

Ontario Smart Grid Forum

Ontario Smart Grid Forum Notes of Meeting

Date: **Tuesday, January 17th, 2011**
Time: 09:00 to 14:00
Location: IESO Minto Plaza Office, Main Boardroom
655 Bay Street, Suite 410
Toronto, ON

Forum Members Attending:

Paul Murphy	IESO (Forum Chair)
Keith Major	Bentall
David Collie	Electrical Safety Authority
Don Tench	IESO
Wayne Smith	Hydro One
Norm Fraser	Hydro Ottawa
Jim Huntingdon	Niagara-on-the-Lake Hydro
Dan McGillivray	Ontario Centres of Excellence
Brian Hewson	Ontario Energy Board
Jon Norman	Ontario Ministry of Energy
Mario Chiarelli	Ontario Power Authority
Jatin Nathwani	University of Waterloo
Ivano Labricosa	Toronto Hydro
Craig Martin	TransCanada
Michael Angemeer	Veridian Corporation (by telephone)

Working Group Members Attending:

David Curtis	Hydro One
Edward Arlitt	IESO
Lisa Dignard-Bailey	Natural Resources Canada
John Mulrooney	PowerStream
Joshua Wong	Toronto Hydro

Corporate Partners Committee members attending:

Shelley Lewis	Chair, Corporate Partners Committee
Ron Dizy	ENBALA Power Networks, Vice Chair, Corporate Partners Committee

Observer in Attendance:

Tyler Hamilton CBE Research and report writer engaged by the Forum

See **Appendix A** for a cumulative list of Open Forum Action Items.

09:15 – call to order

Agenda Item # 1: Previous SGF Minutes

Minutes of the October 12th and November 9th meetings of the Smart Grid Forum:

Ontario Smart Grid Forum

{Item Deferred from December 7th Meeting}: The minutes of the **October 12th 2010** and **November 9th 2010** meetings were tabled as final and no further amendments were raised at the meeting.

DRAFT Minutes of the December 7th meeting of the Smart Grid Forum:

The draft minutes of the December 7th 2010 meeting were tabled with a comment deadline of January 31st 2011.

A Forum member posed the question whether or not any of the minutes of the Forum have been published. It was confirmed that no minutes have been published since the Fall of 2009 when discussions over the high-level smart grid principles commenced. **ACTION ITEM:** On this point, Ministry of Energy Staff took the action time to check internally if there were any concerns about the content of past minutes concerning deliberations over the high-level smart grid principles.

Agenda Item # 4: Update and discussion: Recent recommendations by NIST and pending FERC rule making on 5 “core” smart grid standards

(see also, Letter from U.S. National Institute of Science and Technology (NIST) to FERC Chairman Jon Wellinghoff and support presentation for this agenda item)

Edward Arlitt (IESO staff) provided a brief overview to the recommendation of the U.S. National Institute of Standards and Technology (NIST) to the U.S. Federal Energy Regulatory Commission (FERC), regarding the identification of five “foundational” sets of International Electro-technical Commission (IEC) standards for Smart Grid interoperability and cyber security. These five standards will be the subject of a FERC Technical Conference on January 31st. The Forum commenced a roundtable discussion on the question “where is Ontario at risk in regards to these emerging interoperability standards?” Some of the comments made by various Forum members were as follows:

- One potential risk area is Home Area Networks (HANs)
- Many of these standards will become de facto standards over time by virtue of being embedded in various smart grid technologies.
- There are often no prescriptive requirements that standards need to be followed. However, that doesn't necessarily mean that Ontario has to be prescriptive in such matters, as long as we are generally aligned with what is happening in the U.S.
- Security and privacy could lead Ontario to a situation where things are overly-prescriptive and this could isolate the province in that regard.
- It will fall on regulators and industry to determine which standards need to be formally adopted.
- Standards could make or break the province's ability to be attractive to business and investment, and this point should factor into the next Report of the Forum.

Agenda Item # 2: Review Output from the “Smart Home” Workshop:

(see also, support presentation for this agenda item)

During the presentation, there was extensive discussion of the proposed 2012 milestone date for resolving the question of real-time smart meter data access for retailers and other third party service providers. Some of the comments made by various Forum members were as follows:

Ontario Smart Grid Forum

- This issue comes up a lot at Corporate Partner Committee (CPC) meetings. The CPC feels it's technically feasible and likely not expensive to achieve.
- This issue reflects the dilemma that Ontario is facing with no prevailing mindset or consensus on how to handle it from the LDC community.
- There will likely be several different groupings of customers by 2012 in regards to their data access disposition as follows:
 1. Those who have the technical means to access their data on a real-time basis because this capability was already built into their local AMI infrastructure by their LDC.
 2. Those who don't have such access, but are willing to pay for it.
 3. Those for whom real-time access is not technically or economically feasible under the current generation of AMI infrastructure that was recently installed in their local area as part of the Smart Metering Initiative.
- We need to get more information from the vendors as to how much all this will cost.
- A Forum member asked: Are we talking about objectives or timing here? We need to recognize that LDCs are at different stages of development. It really boils down to a staging question and a question as to who pays.
- A Forum member suggested that real-time data should be denoted as optional on the Smart Homes Roadmap. No formal decision was taken on this proposition.
- A Forum member asked: "Is real-time access the right objective here?" and further pointed out that around the world, Demand Response programs are supported by near-real-time data or other mechanisms that do not employ the customers smart meter data at all.

Proposition: add bullet: "resolve data access questions for consumers in terms of who pays" to the blue column on the roadmap

At another stage in the presentation, there was some discussion about the role of micro-grids by the year 2030 as set out in the roadmap.

Other agreed outcomes were as follows:

1. Add mention of storage technologies to the red column in the roadmap.
2. Widen the scope of the bullet pertaining to hydrogen fuel cycle to more generally speak to fuel switching capability.

There was also extensive discussion on a question raised by a Forum member as to whether or not the Roadmap was generally too focused on the electricity sector. While many members acknowledged this point, it was agreed not to change the overall scope of the document at this time.

As a next step, it was agreed that the roadmap would be conveyed to the Minister, subject to any further vetting by members of the Corporate Partners Committee.

{11:10}

Ontario Smart Grid Forum

Agenda Item # 6: Report back from the Corporate Partners Committee regarding smart grid success measurement criteria.

(see also, CPC slide deck distributed at the meeting)

Shelley Lewis, and Ron Dizey began their presentation by noting that the proposed smart grid performance metrics have been pared down from those originally presented at the December 7th Forum meeting.

In addition to discussions of specific metrics (see below) Forum members generally agreed that once the metrics were sufficiently revised, the Forum should be prepared to endorse the final proposal put forward by the CPC.

Comments from various Forum members are noted below each of the corresponding metrics presented in the CPC slide deck:

Group: “Customers engaged in use of smart meter information to make usage decisions”

Metric 1: % premises capable of receiving information from their smart meter

Forum Member Comments:

- Question: does this refer to real-time or after-the-fact metering data? Answer: It could apply to both, but we want to make sure that our starting point isn't zero, particularly given the amount expended on the Smart Metering Initiative thus far.

Metric 2: Number of communication-enabled, consumer-side meter devices sold

Forum Member Comments:

- Question: what is meant by “consumer-side meter devices” – this seems to need more clarification. On this point it was suggested removing the words, “meter devices” and replacing it with the term “home energy management devices.”

Metric 3: Number of customer-side meter devices sending/receiving grid related signals

Forum Member Comments:

- There was some discussion regarding the meaning of the term “grid related signals” and it was generally agreed that this term requires more clarification.

Metric 4: % of customers opting to make decisions (directly or indirectly)

Forum Member Comments:

- A Forum member suggested that this data series can only realistically be measured through statistically-significant surveys as opposed to measurement of the entire customer base. It was further suggested that perhaps the OEB was in the best position to track this on a regular basis.

Metric 5: Measurable energy savings by customers (e.g. per capita per region, by customer class)

Forum Member Comments:

- A Forum member disputed the use of the word “savings”.
- It was suggested that perhaps this metric would have to be measured by the OPA. On this point another member confirmed that the OPA has not been asked to collect such data so far.

Ontario Smart Grid Forum

Metric 6: Evidence of load shifted (e.g. peak reduction)

Forum Member Comments:

- A member noted that it will be absolutely vital to measure this data series over the long-term, both geographically, and on a program-by-program basis.

Group: “Customers participating in the grid”

Metric 1: DSM program participation by number and total load

Forum Member Comments:

- No major comments or issues raised.

Metric 2: Number of different ancillary services in which loads participate

Forum Member Comments:

- There was extensive discussion as to whether or not there would be any significant participation to measure in the short term.

Metric 3: Number of participants in distributed renewable generation

Forum Member Comments:

- A member questioned whether or not this metric pertained to the “FIT” or “microFIT” program. On this point it was clarified that this was meant to address distribution-connected sources of generation.

Group: “Overall performance of the grid”

Metric 1: Outages by duration and numbers affected

Forum Member Comments:

- A member noted that the OEB already collects similar (if not identical) statistical data. There was extensive discussion over the nature of this statistic and the value that it conveys.
- A member noted that both the frequency AND duration of outages needs to be included in this metric in order for it to be a meaningful measure of the contribution of the smart grid.

Metric 2: Carbon content of energy by distributed generation and other, high-voltage directly connected green energy

Forum Member Comments:

- Upon questioning, it was clarified that this was meant to be a system-wide measurement. However, the basis for benchmarking or classification (in the absence of North American standards at this point) was not yet resolved.

Metric 3: Improvement of load factor for both transmission and distribution systems

Forum Member Comments:

- Upon questioning, it was clarified that this was meant to be a measure of “better use” of the grid and was seen as a short-term measure.

Metric 4: {incorrectly numbered ‘2’ on the original slide} VAR control and voltage regulations (per feeder VAR measurement)

Ontario Smart Grid Forum

Forum Member Comments:

- During discussion it was generally agreed that this is a longer-term measure
- An LDC member expressed his concern that his organization does not normally collect this data, except under special circumstances. On this point it was suggested that this should become a measure of power quality and that it needs to be better-defined.

Group: Support for electrification

Metric 1: Plug-in electric vehicle penetration

Forum Member Comments:

- A member suggested that perhaps the Forum should recommend that this data series be collected and maintained by the Ontario Ministry of Transportation.

Metric 2: % of energized charging stations relative to the number of requests/applications

Forum Member Comments:

- During discussion it was clarified that this metric would pertain to level 2, 3 and higher charging stations and it was agreed that this description would be worded as such.
- A Forum suggested that a better measure would be to track the number of days to respond to such request. **Outcome:** it was agreed to change this metric accordingly.

Group: “Contribution of the broader electricity sector to the Ontario economy”

Metric 1: Exports of products and technology beyond Ontario

Forum Member Comments:

- No major comments or issues raised.

Metric 2: Number of green jobs created

Forum Member Comments:

- No major comments or issues raised.

Metric 3: Aggregate quality of jobs created based on education level

Forum Member Comments:

- A Forum member noted that this metric was strongly associated with Metric 2 (above) – and that you “can’t measure one without the other”
- A member suggested that this is tracked by the Electricity Sector Council
- The Ministry of Training, Colleges and Universities are trying to address this question through the, “Green Advisory Panel.”

Metric 4: Grants and incentives for smart grid technology and green job creation

Forum Member Comments:

- A Forum member suggested that this is likely measurable, but questioned what it really says about smart grids. On this point another member pointed out that if the smart grid is successful this series should decline over time.

Ontario Smart Grid Forum

- A Forum member suggested that a better measure would be to measure total public and private investment in smart grids and see how the two portions change over time.

ACTION ITEM: Corporate Partners Committee will consider the input from the January 17th Forum meeting and revise their metrics framework accordingly.

Agenda Item # 5: Report back from Forum Members: State of the world synopsis from all member organizations of the Forum (as per action item assigned at the October 12th SGF meeting).

As per a previous action item assigned at the October 12th SGF meeting, Forum members provided a brief overview to key challenges, organizational activities, and issues of interest with respect to smart grids at each of their organizations. Key points raised are provided below.

David Collie Electrical Safety Authority

- Electric product safety across the burgeoning array of new smart grid devices is of particular importance to the ESA. At present many new products are arriving in Canada for the first time from various jurisdictions around the world. The ESA is working with various certification bodies to address this growing need.

Ivano Labricosa Toronto Hydro

- A major challenge faced by Toronto Hydro is the integration of communications between various technologies. In response to this, the company is developing its own analytical capabilities to help make the various technological choices that now lie before it.

Dan McGillivray Ontario Centres of Excellence

- The OCE has recently reorganized itself under a new President. There is also a new budget focus on technology development and talent development – in addition to its efforts to lend assistance to the new Smart Grid Opportunities Fund.
- The OCE is also pursuing a series of energy storage products involving such technologies as battery reuse, flywheels, hydrogen and compressed air.

Norm Fraser Hydro Ottawa

- Hydro Ottawa's current regulatory filing is on hold. In the meantime, they are targeting specific areas of the system for improvement, with a focus on the rapid dissemination of outage information.

Wayne Smith Hydro One

- Distributed Generation connections and integration remains a major priority area for Hydro One at the moment. Specific aspects of connecting these facilities are being dealt with, such as power quality for example.
- Hydro One is working to better understand the fundamentals of customer value from a smart grid standpoint.

Ontario Smart Grid Forum

Mario Chiarelli Ontario Power Authority

- A major challenge for the OPA is developing new forms of residential demand response programs which are supported by new I.T. components such as in-home displays.

Keith Major Bentall

- Building controls are currently being revitalized and/or replaced with the latest generation of real-time monitoring and control technologies. Several commercial buildings are currently participating in a pilot study to help better understand these technologies and the most efficient means to integrate them.

Jon Norman Ontario Ministry of Energy

- The Smart Grid Opportunities Fund is a key element of private sector capacity building for the province of Ontario. A Request for Information (RFI) has currently been issued and the launch of the fund is expected later this spring with initial awards nominally targeted for August.
- The communications aspect of the smart grid needs to be developed from a government standpoint – in order to avoid an emerging concern that investment and debate within the industry may be getting ahead of public opinion.

Ron Dizy ENBALA Power Networks, Vice Chair, Corporate Partners Committee

- ENBALA is currently engaged in a pilot project with the IESO regarding the development of regulation services from loads. However, the current challenge is to find loads willing to participate in a manner that is unique from their typical operational considerations and to define the appropriate value proposition for them.

Jatin Nathwani University of Waterloo

- A lot of focus this year has been directed to the question of how best to integrate electric vehicles. In addition, the emergent role of micro-grids and the adaptation of various algorithms used by the telecoms industry for use within the smart grid are also current topics of interest for academic research.
- Intellectual Property issues continue to be a major challenge for various public-private partnerships.

Paul Murphy IESO (Forum Chair)

- The Smart Grid Forum work is of critical importance to the development of the smart grid in the province of Ontario. So too is the need for industry to address anxiety over electricity prices, and rate structures. Public investment in this regard is critical.
- The IESO is currently undertaking a number of initiatives to help facilitate the integration of renewables, including wind forecasting, visibility of information, and a dispatch framework to address the variability of many of these new energy sources.

Craig Martin TransCanada

- TransCanada does not have any specific smart grid initiatives at the moment, but is always looking for ways to better assist the electricity industry in its endeavours, particularly in the area of understanding the implications of the smart grid from a generator's point of view.

Ontario Smart Grid Forum

Agenda Item # 3: Discussion: 2010 Annual Report – update and next steps

(see also, support presentation for this agenda item and the Forum’s recommendation tracking document)

In going through the support presentation, a discussion immediately ensued, regarding the potential audience for the upcoming Annual Report of the Forum. Some of the comments made by various Forum members were as follows:

- The public is the audience through the various ancillary documents that will be issued. On this point another Forum member suggested that we shouldn’t lose sight of the fact that the Report itself will be a public document. Particularly, engaged members of the public will take an interest in it.
- For the next report we should shift its focus to being a (smart grid) roadmap for the province of Ontario.
- The question was posed as to whether or not the Forum wishes to expressly draw media attention to the report.
- Another Forum member suggested that policymakers are the key audience for this report, and several other Forum members voiced their agreement on this point.
- A Forum member suggested that the tone of this report is important, and as such we should avoid notions that the smart grid is somehow being imposed upon the rate payer. Indeed, this should be countered in the Report wherever possible.

At the end of the discussion, Tyler Hamilton summarized the discussion by suggesting that the report will need to serve the needs of the public, the policymakers and the Minister.

Slide 14: On the question of consensus, it was generally agreed that the issues did not have to reach a full consensus resolution before the Forum in order to be included in the Report. While concrete recommendations will indeed be important, unresolved issues should not be avoided either.

Other comments:

- The 2009 report of the Forum pre-dates the *Green Energy Act* context. How we can help customers manage their electricity bills using smart grid technology has now become a much more urgent question.
- Many of the questions originally raised in the last report have now been subsumed by the more recent Smart Homes discussion.

Next Meeting:

Tuesday, February 8th, 2011

14:00 – Adjournment.

Ontario Smart Grid Forum

APPENDIX 'A'

S.G.F. **OPEN** Action Items as of January 17, 2011

Action Item	Date Assigned	Assigned To	Target Completion	Status
Ministry of Energy Staff took the action time to check internally if there were any concerns about the content of past minutes concerning deliberations over the high-level smart grid principles.	Jan. 17, 2011	Ministry staff	Feb. 8 th .	OPEN
Corporate Partners Committee will consider the input from the January 17th Forum meeting and revise their metrics framework accordingly.	Jan. 17, 2011	CPC	Feb. 8 th .	OPEN
Jim Huntingdon to engage the EDA on the possibility of reviewing the revised capital cost estimates once developed by the Working Group.	Sept. 7, 2010	Jim Huntingdon	Oct. 12, 2010	OPEN
Report back to the Forum as to when other materials pertaining to advice to government since Fall, 2009 might be suitable for publication.	May 17 th 2010	Jon Norman	TBD	OPEN (update provided on June 8 th)
Examine the <i>IESO Market Rules</i> form the standpoint of whether or not they present any barriers to participation of load aggregators, and scheduling service providers in the wholesale market or otherwise conflict with the smart grid interoperability framework.	Feb. 9, 2010	IESO Staff	TBD	OPEN

CLOSED Action Items:

As of October 12th, 2010 closed action items are no longer listed in the minutes as per the agreement reached at the September 7, 2010 Forum meeting. The removal of an open action item constitutes the completion of that item.