**Meeting Summary**

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| **OEB Smart Grid Working Group** |

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| **Meeting Date:** | November 20, 2012 | **Time:** | 9:30 am – 4:45 pm |
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| **Location:** | 2300 Yonge Street, 25th Floor, ADR room | | |

**Board Staff:** Russ Houldin, Rachel Anderson, Roy Hrab

**Meeting Topic:** Development of smart grid guidance in light of the [Report of the Board – A Renewed Regulatory Framework for Electricity Distributors: A Performance Based Approach](http://www.ontarioenergyboard.ca/OEB/_Documents/Documents/Report_Renewed_Regulatory_Framework_RRFE_20121018.pdf)

The purpose of the second meeting of the reconvened Smart Grid Working Group (SGWG) was to discuss staff’s first draft of its proposal for guidance on smart grid implementation which consisted of five categories. For the categories ‘Energy Services and Education for Customers’, ‘Network Optimization and Long Term View of Investment’, ‘Innovation’ and ‘Economic Development’ the working group was divided into three smaller groups for discussion; the key issues arising from each groups’ discussion were then discussed among the entire working group. For these sections the meeting notes are divided according to group. For general feedback on the proposal and the discussion of ‘privacy and cyber-security’ the group was not divided and so the meeting notes remain organized into the four categories of working group members.

***General Feedback on Proposal***

**Key observations from the discussion:**

1. At a high level the staff proposal should emphasize key themes such as the transformative nature of smart grid investments and variation in the needs and wants of different ‘types’ of customers.
2. Generally, each SG initiative will stand on its business case proposition (positive or negative) so as to keep within the intent of a financial scrutiny in the filings.
3. SG implementation will be aligned with policy direction and/or a greater collective consensus.

**Discussion notes:**

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| ***Utilities*** | * One overtone that is important is transformation, the necessary enabler of transformation is a pillar of smart grid. Isn’t its own bucket, but it falls within all 5 buckets. Architecture change is a good example of this. Regarding spreadsheets, I think to look at the big business outputs first, and then the poles and wires that constitute the upgrade. Need the transformation element built into the text or else every issue would be a huge task. * Optimization is tweaking, not new. * Unsure about categories as to whether they are intended to be individual files. When a proposal comes in due course, which of these files does it sit in? Or is a proposal assessed on how it addresses each of the categories? Would think it would meet more categories. * Rather than seeing if a proposal is an innovation proposal or economic development proposal, rather does it address a, or b, or c? If it does not address any of the 5, then it is a question of whether or not it is worth proceeding. * Innovation is tricky, what is innovative for one utility may be not be innovative for another utility which has been doing something for some time. |
| ***Technology Vendors*** | * Could lump innovation and economic development together, they are lumped together at the MOE. |
| ***Consumer Groups*** | * Wasn’t promoting smart grid included in original directive? Should this be included in OEB’s wording? Think we need to include promote to incent smart grid to work; need some more enthusiasm. Add promote to this line “The Directive expects the Board to provide guidance to regulated entities for their activities including the preparation of plans for the development and implementation of smart grid” * Support need to include ‘transformation’ as a key element, could it be grouped under something like ‘pillars’? A general discussion of transparency, definition of customers, etc. Continue to use customers as if there is just one, my readings of media makes it clear that there are different needs for different customers. * What about the other objectives that don’t have their own categories, for example, environmental benefits? |
| ***Agencies*** | * Think objective here is to put 24 objectives into 5 buckets. Without looking at mapping of the 24, the above seems reasonable to me |

***Energy Services and Education for Customers***

**Key observations from the discussion:**

1. There is general agreement about the types of data (e.g., billing quality data, non-billing quality real-time data, etc.) that utilities should be required to provide in order to facilitate the development of a market for behind-the-meter services.
2. There is a desire for provincial consistency in data provision but also concerns about problems associated with the Board choosing/codifying a particular standard or technology.
3. There is support for utilities being responsible for educating consumers especially given their relationship with the consumer as the ‘go to’ for electricity issues (however, they are not expected to be the only entity responsible for this).

**Discussion notes:**

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| ***Group 1*** *(utilities, consumer groups, and agencies)* | * Not in conflict with what has been discussed * Maintain current approach – utilities must provide historical data to customer upon request, suggest adding access to the meter. Need customer to have equal access to meter, not just LDC getting access * 2 Options: agreement that Option 2 made more sense, where 3rd party is actually obligated. Speed of innovation – took 5 years to establish / get things into their system. Getting something to customer takes significantly less time. Board needs to enable opportunities for other services to develop, rather than Option 1, picking a winner * Access to impersonalized data: agreement with this. Expand it from to customer benchmarking and analytic purposes. Challenge around re-personalizing data and maintaining impersonalized data. Not dissimilar to other pieces of information, e.g., can find out average income of Oakville vs. Markham * Customer education: yes it is important. Utility is the link to the customer and that is a respected customer, and there is high trust with the utilities. Want to take advantage of this and need there to be a consistency in messaging * Access to personal data and MDMR, would tweak the wording to include adding ‘planning and research purposes’ to benchmarking purposes. * 3rd last bullet on page 6: suggestion about describing environmental benefits associated with benefits. Suggest that this includes utilizing yet to be defined standardized protocols to assess environmental benefits across the province. * Need to clarify what is physical access to the meter. Access for the purposes of data, not to take the meter out. * Question if you need up to 3s of data. THES sells a $7500 meter - rate base should not need to pay for this. A business should be allowed to install it if they need it * In terms of using MDMR data to get access to impersonalized data, should this be done at a utility level or at a provincial level? MPAC property assessment – can look at 25 properties to understand my property vs. others. Should LDCs be facilitating this, or should be available at the province later * Some utilities already provide comparator data * This is a very quick fit. Given the fact that MDMR is the depository, who should be charged to provide this access. MDMR is best for analytical non-real time data. Not using this, is throwing data away, this data has far more value than what biller produces. * Talked about adding a reminder about personalized data, add a reference to privacy for whatever standards might be. Useful to reinforce. * Question to what extent, how or who the performance measures may be, how do we define these? * A year and a half into SG, we are still asking what is SG? Board should consider a mechanism for having an ongoing discussion. We won’t have all the answers so to keep up in this marketplace will be a challenge. An industry stakeholder group would benefit the Board and stakeholders. * For many LDCs, the technical losses are very low. In terms of improving technical efficiency of a system you may not be able to improve it with SG, but SG could help environmental benefit via DG and DR * Hard to quantify environmental benefits as there is not a mature carbon trading market here, and also depends on what is on the margin at the time. Might not be able to get to quantification at this time, might need to just look at tons CO2 offset, rather than putting a dollar figure to it * Have not leveraged energy storage at all yet. Shifting would allow renewable generation to be increased. * Nuclear is also clean energy. * Tried putting a value on CO2, we tried it back in 1990’s and it is a horrendous task. In many cases we will put a value on it, it is agreed upon by the parties involved. Might put a 10% or 20% value on environmental benefits. * How to make better use of existing tech. One suggestion that is instead of just allowing customers access to the meter, there could be a program to promote to let customer connect rather than just seeing data * Interpreting efficient use of technology is reduced kWh and kW   + Bring up an interesting point, whether its peak or baseload as a peaking kWh is worth a lot more than a baseload. We have excess baseload right now, so it should be more focused on peaking.   + Consider linking kwh with BTU and thinking of overall network rather than just electricity network.   + Not quite sold yet that efficiency is just reduced kW and kWh. |
| ***Group 2*** *(vendors and utilities)* | * Customer education: felt that this is something that utilities should promote and not may promote, should be an obligation as they are the ones delivering power to the customers. * Facilitation of real-time data access. We all agreed that Option 1 is not the option to pursue, Option 2 is more reasonable, but leveraging the MDMR and current mechanisms are favoured. Access to real-time data was the big discussion for the time. Different requirements for different classes, but should it be mandated by the LDCs on whether it should be mandatory or not   + Access to data should be available, access to date is real time or near real time. Adding devices inside the home can do this. Should this be mandated by the utility by if it chooses to do so? Or a retailer, or some other 3rd party, etc.? Access should be promoted, but who should be obligated to make access?   + Should consider how the data is made available and who should be mandated to do make it available? Should the whole rate base pay for data that not all customers can use * Question always remains if it is billable. Wherever we decide that access to be, retailers obviously need to bill on that usage.   + Standardized format of data should be considered. This goes back to the MDMR and providing access to impersonalized data to 3rd parties for benchmarking purposes; Green Button-type initiatives should be considered. |
| ***Group 3*** *(vendors, utilities, a consumer group and an agency)* | * “Customer control and education for customers” as a title for 1st bucket may better describe what we discussed * LDC’s role behind the meter needs to be considered with respect to customer data and customer education * The utility does not typically provide services BTM and we saw a role in the utility playing BTM in terms of customer control, but not sure how they would recoup costs * Had a discussion of real-time vs. near-real time data. Do both need to be available to the customer? Providing real time data is a major change, and we need to know what is needed for the customer   + Any approach must be cost effective and be reviewed. Value of historical data must be considered   + What level of granularity of data is required, who owns the data, etc.?   + Agree that data should be standardized. Existing databases are probably the better way to go rather than new ways * Talked about smart grid and smart homes and needing to understand role of LDCs * If customer data is available, what is the next step in involving customers. Need to break it down so customer can manage consumption, there is an education piece here. LDCs can play an enabling role, customers could give back services to LDC that would benefit MOE’s goal, similar to peak saver, finding a way for LDCs to develop distributed generation. Broader role for the LDC to enable customers to give back as well * We were talking about interface between utility and customer and what customer will do at that interface. At the interface is the meter, what it does and what it generates, where the data goes, who does what with it is still an issue * At moment, we are denying customers’ ability to add generation as the network is not able to enable their request. If we are going to enable customer choice, we need to do things before the meter to facilitate this. If the customer is to have choices of control, they will need to enable this. Something Before TM that facilitates BTM * Our test is should they or should we not be letting them do things, creates the right of the customer. There is no right of the customer right now. * We are talking about customer choice and customer activities BTM. Part of that customer choice may be in managing their own demand profile but also they then have the opportunity by themselves or in aggregate to provide services to the market. Such as BOMA aggregating and providing services to the IESO. Why can’t this occur for customers? May be a need for investment in front of the meter to facilitate this happening? * Unstandardized provision of data or data provided in a different format may provide the development of services. What is the interface between the utility and the customer and that is clearly is the meter. What does the meter provide and what do we need it to provide and what services will the meter provide back to the utility and the home. * We do store data now, as we have so much data. Is this the enabler or the transformation for the utility to be far more congenial to the customer or we merely a wires provider? We are merely a wires provider, we are not accepting the customer’s choice and giving them options. Question is, at the meter, if customer wants things to be done, should we do it or should others do it, as we are just a wires provider? * In its entirety, it is like setting up a mini Enbala within the LDC. So you can do DR, energy storage, switch renewable energy on and off * Would think DG could be facilitated now through MicroFIT, but DR piece is interesting as you are getting back to question of billing quality of real time data as you are talking about in aggregate, how to you measure for the 50 people in a neighbourhood who have signed up for DR services? What does the utility need to do to facilitate billing quality real-time data so that those types of services can occur? * When you talk about enhanced services in control room, LDCs have control rooms now, share this view with you that there may be an additional function there rather than dispatching feeders, control room looks over grid, increases visibility. If there are DR sources out there, they may see those, take more action, interact with transmitters / IESO. Would see that as more evolving vs. transformation? * Would see this as more of a transformation. DR type stuff has not been done in 90 years, would require a lot of algorithms etc. Question is if we are truly integrated energy provider like EON and EU companies, all we have is a wire now. Do we need to ask what do we need to do for the customer to enable services to be enabled, who is the agent of trust? If the customer wants things done, whose door do they knock on? * Question for me is what services do we think 3rd parties will want to provide? As a service industry, do LDCs enable them to do this with our information, or do we make them collect their own data? Is it efficient for 3rd parties to build their own standards, data collection etc. or does it make more sense to build a framework up front to help customers / services to give everyone the same ability to participate whether or not they chose too. More cost effective. Otherwise, only individuals who choose to play need to pay for their individual equipment.   + Big question is should we enable everyone to take part, or should we only enable those who state they want to take part (and they would pay for it rather than rate base paying)   + Question comes out of that is that it is at a commercial and industrial level, but how do you do this at the residential level. It wouldn’t be MDMR data, but DR data that you would need to provide. If the IESO is willing to accept a certain format of data having a certain level of integrity, don’t necessarily need LDC provided data that is recovered through the rate base. Should billing quality data be done at the meter or somewhere else? In order to get DR validation, it comes down to what is acceptable from a data perspective in order to validate that you have reduced your load?   + Data belongs to customer, utility should not be storing this amount of data for the customer just in case. This data does not exist with existing systems. Good compromise is for industry to make a common provision to give data on a common format.   + Data should be stored and retained at home by the customer if they want to make use of it. today, that data can’t be generated at all, as meter does not allow for it   + Yes, or either given to a service provider that they give access to the data to. Don’t need an investment of all rate payers to get this data if aggregators do it. Don’t actually need utilities to store data or for customers storing data all the time if they don’t want to   + Real-time data access, in a common standard and common format so any 3rd party provider does not need to deal with multiple formats and data files.   + They all generate to a common format, they all generate hourly data for billing purposes   + Should be thinking about a common technology to get into the home, zigbee, other. If I was a 3rd party, wouldn’t want to work with different standards for getting into home   + This would be like picking a technology and a winner and we don’t want to go there     - IESO: Talked about deferring to the evolution of interoperable standards and not picking winners in Ontario to be flexible. I think it was recognized there is a standardization for interoperability standards, but not about picking winners     - We spent a lot of money installing the current generation of SM. If we replace them to a new standard that meets new expectations and standards we would struggle to provide services that we can’t provide with meters we have already bought. We are making capital commitments with long life assets but there is tension because you can’t provide all new services with previous equipment     - If we tweaked the meter add-ons or replacements would need to be in rate base. True billable quantity is something that is not provided – we provide a copy of that. It wouldn’t be dollars x instantaneous rate, it’s just kwh.     - This would have to be acceptable to the other agencies as well, IESO etc. needs to be something that is usable by all parties. * The agent in trust – when you have a problem with heat you go to the gas company, problem with electricity you go to LDC. LDC needs to be a big part of change as the LDC is the first link to that customer. |

***Network Optimization and Long Term View of Investment***

**Key observations from the discussion:**

1. In Rates Applications it is important to recognize the benefits of foundational and transformative investments that cut-across different areas such as communication network investments.
2. To improve operations it is important to take advantage of the increasing data to which utilities now have access thanks to smart meters etc.

**Discussion notes:**

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| ***Group 1*** *(utilities, consumer groups, and agencies)* | * For all the points to happen within utility, need to have a fairly sophisticated communication as part of SG. Need a high bandwidth, low leak system. This is a major change compared to current system * Lot of discussion on who is going to pay for this. Think of complexity of loads of DG, who pays for this? Understanding the total cost for facilitating this. Capacity upgrades for HONI, utility upgrades in control room and communication systems. These costs are going to need to be socialized across the rate base in order to make it viable to assess. Can’t do an NPV calculation for this type of investment and have it come out positive * At distribution level, control rooms are likely to become mini IESO control rooms, become more interactive. We’ll end up balancing load and demand one or another at distribution level eventually * EV – no one knows what take up will be. But they have similar load amount as a house and they move throughout distribution system. Need to make investments to handle those contact loads * Investment on supply side and investment on customer side not forgotten and that they are treated in a balanced way. * Communications upgrade is a transformation change for LDCs. To what extent can you rely on the telco industry to help with this?   + In some cases you can rely on telcos and some cases you can’t. Went to CTRC across the country and so have been given a broadband for non-profit use of hydro sector. In US, having a big fight, telcos want it but do not want to provide reliability for limited bandwidth that LDCs need. Urban utilities could get away with using telcos as they have robust communication systems, large loads, etc. current technology of the telcos will not allow you to do protections unless you have fibres or broadband, so rural can’t do this via telcos.   + If you look at ATM transactions, does go off from time to time, drop dial tone etc. You can’t do this in the electric sector. Hard for telcos to hit .99 reliability for limited dollars. * Way we are set up in province is that it is better to own asset than have OM&A expenses against it. Better to make investments if they are ratebase-able. |
| ***Group 2*** *(vendors and utilities)* | * Steps on how system is optimized overtime is the way we have been doing things – didn’t see anything as unusual * How do we identify customer preferences and what preferences in particular. How do we bring these into a COS application? * In terms of regional technology, planning CIS web presentment may be good, and control room may be another one. Significant upgrades in the control room will be required and this would be very expensive. One way for utilities to cooperate * Advantage to owning data infrastructure, and ends up being a lot cheaper to own infrastructure ourselves rather than sourcing it to telcos, tens of thousands of $ cheaper * Comment on more efficient use of technology; collecting tons of data, may want to consider more efficient use of existing data, using it better * Making use of existing data could go a long way to presenting more data for customers. |
| ***Group 3*** *(vendors, utilities, a consumer group and an agency)* | * Reliability and DG central to discussion, with respect to feeder segmentation * Reliability – what is economic value of reducing outages or doing it more quickly? * Know that data would be valuable, and can’t always know the value of the data. So how do you make a case for an investment when you don’t know the long term value of data? * $42M in fuel consumption, saving 10% is a large amount if dispatch can be reduced. When storms come through, benefits by being able to ping a meter before the crews come back. Communication and visibility is about building case, so that when you layer the apps on top, you eventually get a positive NPV * Once you know load shape of smart meter, don’t need to pick a specific # for calculations. DM allows you to now more, can push system head that can be released * Missing link is communication system in smart meters. Need real time communication platform. Mesh networks that are not quick enough and reliable enough and cannot flow enough information in an outage * Suppose an LDC was looking into making enhancements into its existing communications system   + Can quantify more direct identification of outages. Quantifying customer satisfaction in terms of knowing that we know there is an outage   + Piloting a smart transformer to test ability to get a real time signal to control room. Use this as a predictive tool as to what is the upstream device is off and get the crew to the right location before the customer picks up the phone. Also helps with EV and theft of energy   + We concentrated (metering transformers) on an area in North York where we had more than one type of device, wanted them in same area so we could have crews experience. Also have group initiated with other utilities to share our experiences and learn from our colleagues. We have the 8 largest urban utilities in the province and to share experiences and learn from each other * One of the reasons we are doing our own pilot is to really understand the communication aspect as we don’t have a lot of expertise. Trying to gain knowledge in this area. Put a challenge out to vendors that this meter and communication platform can’t cost what it is currently costing. If costs don’t drop, we can’t put smart meters / communication systems on all distribution transformers * Opinion is that AMR system will ride on the SG communication platform. One day we will move away from the mesh and move to SG platform * BOMA was indicating for some of his clients that a number representing benefits is just plugged in. Board could do this and say, individual distributors filing should survey available literature and come up with a number. Other approach could be a scenario analysis. How large would environmental benefits need to be to justify the gap?   + And how big of a gap should they be able to fill   + Benefits lie outside the wires business in most cases. Generators because they can collect more, etc. * On customer side, everything now is incremental as SM have already been rolled out. Big task is the backlog of DG connections. |

***Innovation***

**Key observations from the discussion:**

1. Utilities can best support innovation by providing support for companies seeking to pilot, demonstrate and/or commercialize their products.
2. It may be useful to somehow pool or aggregate funds for innovation to provide more flexibility in the projects that may be undertaken (acknowledging that some will be successful while others will fail).

**Discussion notes:**

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| ***Group 1*** *(utilities, consumer groups, and agencies)* | * Balancing innovation and risk are at odds. * Innovation is accepting good products that the market puts forward rather than developing those products on their own. This could include tweaking and proving the market products. * HONI is one of the few utilities that seem to have specific R&D funds set aside. This could be useful for all utilities, a standard % of revenue set aside for innovative projects. * Not all projects will be successful, so failure should be an accepted part of performing R&D. * Option 1 is likely better to enable the quick roll out of projects, not waiting for capital plans to be approved. * May be a 3rd option that would increase innovation while providing enhanced security in terms of cost recovery. * An R&D fund or smart grid fund for LDCs. Don’t want LDCs to be taking undue risk. * One of new thrusts of RRFE is greater emphasis on regional planning. Idea came out that EDA take on a role similar to what they had 20 years ago, would there be any virtue in looking at a regional level coordination activity?   + 2 aspects. What is truly net new to our community is the so called fund and how we deal with it, either EDA or Clean Energy Institute. Other more difficult aspect is LDCs wanting to purchase different things. Differences in products that each LDC buys. If you standardize this, it is hard to balance differences in needs of groups.   + Whenever you have a procurement or standardization process, you have challenges. How does OEB know which product is better between two LDCs that pay different prices for different products (one has more services, etc.)?   + LDCs are careful across North America, Canada, and Ontario to not duplicate the pilots. EV progress, Burlington experiment etc. not duplicated. We pool our R&D money across North America. Smaller LDCs are left out all the time - need a mechanism to bring them in   + Agree that a collective approach to bring LDCs together through CEI etc. Some oversight on how moneys are spent may be good as we can learn from other experiences   + Innovation is critical here. DG that is coming onto distribution grid on next 5 years is a big piece of how renewable targets are going to be advanced. These things require more innovation than is currently occurring. In terms of notion for setting aside a budget for innovation holds some merit. Too risky to innovate for some LDCs if the balance sheet isn’t large enough   + U of T policy institute showed that utilities invest the lowest as a sector in R&D   + EDA group to be involved in evaluating innovation makes sense. Not necessarily a lot of coordination or thinking about value for ratepayers   + Could we not have 3 priorities for sectors that we can all agree on for innovation? An institute could position this, create a roadmap that all stakeholders could agree to, to allow moving forward not so cautiously, etc. |
| ***Group 2*** *(vendors and utilities)* | * Innovation means enabling and integration, not the actual development * One of key areas of discussion is what is the mechanism to allow this to occur? Maybe a hybrid between 2 options: some sort of advisory board that may not be OEB but some other board, EDA, OCE, that keeps track of all innovative projects occurring and making a recommendation that project should go forward, indicating that it is likely that rates will be recovered, rather than having it sitting in the deferral account * Mandate is to maintain pulse of innovation is to share information in a public and formal way. Old MEA in 1990s did something like this but nothing like this now. If the funding is provided for these projects, it comes with a caveat that publication of results may follow * Think it’s a great idea from a customer perspective. Recognize that we don’t have the grid that we want tomorrow and we are not going to get there unless there are investments |
| ***Group 3*** *(vendors, utilities, a consumer group and an agency)* | * First asked if innovation is a sensible thing to pursue. And yes, rather than no innovation or tons of innovation, some level of innovation is sensible for utilities to pursue. * Must understand that some projects will fail. Should be some mechanism to allow for financial losses for those failed projects. * Should approach these failures in a bulk format * Innovation should be approached by an aggregate entity to avoid duplication rather than LDCs pursuing innovation individually |

***Economic Development***

**Key observations from the discussion:**

1. Four methods for utilities to support economic development were identified: maintain reasonable electricity prices (by controlling costs) in order to maintain Ontario’s attractiveness to businesses; expand the network to accommodate/encourage growth; where appropriate procure locally; and where appropriate, assist local companies in piloting, demonstrating and commercializing new products.

**Discussion notes:**

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| ***Group 1*** *(utilities, consumer groups, and agencies)* | * First thing to ask is, is it the LDC’s role to drive economic development? LDC’s get asked if capacity is available for new businesses wanting to locate in their region * What is an appropriate measure for economic development? Not sure. One measure is jobs, but does it truly capture the benefit of an investment? Is it gross vs. net jobs, what does it and does not include. But with SM, you reduce need for jobs for meter readers. Is this a loss of economic development because jobs are lost, or is it facilitating later economic development * Discussed what would encourage a business to invest anywhere. Low electricity prices, which talks to keeping costs low vs. driving investment in the sector. Businesses will be attracted to areas that have stable and reliable electricity. Distributors should look to ways enhance reliability * Other opportunities for possible economic development is education, linking to younger generations, need to avoid loss of skills that could impact sector going forward and negatively impact economic development * Should take advantage of opportunities for partnerships with academic institutions for economic development opportunities for SG projects * How do we look to businesses that have exportable products, is there a way to make these companies more stable without getting into WTO issues? |
| ***Group 2*** *(vendors and utilities)* | * How do LDC’s promote economic growth and specifically SG? If we promote SG at an accelerated rate as a province, should give us some edge as companies needing higher reliability may stay to grow here * However, overall cost is more important, as reliability is just a small part of cost * Linkages of economic development and innovation will help drive econ development. Companies in Ontario providing services to companies in Ontario, and then having ability to expand outside of Ontario to provide these services. Not so much utilities doing innovation / econ development, but utilities being more of a place to showcase innovation * SG in itself is driving efficiency. Efficiency should drive reduced costs. If SG is only layering costs to consumer for better quality or better response times from a service perspective, this may not be enough to drive any economic benefit. People’s expectations are that ‘I am already paying highest rates in North America’ so they expect high service in any case. Economic development should reduce cost to ratepayers to incent companies to invest here * Energy is a commodity for some industries such as mining, smelting etc. North Carolina has 2x energy costs as here, but lots of great companies are locating there. Other things are driving economic development. Losses in automotive sector is drowning out gains in this sector. Green jobs are growing in a limited way, but are paving the way for the future, need to separate this from automotive, as automotive jobs may have been lost anyway * Directive does reference explicitly that innovative solutions should drive economic development from Ontario-based services * Energy is a big subject around the world today. Every time we go on a trade mission, recipient on other end is looking for best practices, and then looking into supply chain. Need to lead with public sector. Biggest anchor around Samsung is KEPCO. Samsung is just the supply chain, KEPCO will be driving the change. I don’t believe that industry can lead exports in the energy sector, needs to be public issues * Partnering smaller companies with global ones, such as Temporal Power with Emerson. * Former AMEC and Ontario Hydro International created a whole industry around selling products around the world. Point of HONI is that it is a good role for governments to play oversees. This may be an area for government to lead if government driven investment in new technologies could be taken outside of Ontario via trade missions etc. to drive economic development etc. |
| ***Group 3*** *(vendors, utilities, a consumer group and an agency)* | * Discussed finding a balance of when you should spend more of ratepayers money to provide a service locally from local sources. Don’t know where it would be appropriate to draw the line * How would the board take to a proposal to take higher rates to have a higher local requirement * A price premium for local development is hard to justify. If there are better and cheaper products from other jurisdictions, why do rate payers need to subsidize? * There are benefits to utilities in having an ecosystem of companies, to harness meet operational goals. |

***Privacy and Cyber-security***

**Key observations from the discussion:**

1. Without cyber-security there is no privacy and both are crucial.
2. Implementing and auditing security measures are good opportunities for LDCs to work cooperatively in order to reduce costs.
3. Except in so far as third parties may be bound by contractual obligations with utilities to ensure security of data etc., utilities should not be responsible for security or privacy beyond the boundaries of their own systems. Likewise, connection points to share information with authorized third parties/customers should operate one way – from the grid into the home – to avoid opening the grid to further risk.

**Discussion notes:**

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| ***Utilities*** | * (*re: who enforces standards in Ontario*) FERC comes to NERC, and NERC’s proxy is the OEB. * What do we file and where do we take cover? * Part of a group of LDCs that works to make sure security in AMI etc. Shocking number of LDCs in Ontario that do not have cybersecurity policies. * Need for control, automation, AMI to put a peg around something such as NIST. Maybe we should just accept an audit certificate and take that as assurance as long as we get it done in 5 years. Becomes part of a financial audit. By not having an anchor around a standard is like having nothing at all. * At the moment we do not have a cybersecurity policy and can see importance of having one. If this was rolled out as a requirement, certain LDCs would be looking for guidance, implementation plan, cost recovery, etc. This would need to be developed before things are rolled out. * Hard to argue against security and privacy, all companies need to have something like this in place to have prudent business. If utilities fight against this, they are not working in their best interest. I believe most LDCs will accept this. * Believe EDA can play a part in separating big, medium, and small. Don’t believe it will be regional - it will be more based on number of communication / security breach points. EDA can play this part easily. * If IESO looks into DG at some point, we would provide some assurance that our systems are secure. It would be a huge task to get folks together for assurance. * Don’t want meter to go through mesh into house. Would rather just jump into house directly. Keeping house isolated would be more prudent than enabling connection to wider networks. Having meter data encrypted does have a benefit in terms of cybersecurity. * Should be a one way push of data into house. Would be nervous of any suggestion that anything inside the home can reach back into the meter. * Is theOEB going to impose a cybersecurity SQI? * Should extend privacy by design, believe it works really well. |
| ***Technology Vendors*** | * Just think it’s necessary. Who would guide use of NIST, etc.? * Would OEB typically accept a rate filing that includes funds used to ensure cybersecurity and privacy in network as long as it’s prudent? * Does this apply to smaller LDCs? Do smaller LDC’s have cybersecurity etc.? * Will be increasing rates to rate payers to increase security. |
| ***Agencies*** | * NIST is being looked at in the US as the de-facto standards developer. Believe the OEB’s role to be authoritative and consultative. National security issues with Public Safety Canada and D&D involved. Not one party to play, but need a conversation to discuss who is doing what, including the IESO. * Is there a good understanding in the sector of what the threats are? Is there an assessment of what the potential dangers are? * Perhaps a good area where OEB could play a role in facilitating information sharing across sector between federal regulators, encouraging cross-border information sharing, etc. Criticism of executive order of US around cybersecurity is that it is too prescriptive. Maybe a threat based approach is more appropriate than a standards-based approach. Need to hold a discussion in terms of information sharing on threat vectors. * How will small LDCs react to having to have security and privacy as a condition of license requirement? * Policies put on LDCs should be based on risk affecting the LDCs. Not all need to have the same policies put on them as they face different risks. * On smart homes, devices that are IP enabled and linked to Home Area Network, this is a grey area. The device is dually linked to meter / grid and the internet and can be accessible to other channels. Any thoughts around that? |

***Next Scheduled Meeting:***

* November 29, 2012