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July 7, 2009

Ontario Energy Board
P.O. Box 2319
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2300 Yonge Street
Toronto ON M4P 1E4

Dear Sir or Madam:

In accordance with the Ontario Energy Board's (OEB) notice providing the opportunity to comment on EB-2009-0152 – Staff Discussion Paper, we hereby file our comments.

Sincerely,

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Attachment

INTRODUCTION AND OVERVIEW

The Smart Grid initiatives supported by the Green Energy and Green Economy Act, 2009 ("Act") provide an historic opportunity to transform every aspect of the electric power industry, from generation to consumption, to become more efficient and reliable and to open the path to a new electricity economy. Aggressive development and deployment of Smart Grid technology will make Ontario a global leader in the competition for sustainable energy solutions – one of the next major economic growth cycles in the decades to come.

Smart Grids derive their superior capabilities from the ability of devices along the electrical grid to communicate between each other and with control centers. Smart Grids can be viewed as the convergence of digital and power distribution technologies. As with all emerging technology markets of the digital age, interoperability is paramount. This has been clearly recognized by the Ontario Smart Grid Forum in the report "Enabling Tomorrow's Electricity System":

> *"The developing nature of smart grid technology has three significant implications for communications. First, smart grid communications development must match smart grid development. While the initial communications deployment can be configured and sized to accommodate the first generation of smart grid equipment, such as smart meters; ultimately the communications infrastructure must be capable of servicing the full range of smart grid equipment installed. ...*
>
> *Second, smart grid communications must be developed based on open standards so that the widest possible range of devices can be employed and the development of new devices and entry by new vendors is encouraged. ...*
>
> *Third, communications must be designed with interoperability as a requirement. While standards allow many different devices to interact over a given communications technology, interoperability allows a variety of technologies to work together." (1)*

Leveraging existing communications technologies ensures that Ontario's Smart Grid can benefit from the rapid progress in performance and security demonstrated to date by such technologies. Such leveraging also ensures that open platforms are created, attracting developers of innovative, new applications, thereby accelerating economic prosperity and technological progress.

The Smart Grid will provide unprecedented insight into the state of Ontario's electrical grid and afford unprecedented opportunities for various entities involved in the electricity business to interact. This potential can only be fully leveraged, however, if the workforce along the grid and participants in the electricity economy can access the information the Smart Grid provides and thereby be able to collaborate effectively – regardless of their location. Communication systems providing service along the electrical grids should therefore unify machine- and people-centric communications.

We strongly believe that the communications industry, technology venders, system integrators and service providers can offer and deploy such open communication platforms based on Internet technologies rapidly and cost-effectively. By relying on Internet-based communications, Ontario's Smart Grid can be deployed more rapidly than if proprietary technology is used. Internet-based applications will also permit increased investment in the development and deployment of value-laden Smart Grid applications that ride on those open communications platforms, rather than spending precious development funding on reinventing what already exists.

We strongly believe that to reap the full potential of Ontario's Smart Grid, the workforce operating and maintaining the electricity grid, as well as participants in the emerging new electricity economy, must be specially enabled. This enablement includes mobile workforce communication systems which give

access to Smart Grid information systems and tools for collaboration along the grid, communication and collaboration systems for control centers and tools for market participants to interact.

In our direct experience, Smart Grid roadmaps of utilities consistently contain elements of mobile workforce enablement. As noted previously, open communication platforms for Smart Grids allow delivery of machine- as well as people-centric communications over the same infrastructure. A communication solution that is specific for a single application (e.g. advanced meter infrastructure), does not support the requirements of a mobile workforce, causing the duplicated effort and expense of deploying an additional network.

COMMENTS ON SPECIFIC QUESTIONS:

Chapter 3, Item 5

"Should the mechanisms set out in this Discussion Paper be applied to infrastructure investment in smart grid technology while it is at an early stage of development and where governing standards are yet to be developed? Why or why not?"

Yes, the mechanisms should be applied, even at this early stage of standards development for the Smart Grid. Governing standards for smart grid technology are in the process of being selected and defined. The USA's National Institute for Standards and Technology (NIST) has launched an aggressive program to select firstly "low hanging fruit" standards for the Smart Grid and then additional standards as use cases and requirements are refined. NIST has hired the Electric Power Research Institute (EPRI) to lead the creation of the Smart Grid standards roadmap and the latest report from EPRI to NIST has a comprehensive list of standards for each architectural domain.

As Ontario is a member of the North American Electric Reliability Corporation (NERC), it is important to align the technology selected for the Smart Grid with initiatives taking place in the USA. The NIST Smart Grid standards roadmap will therefore provide an excellent backdrop by which the mechanisms set out in the Discussion Paper can be applied. That is, it is our recommendation that the OEB use the results of the NIST Smart Grid standards initiative to, in short order, select and define the standards to be applied for Ontario's Smart Grid. This can be done in parallel with the finalization of the mechanisms, using NIST's initial report as the standards guidelines.

Further, the OEB can require that any technological decisions made in the deployment of the Smart Grid be based on technologies that are open, as well as standards-based. The requirement for the technology to be open is paramount, even if the technology is not standards-based. An open technology is one where the interfaces, data exchange formats and related interoperability mechanisms are made publically available, without restriction. Open technologies allow integration with existing systems and allow migration to new technologies and systems as they are developed and deployed. This supports the deployment of existing solutions for Smart Grid so that their benefits can be realized, while protecting this investment in the face of evolving technology and Smart Grid solutions.

Chapter 4, Item 16

"In addition to the potential considerations identified, are there any other matters that the Board might consider in making decisions on request for alternative treatment?"

It is our recommendation that the Board consider the ability for the Smart Grid communications infrastructure to be deployed as a common communications platform as an additional condition for approval of requests for alternate treatment.

As described above in the introduction, the Smart Grid communication infrastructure must be used to enable both machine- and people-centric communication. Projects that recognize this and have explicit plans to use the communication infrastructure for both Smart Grid devices and the mobile work-force, should therefore be considered in a preferential way for approval. Providing separate overlapping communication infrastructures – one for devices and one for people – will result in significantly higher project costs as well as operational costs.

Further, projects that allow the reuse of the communications infrastructure for other municipal projects (e.g. first-responders, educational institutions, medical institutions) should be encouraged with favourable decisions when applying for alternative treatment. Many municipalities are having difficulty justifying the costs to deploy and operate a communications infrastructure for their innovative projects. A single communications infrastructure which can be used for Smart Grid as well as the other municipal projects provides a cost-effective, efficient way to address this issue.

CONCLUSION

The Smart Grid initiatives supported by the Act create a unique opportunity for Ontario to take a global leadership position in next generation electricity grids, grids which become smart by the pervasive use of digital technologies. While power distribution systems pose particular challenges to digital technologies, and communication systems in particular, value-laden Smart Grid applications – and the associated job creation – can optimally flourish when based on existing, prevalent and proven communication technologies, in particular on Internet-based technologies.

Internet-based paradigms such as Unified Communications can be extended to include the relevant machine-centric communications between devices along the grids and thereby provide the foundation infrastructure for both people- and machine-centric communications along the grids. In our view only the enablement of both, devices operating on the grid and people operating with the grid will ensure that the full potential of the Smart Grid materializes and is put to good use.