enabled by a smart grid, will be an important element in attaining environmental improvements.

What Are The Forum Objectives?

The Forum has been established with the following objectives in mind:

- Educating involved industry leaders about emerging drivers, technologies, and opportunities related to the smart grid.

- Developing a high-level vision of the future in Ontario served by a smart grid.
- Describing and quantifying the benefits that will be possible through a wide range of smart grid technologies.
- Identifying enablers and barriers to the construction of the smart grid.
- Identifying the actions needed to overcome barriers so that the benefits of the smart grid may be realized by the people of Ontario.

How Will The Forum Operate?

Members will meet on a monthly basis until the end of 2008, after which a comprehensive report will be issued with findings and recommendations for Ontario's electricity sector. This report will form the basis for further action and discussion among policy-makers, regulators and industry participants. A common understanding of the changes possible in the electricity sector and how those changes can benefit consumers should be immensely helpful to all stakeholders in Ontario's electricity system.

The first meeting of the Ontario Smart Grid Forum took place on June 3, 2008. Two recognized experts in the field presented visions for Smart Grid; one for the European Union and one for North America. These presentations stimulated useful discussion among the forum in identifying Ontario's vision.

Some observations from that first meeting:

1. The forum members are enthusiastic and visionaries in their fields.
2. Ontario is ahead of many areas with respect to Smart Grid. We have had many contacts from outside the province with respect to the initiative.
3. The forum is recognizing the work required to meet expectations.
4. All are committed to a meaningful and useful final report.

Conclusion

In summary, the forum is considering smart grid from a broad industry perspective, which by its nature will address some key risks facing the industry. The group's work has begun with intent to complete a practical and constructive report by early 2009. Information related to the Smart Grid Forum is published on IESO's website at:

http://www.ieso.ca/imoweb/marketsandprograms/smart_grid.asp