Access to Consumer Data: A Vignette

Ontario Smart Grid Forum

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Introduction

Ontario's early lead in smart metering is now forcing important questions regarding the next steps after the rollout of Time-of-Use (TOU) rates across the province. Coming down the home stretch of a province-wide project that began in earnest in 2006, over 4.25 million retail customers across Ontario are now on TOU rates as of June 2012.[1] The integration of Ontario's smart metering infrastructure with an exploding array of smart home technologies is fast becoming one of the most pressing challenges facing the development of the smart grid.

One of the key components of Ontario's Smart Metering System is the province's centralized Meter Data Management Repository (MDM/R) which stores all of Ontario's Smart Metering Data. The MDM/R affords a tremendous research opportunity to analyze consumer behaviour, rate policy and a host of other commercial implications. It sits at the heart of Ontario's smart metering system and ensures that all Ontario local distribution companies (LDCs) are provided with billing quality time-of-use (TOU) data for the previous day's consumption.

> **About the Ontario Smart Grid Forum**
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> The Ontario Smart Grid Forum includes member organizations from Ontario's utility sector, industry associations, public agencies and universities working together to propose a vision for a smart grid in Ontario and examine the many components that comprise it. It is supported by the Corporate Partners Committee, which represents more than 30 private sector organizations active in the smart grid space – including, electric vehicles, retailers, energy management companies, systems integrators and equipment manufacturers.
>
> For further information, and to download a copy of the Forum's May, 2011 report, '*Modernizing Ontario's Electricity System: Next Steps,*' please visit: www.ieso.ca.http://www.ieso.ca

Beyond the needs of TOU billing by utilities however, lie a wider range of products and services – many of which may be enabled by real-time or near real-time metering data. Access to real-time smart metering data has been a topic of extensive examination and discussion by the Ontario Smart Grid Forum, particularly in the context of enabling the concept of the "smart home". Access to real-time data is the focus of this informational 'vignette'.

In its May, 2011 report, "*Modernizing Ontario's Electricity System: Next Steps - Second Report of the Ontario Smart Grid Forum*" the Ontario Smart Grid Forum ("the Forum") made the following recommendation:

"*Barriers to facilitating third-party access to electricity consumers and their real-time consumption information should be addressed. The Forum and its Corporate Partners Committee will work with industry to resolve*

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[1] Source: Ontario Energy Board, "*Monitoring Report - Smart Meter Deployment and TOU Pricing – June 2012*"

outstanding access issues, consistent with the Smart Grid Objectives set out in the government's directive to the Ontario Energy Board."[2]

This paper will revisit the rationale behind this recommendation and key developments in this area since May 2011 - including the extensive examination of this issue by the Forum, its Technical Working Group and the Corporate Partners Committee.

"Why is this issue so important?" - impetus behind the original Forum recommendation

In its report, the Forum noted that, *"Lack of competition could be a barrier to smart grid development. The Forum's Corporate Partners Committee raised this as a top concern".*[3] Real-time smart meter data access was further identified as a critical step towards enabling competition in the consumer domain of the smart grid. In particular, the **Ontario Smart Home Roadmap** was put forward in the Forum's report as a foundational vision of progress in the consumer domain over the next 20 years. The Smart Home Roadmap is based upon concepts of open access, competition, and a vibrant marketplace for products and services. The over-arching vision statement of the Smart Home Roadmap developed by the Forum is as follows:

"Smart homes will improve the lives of Ontarians. Served by a marketplace that provides the tools, information, and incentives, consumers will be easily able to make intelligent energy choices that are in their interest. In the process, they will provide valued services to the electricity grid and benefit society." [4]

In keeping with this, the Forum also recognized in its report that customer choice and the development of such a marketplace directly hinges off of the data access question. On page 22 of that report, the Forum noted that, *"Unlicensed third-party service providers, for example, want access to customer smart meter data so they can design and commercialize new energy products and services for residential, business and industrial consumers."*

More recently, the Forum received a presentation from the MaRS Discovery District concerning the more wide reaching economic benefits beyond those for the utilities sector that can be unlocked by smart metering data access, including:

- "Consumer applications and services
- Smart home solutions
- Software, data management and analytics
- Building management and retro-fit
- Financial services
- Community action and participation" [5]

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[2] Recommendation from Ontario Smart Grid Forum report: *"Modernizing Ontario's Electricity System: Next Steps"*, May, 2011. The reference to the Minister's Directive refers to the Minister of Energy's Directive to the Ontario Energy Board (OEB), Ontario Order-in-Council 1515/2010, November 23, 2010

[3] Ontario Smart Grid Forum, *"Modernizing Ontario's Electricity System: Next Steps"*, May 2012, pg. 22

[4] Ontario Smart Grid Forum, *"Modernizing Ontario's Electricity System: Next Steps"*, May 2012, pg. 11

These broader benefits are increasingly becoming part of the discourse over the development and modernization of Ontario's electricity sector. In summary, the original reasons behind the Forum's May 2011 data access recommendation tie it to a broader push for the realization of the Smart Home Roadmap and the attendant economic benefits that go along with it.

"How does this issue relate to other smart grid-related challenges in Ontario?"

Over the course of the Forum's deliberations since 2011, the data access issue has emerged as a nexus of several closely-related issues that will affect the development of Ontario's smart grid and its related economic development potential. Some of these connections arise from the close interrelationship between several of the Forum's own recommendations – not the least of which is the Smart Home Roadmap mentioned above. Other connections lie between potential solutions to various smart grid-challenges, particularly in regards to the realities of Ontario's proprietary Advanced Metering Infrastructure. These various issue areas are depicted in *Figure 1.0.*

Figure 1.0 Issues and recommendations related to real-time data access:

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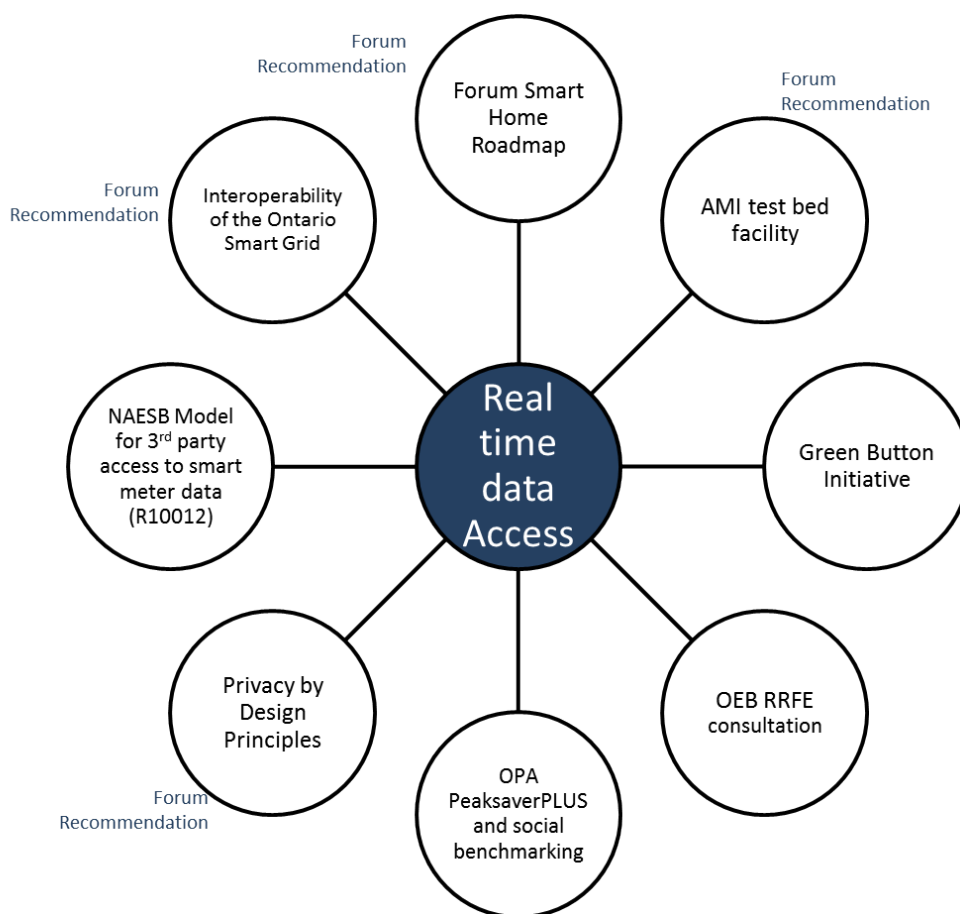
[5] MaRS Discovery District presentation to the Smart Grid Forum, "*Ontario Smart Meter Data Access Pilot, based on the Green Button*", September 12, 2012

These issue areas include:

- **Ontario Smart Home Roadmap:** As noted above, the development of the vision of smart homes in Ontario is directly affected by facilitating fair an open competition in the consumer space. Data access is a potential enabler of new competition in this crucial space.

- **Forum recommendation on an AMI test bed facility:** Ontario's Advanced Metering Infrastructure (AMI) systems pre-date many emerging interoperability standards which might assist in the controlled and secure exchange of real-time smart metering data between third parties and LDCs. As a result, there is presently no single common approach for third parties wishing to offer products and services that require real-time smart metering data. This will be a reality in the province for many years to come. In order to overcome this interim barrier, the Ontario Smart Grid Forum recommended in its May, 2011 report, the establishment of a common AMI test bed facility for the province where third parties can develop and test interfaces with the various different propriety AMI standards currently in use in the province.

- **Green Button Initiative:** A fast-emerging solution being developed under the auspices of the United States National Institute of Standards and Technology (NIST) Smart Grid Interoperability Panel (SGIP) offers a non-proprietary alternative to data access. Its potential adoption in Ontario could be seen as an alternative approach to the AMI Test Bed facility.

- **NAESB model for Third Party Data Access:** The North American Energy Standards Board (NAESB) has been conducting extensive work for the business model framework for third party access to smart metering data. The aims of this extensive body of work seek to, "*...set forth voluntary best practices on the disclosure of Smart Meter-based Information to Third Parties and to provide guidelines to Applicable Regulatory Authorities on privacy practices for Third Party access to Smart Meter-based Information.*" [6] In 2011, the Smart Grid Forum examined NAESB's work and found that it is directionally consistent with the 'Privacy by Design' principles of the Ontario Information and Privacy Commissioner.[7] More recently, the NAESB business model has underpinned the design of the **Green Button** standard.[8]

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[6] North American Energy Standards Board, (NAESB), "*Third Party Access to Smart Meter-based Information*", document R10012, page 2

[7] See also: minutes and Working Group report of the June 21st 2011 meeting of the Smart Grid Forum, available on the IESO website at: http://www.ieso.ca/imoweb/marketsandprograms/smart_grid-meeting_notes_archive.asp

[8] U.S. National Institute of Standards and Technology, Smart Grid Interoperability Panel (SGIP), Priority Action Plan 20 ("Green Button ESPI Evolution")

- **OEB Renewed Regulatory Framework For Electricity:** The Ontario Energy Board's (OEB) consultations on the Renewed Regulatory Framework could affect the outcome of the data access recommendations put forward by the Forum. Third party access to smart metering data is an issue which is integral to several issues raised in the OEB's November 8th, 2011 staff discussion paper, "*In regard to the Establishment, Implementation and Promotion of a Smart Grid in Ontario - EB-2011-0004*".

- **Forum recommendation regarding the Ontario Information and Privacy Commissioner's Privacy by Design (PbD) principles:** The Ontario Information and Privacy Commissioner has written extensively about privacy principles to govern the smart grid and smart metering data. These principles have been officially recognized by the Ontario Smart Grid Forum in its 2011 report.

- **Forum Interoperability recommendation:** In its 2011 report, the Forum has called upon the use of internationally-accepted smart grid interoperability standards in the province of Ontario. The Green Button Initiative is one potential approach to the smart meter data access question.

- **OPA peaksaverPLUS and social benchmarking:** As noted in the '*progress check*' section of this paper which follows, the Ontario Power Authority's peaksaverPLUS program and social benchmarking activities are providing Ontario with an early opportunity to explore the possibilities of real-time data usage in advance of the complete application of open standards and platforms such as Green Button.

Progress check

A lot has happened on a number of different fronts with regards to the meter data access issue since the Forum produced its May, 2011 recommendation. Over the course of the remainder of 2011, the Forum, its Technical Working Group and the Corporate Partners Committee have examined the issue in considerable detail. On December 6, 2011 the Working Group presented a position paper[9] to the Forum on the third party data access issue, with recommendations in five areas:

1. Local Distribution Companies (LDCs) should retain the ultimate responsibility for confidentiality of data while it's residing in their meters. This was seen as consistent with the fiduciary and regulatory responsibility of LDCs to protect the privacy of their customers' information where and when it resides within their systems.

2. The Working Group agreed with the Corporate Partners Committee's notion that customers should have ultimate control over data release, but sees some practical challenges in the near-term given the realities of Ontario's current proprietary AMI systems.

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[9] See also: Smart Grid Forum Working Group paper, "*Draft Position of the SGF Working Group Regarding real-time smart meter data access*", December 6, 2011 available on the IESO website at: http://www.ieso.ca/imoweb/marketsandprograms/smart_grid-meeting_notes_archive.asp

3. The Energy Services Interface (ESI) between the utility's systems and those within a customers' premise needs a clear demarcation point for liability over the data – a point echoed in NAESB's business model[10] on this topic (see related issues above).

4. Allowable Technology: LDCs must have a say in the technologies used at the ESI in order to make sure there is a safe and secure interface into their systems.

5. Reaffirmation of the Privacy by Design Principles. The Working Group paper further reiterated the importance of the ESI to adhere to the Ontario Information and Privacy Commissioner's Privacy by Design Principles which were officially recognized in the Forum's May 2011 report.

Other notable events since the Forum's report continue to unfold in regards to the data access issue as well:

- Over the course of 2012, the Ontario Power Authority, in partnership with local distribution companies, has continued to expand its 'saveONenergy' residential demand response efforts with 'peaksaverPLUS' – a program which includes a feedback mechanism (via in-home displays) involving the use of smart metering data in a real-time context. This program is currently premised on technology that specifically integrates with the participating utility's proprietary AMI systems, an in-home display and pre-authorized load control technologies.[11]

- In 2012, the Ontario Power Authority launched a social benchmarking pilot project based on billing data. At least three LDCs are working directly with the OPA on this project to test the feasibility and impact of social benchmarking in Ontario. The benchmarking is based on day after billing data. The pilot is structured to work with Green Button standards if those are developed in time.[12]

- In May of 2012, the U.S. National Institute of Standards and Technology (NIST) Smart Grid Interoperability Panel (SGIP) established **Priority Action Plan 20** ("Green Button Energy Service Provider Interface – ESPI Evolution"). Eventually this work will culminate in the inclusion of the Green Button Standard in the SGIP's Catalogue of Standards. Once this effort is complete, the standard can be relied upon to be certifiable, meet stringent security standards, and fall under coordinated change control processes. More importantly, it will be openly available to Ontario as a potential solution to the data access question – a topic of considerable recent discussion (see "Green Button" section below).

- In June, 2012 Ontario's 'Distribution Sector Review Panel' was launched by the Ontario Government.[13] The recommendations from this Panel could affect the integration of the various proprietary components of Ontario's AMI infrastructure and the commercial boundaries of responsibility of

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[10] Presently, NAESB REQ 22 (Third party access to smart metering data) and REQ 21 (Energy Service Provider Interface) are under review for inclusion in the NIST SGIP Catalogue of Standards

[11] With reference to: www.saveonenergy.ca

[12] Ibid.

[13] Ref.: Ontario government news release, "*Ontario to Review Electricity Sector*", April 13, 2012

Ontario's LDCs over facilitating data access. As of the date of this report, it remains to be seen what the recommendations of the Panel might be or how it might affect the distributor's ability to support open access.

- On October 15, 2012, the IESO and SmartGrid Canada released a survey which found that 69 per cent of Ontario's residents felt that, to at least some degree, they had "...*reduced their costs by managing their electricity consumption*." This survey was conducted as Ontario neared completion of its Time-of-Use rate roll-out and raises the possibility of deriving further consumer value from smart home-related technologies and services. The report also highlights the enduring importance of customer education in order to enhance awareness, adoption and efficient use of future technologies/services that rely upon real-time data access.

- On October 16, 2012 the Canadian Council of the International Electrotechnical Commission (IEC) Smart Grid Task Force released its report, *The Canadian Smart Grid Standards Roadmap*. Several member organizations of the Smart Grid Forum and its Corporate Partners Committee contributed to the development of the roadmap including: Hydro One, Hydro Ottawa, IBM, Independent Electricity System Operator, Ontario Energy Board, the Ontario Ministry of Energy, Natural Resources Canada, and Toronto Hydro. Among the recommendations of this report was developing a clear demarcation point between the systems belonging to public utilities and those of third party service providers.[14] As noted below, this recommendation is a crucial part of any data access framework – including the implementation of the Green Button standard, should Ontario choose it as an enduring solution.

- On October 18, 2012 the provincial regulator, the Ontario Energy Board (OEB) released its Board report[15] as part next phase of its *Renewed Regulatory Framework for Electricity* consultations. Contained on page 49 of that report, is a crucial finding of the Board that, "*There is no element of natural monopoly in the market for behind the meter services and, therefore, the Board has concluded that customer control would be best served by the forces of market competition.*" [16] This finding gives further rise to the importance of resolving the question of real-time data access in order to remove a key barrier to developing a vibrant marketplace in the smart homes domain. As we shall see in the 'Conclusions' section of this report, the second-order questions that arise from this policy viewpoint must be resolved in order to provide a clear framework for progress in this area.

- Also in October, 2012, the MaRS Discovery District released its report "*The Market Impact of Accessible Energy Data*" which outlines the potential economic benefits that might be unlocked through resolution of the data access issue. These benefits are broken down into business segments and argues

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[14] Standards Council of Canada, Canadian Council of the International Electrotechnical Commission (IEC) Smart Grid Task Force released its report, *The Canadian Smart Grid Standards Roadmap*. Recommendation 'M1', page 29

[15] Ontario Energy Board, *Report of the Board: Renewed Regulatory Framework for Electricity Distributors: A Performance-Based Approach*, October 18, 2012
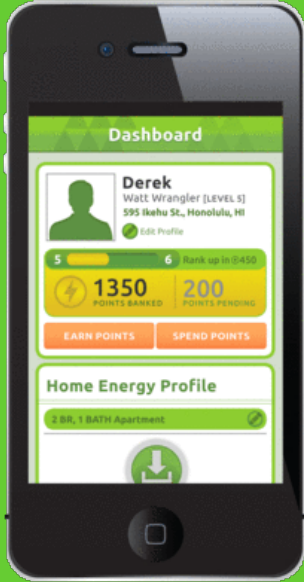
[16] Ibid. Pg. 49

that benefits will accrue to utilities, customers, suppliers and the related industries.[17] Subsequent to the release of this report, on November 21, 2012, Ontario's Minister of Energy announced that, "*A working group led by the province and the MaRS Discovery District will explore an Ontario Green Button initiative that would use innovative smart grid technology to give families and businesses direct, timely access to their own energy data through a secure download from their utility's website.*"[18] Ontario's initial foray into exploring the use of open standards for smart metering data access is a potentially important development in advancing the Forum's recommendations in this area, and the 'Green Button' may be particularly noteworthy in that regard.

Green Button

When the Forum issued its report in May, 2011, it was unlikely anyone could have anticipated the rapid developments that were about to transpire south of the border in regards to the Green Button Initiative**.** In September 2011 the White House 'Chief Technology Officer' issued a challenge to industry to, "*...enable consumers to download their detailed energy usage with the simple click of a "Green Button.'"* [19] By January 2012, California became the first jurisdiction to go live with the Green Button standard, and it has grown at an astonishing rate since then. Events continued to rapidly unfold, and by August 2012 the Green Button data presentment standard was in use in 27 states encompassing some 31 million customers. In addition to becoming a de facto standard, it is also under review for inclusion in the highly-influential National Institute of Standards and Technology (NIST) Smart Grid Interoperability Panel (SGIP) Catalogue of Standards. As of November, Ontario now seems to be poised to test this standard in a project involving the Ontario Ministry of Energy, the MaRS discovery district and various Ontario electricity sector organizations[20]. The Green Button has two major parts as follows:

1. **A data access standard called, "Download my Data":** This is the first major phase of Green Button - a common data format now in use in an expanding customer base in the U.S.

Green Button – A glimpse of the possibilities…

The DRIVE™ System is one example from a fast-growing array of mobile phone apps that are designed for Green Button format data. This particular app is described as, *"...a patent-pending solution that provides incentives to residential customers to reduce power consumption during peak and critical peak times. It rewards desired consumer behavior with points or airline miles." ***

*** Image and caption credit**: U.S. Department of Energy "Apps For Energy" site: appsforenergy.challenge.gov*

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[17] MaRS Discovery District released its report "*The Market Impact of Accessible Energy Data*" pg. 18.
[18] Ontario Ministry of Energy news release "*Ontario to Enable Cutting Edge Conservation Initiative*", November 21, 2012
[19] Ref.: U.S. Whitehouse news release, "*Empowering Customers With a Green Button*" Posted by Nick Sinai on November 21, 2011
[20] Ontario Ministry of Energy news release "*Ontario to Enable Cutting Edge Conservation Initiative*", November 21, 2012

2. **A comprehensive Energy Service Provider Interface (ESPI) called, "Connect my data":** The Connect My Data component (which facilitates the manner in which customers grant and revoke third party access to their data and automatically provide it to various applications) is built on the business rules developed by NAESB, previously reviewed by the Forum in August, 2011. Its development is currently part of a 'Priority Action Plan' at the NIST Smart Grid Interoperability Panel.

As a result of Ontario's Smart Metering Initiative, many LDCs serving the vast majority of the province's customer base, offer much of the functionality contemplated by the Green Button concept. However, as the Ontario Smart Grid Forum has pointed out in its 2011 report, open standards are foundational to a vibrant marketplace for smart home-related products and services which maximizes their full potential. Since the beginning of 2012, the Ontario Smart Grid Forum has increasingly turned its attention to this quickly emerging approach to the data access issue. Some of the features of the Green Button Initiative certainly seem to speak to the very same issues that the Forum has been examining, including privacy, security, customer control over access rights, and perhaps most interestingly, the Green Button is built upon the same NAESB business rules (see above) that the Forum reviewed in the summer of 2011. Indeed, many feel that the Green Button Initiative is not only relevant to Ontario's data access issue, but has already become too big for the province to ignore. At the September 12, 2012 meeting of the Smart Grid Forum, the Corporate Partners Committee presented a position paper on this issue in which they stated:

"We believe it would be highly effective for Ontario's LDC's to adopt the principles and standards behind Green Button – so that Ontario electricity consumers can have access to their electricity usage information through the same ecosystem of suppliers (which incidentally, does include some Ontario based technology companies)."[21]

The Corporate Partners Committee went on to note that the ability to support full real-time access was still the ultimate goal, and that that while Green Button might be an important step in that direction it, "...should not be regarded as a complete solution to this problem in the meantime." [22]

Still however, other members of the Smart Grid Forum and its Technical Working Group have noted that there are a number of unknown risks that need to be further assessed including:

- **Regulatory risk:** The viability of the energy service provider interface component ("connect my data") will hinge off of the regulatory landscape currently developing in Ontario.
- **Technological risk**: There is still unease amongst some LDCs regarding the long-term future of Green Button.
- **Consumer adoption risk**: Some members felt that real-time data is where the value likely lies – not intermediate granularities like 15-minute.
- **Cost:** Utilities have little interest in bearing the cost of storing/retrieving large quantities of data in the off-chance that it might be used by consumers or third parties – a new funding model may be needed.

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[21] Corporate Partners Committee, Position paper on the Green Button Initiative and smart grid success metrics, September 12, 2012: available on the IESO website at: http://www.ieso.ca/imoweb/marketsandprograms/smart_grid-meeting_notes_archive.asp
[22] Ibid.

- **Risk mitigation:** Ontario needs a way to ease into the more complex second phase of Green Button without making an "all-in" bet at the outset. In this regard, the Working Group is very interested in the work of the MaRS Discovery District.

To date, the Smart Grid Forum has not adopted a single position regarding the Green Button Initiative, though it continues to monitor and, in the case of some of its members, participate in ongoing developments with great interest, including events which are about to unfold here in Ontario (see also, 'Conclusions' section below).

Conclusions

"Is enough being done to resolve the issue?"

In the year and a half since the Forum's recommendation on this topic, we note that the data access issue is now front and centre in a number of smart grid-related discussions. On the regulatory front, we note that Ontario's deliberations on the Renewed Regulatory Framework for Electricity are keeping a sharp focus on this issue. On the ground, various LDCs across the province are in the midst of both pilot projects and the peaksaverPLUS program which involve various forms of integration of AMI system with Home Area Networks – though many of these projects are still rooted in proprietary system constructs. And of course, south of the border, the sheer weight of the U.S. Government's involvement in the Green Button Initiative, coupled with its rapid adoption rates have also greatly aided in bringing this issue into sharp focus. Overall we are pleased to note that this vitally important issue is getting the attention it deserves in a multitude of different venues, both inside and outside of Ontario's electricity industry. This level of attention is a very positive first step towards the ultimate resolution of this issue.

The October 18, 2012 report of the Ontario Energy Board has put further emphasis on the importance of the data access question. By finding that there is no discernible element of a 'natural monopoly' for behind-the-meter services[23], the OEB has now opened the way to resolving the crucial second-order questions that flow from the policy position, including:

- Who is the ultimate custodian of smart metering data before, during and after its release to a third party?
- How should the data be provided? Using what standards?
- What is required of the LDC to facilitate data access, and who pays for those costs?
- If real-time access highlights new commercial requirements for functionality beyond those needed by LDCs for time-of-use billing (most notably, more granular time resolution of metering data) how will this guide LDCs future procurement of next-generation AMI infrastructure. And again, who pays for that additional metering functionality, and how?

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[23] Ontario Energy Board, *Report of the Board: Renewed Regulatory Framework for Electricity Distributors: A Performance-Based Approach*, October 18, 2012, with reference to the Board's conclusions discussed on page 49

- Will Ontario's technological platforms, regulatory ground rules and business practices be implemented in a way that adequately ensures compliance with the province's Privacy by Design principles?

We note that the OEB intends to release a further report on smart grid issues in early 2013, and the high importance of resolving these more detailed questions during the ensuing regulatory deliberations.

"Is there an emerging solution at this point?"

In addition to its recommendation on data access contained in its report of May of 2011, the Ontario Smart Grid Forum also put forward a recommendation regarding the development of an AMI test bed facility in the province. This latter recommendation was proposed as a pragmatic solution to the near-term reality that Ontario will face for some time to come in regards to its proprietary AMI systems. It would allow the providers of Home Area Networks and related products and services to assure themselves of the ability to integrate with the existing smart metering system in this province. Eventually, this need would be displaced by the gradual adoption of open interoperability standards – another key recommendation of the Forum for the longer-term. In the meantime however, Ontario currently faces the dilemma of a smart metering infrastructure based upon a variety of different, proprietary smart metering technologies. This issue will likely persist for some time to come, and the Forum and its Corporate Partners Committee has called for urgent action to help open up the market for smart home technologies in the interim.

To date however, neither the Forum nor its Corporate Partners Committee has been able to successfully find an institutional champion that is both willing and able to take on the role of establishing, operating and maintaining such a facility. Unanswered questions regarding funding, cooperation from various organizations, and access to intellectual property related to proprietary systems remain potential stumbling blocks. In the intervening time since the Forum made its AMI test bed facility recommendation however, the Green Button standard has been regarded by some as a competing approach to the data access issue. While the AMI test bed facility would offer the opportunity for third party providers to adapt their systems to whatever proprietary systems and standards are used by the LDC to facilitate real-time data access, the Green Button standard would put the onus on the LDC to offer an interface based on upon open standards for data presentment but not necessarily address the question of what timeframe (i.e. real-time vs. previous-day's data) the data would be offered in. As noted above however, the various members of the Forum and Corporate Partners Committee have differing views on how a test bed arrangement would work. An appropriate funding model for such an arrangement would also need to be addressed. In September 2012, the Forum received a presentation from the MaRS Discovery District outlining the plans for a pilot project in the province of Ontario to validate the applicability of the Green Button standard in an Ontario context. As of November 2012, this project is moving forward as per the joint announcement Ontario's Ministry of Energy and the MaRS Discovery District. This project seems to strike a balance between the viewpoints expressed over the past few months and the Forum is anxious to review its success.

In summary, the Forum now sees at least two paths towards the realization of its data access recommendation – neither of which is necessarily mutually exclusive to one another. Resolution of this issue does not rest with a single institution, but the growing awareness and discussion that we observe taking place in this province gives hope that the right steps will be taken in a coordinated manner. In the meantime the Forum will continue to examine developments and encourage this progress to continue.

References

1. Corporate Partners Committee, Position paper on the Green Button Initiative and smart grid success metrics, September 12, 2012

2. IESO and SmartGrid Canada, "*The Canadian Consumer and Smart Grids /// A Research Report*", October 15, 2012

3. Ontario Energy Board, *Report of the Board: Renewed Regulatory Framework for Electricity Distributors: A Performance-Based Approach,* October 18, 2012

4. Ontario Smart Grid Forum, "*Modernizing Ontario's Electricity System: Next Steps*" May 2011

5. Ontario Smart Grid Forum Working Group paper, "*Draft Position of the SGF Working Group Regarding real-time smart meter data access*", December 6, 2011

6. U.S. National Institute of Standards and Technology (NIST), presentation to MaRS Discovery District, August 9, 2012

7. U.S. National Institute of Standards and Technology (NIST) Smart Grid Interoperability Panel (SGIP) established Priority Action Plan 20 ("*Green Button Energy Service Provider Interface – ESPI Evolution*")

8. MaRS Discovery District presentation to the Smart Grid Forum, "*Ontario Smart Meter Data Access Pilot, based on the Green Button*", September 12, 2012,

9. MaRS Discovery District, "*The Market Impact of Accessible Energy Data*", October, 2012

10. North American Energy Standards Board, (NAESB), "*Third Party Access to Smart Meter-based Information",* document R10012.

11. Standards Council of Canada, Canadian Council of the International Electrotechnical Commission (IEC) Smart Grid Task Force, *The Canadian Smart Grid Standards Roadmap,* October 16, 2012

Other Smart Grid Forum minutes and meeting materials referenced in this paper may be found on the Forum's meeting materials archives page on the IESO website at:

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

APPENDIX:

Member Organizations of the Smart Grid Forum and Corporate Partners Committee

Members of the Ontario Smart Grid Forum	Member Organizations of the Corporate Partners Committee
Paul Murphy, President and CEO, IESO, and Chair, Ontario Smart Grid Forum	129 Group
	Aird & Berlis LLP
Michael Angemeer, President and CEO, Veridian Corporation	Aztech Inc.
	Certicom
David Collie, President and CEO, Electrical Safety Authority	Deloitte
	Direct Energy
Jonathan Dogterom, MaRS Discovery District, Cleantech Practice Lead	Ecobee
	Elenchus
Norm Fraser, Chief Operating Officer, Hydro Ottawa Limited	Elster
	Enbala Power Networks - Ron Dizy, CEO (Committee Chair)
Anthony Haines, President, Toronto Hydro-Electric System Limited	Energate Inc.
	Energent
Ivano Labricosa, Toronto Hydro-Electric System Limited	ERTH Corporation
	General Electric
Keith Major, Senior Vice President, Property Management, Bentall Real Estate Services	General Motors
	Honeywell
David McFadden, Ontario Centres of Excellence	Hydrogenics
	Hydrostor
Julia McNally, Director, Market Transformation, Ontario Power Authority	IBM Canada
	KMDR Research
Dr. Jatin Nathwani, Professor and Ontario Research Chair in Public Policy and Sustainable Energy Management, Faculties of Engineering and Environmental Studies, University of Waterloo	Negawatt Business Solutions
	Ontario Energy Association (OEA)
	Olameter
	Ontario Centres of Excellence
Wayne Smith, VP, Grid Operations, Hydro One Inc.	Ortech
	PricewaterhouseCoopers (PwC)
Scott Stevens, Executive Director, Business Development, Northland Power	Prolucid Technologies Inc.
	Region of Peel
Jac Vanderbaan, Chief Operating Officer, Festival Hydro Inc.	Reliance Home Comfort
	Research in Motion
	Rodan Energy
Observers:	RuggedCom
Tom Chapman, Director, Transmission and Distribution Policy, Ontario Ministry of Energy	S&C Electric
	Sensus
	Siemens
Aleck Dadson, Chief Operating Officer, Ontario Energy Board	Signal Hill Digital Law
	Summitt Energy
	Sky Energy Consulting
Working Group:	Temporal Power
The Ontario Smart Grid Forum is assisted by a Technical 'Working Group' comprised of staff from its various member organizations, as well as PowerStream, and Natural Resources Canada.	Union Gas
	Util-Assist
	Wainewright Consulting Ltd.
	Zerofootprint