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VIA RESS FILING AND COURIER

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Dear Ms. Walli

Re: Renewed Regulatory Framework for Electricity Transmitters and Distributors – Establishment, Implementation and Promotion of a Smart Grid in Ontario (EB-2011-0004)

The Power Workers' Union ("PWU") represents a large portion of the employees working in Ontario's electricity industry. Attached please find a list of PWU employers.

The PWU is committed to participating in regulatory consultations and proceedings to contribute to the development of regulatory direction and policy that ensures ongoing service quality, reliability and safety at a reasonable price for Ontario customers. To this end, please find the PWU's comments on the RRFE's initiative on the Establishment, Implementation and Promotion of a Smart Grid in Ontario, EB-2011-0004.

We hope you will find the PWU's comments useful. Yours very truly,

PALIARE ROLAND ROSENBERG ROTHSTEIN LLP



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(1934 - 2006)

List of PWU Employers

Algoma Power
AMEC Nuclear Safety Solutions
Atomic Energy of Canada Limited (Chalk River Laboratories)
BPC District Energy Investments Limited Partnership
Brant County Power Incorporated
Brighton Beach Power Limited
Brookfield Power – Mississagi Power Trust
Bruce Power Inc.
Atlantic Power - Calstock Power Plant
Atlantic Power - Kapuskasing Power Plant
Atlantic Power - Nipigon Power Plant
Atlantic Power - Tunis Power Plant
Coor Nuclear Services
Corporation of the City of Dryden – Dryden Municipal Telephone
Corporation of the County of Brant, The
Coulter Water Meter Service Inc.
CRU Solutions Inc.
Ecaliber (Canada)
Erie Thames Services and Powerlines
ES Fox
Great Lakes Power Limited
Grimsby Power Incorporated
Halton Hills Hydro Inc.
Hydro One Inc.
Independent Electricity System Operator
Inergi LP
Innisfil Hydro Distribution Systems Limited
Kenora Hydro Electric Corporation Ltd.
Kincardine Cable TV Ltd.
Kinectrics Inc.
Kitchener-Wilmot Hydro Inc.
Lake Superior Power Inc. (A Brookfield Company)
London Hydro Corporation
Middlesex Power Distribution Corporation
Milton Hydro Distribution Inc.
New Horizon System Solutions
Newmarket Hydro Ltd.
Norfolk Power Distribution Inc.
Nuclear Waste Management Organization
Ontario Power Generation Inc.
Orangeville Hydro Limited
Portlands Energy Centre
PowerStream
PUC Services
Sioux Lookout Hydro Inc.
Sodexo Canada Ltd.
TransAlta Generation Partnership O.H.S.C.
Vertex Customer Management (Canada) Limited
Whitby Hydro Energy Services Corporation

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Establishment, Implementation and Promotion of a Smart Grid

Submission of the Power Workers' Union

1 INTRODUCTION

On December 17, 2010 the Ontario Energy Board (“OEB” or “Board”) initiated a consultation on the development of a Renewed Regulatory Framework for Electricity transmitters and distributors (“RRFE”). The Board’s November 8, 2011 Notice states that the Board’s objective for the RRFE is to “encourage and facilitate greater efficiency through a focus on performance-based outcomes and a disciplined, long-term approach to investment planning” to help ensure the reliable and cost-effective delivery of electricity to Ontario consumers.

According to the November 8, 2011 Notice, the RRFE is to be based on the following guiding concepts:

- **The pursuit of economic efficiency;**
- **Maintenance of an appropriate level of reliability and quality of service for the benefit of current and future consumers;**
- **Consideration of the timing and pattern of expenditures and the corresponding recovery of the associated costs so as to help manage rate and/or bill impacts; and**
- **Continued opportunity to earn a fair return on capital and to increase earnings in circumstances where performance exceeds established standards.**

The framework should be predictable and understood by stakeholders, and capable of being implemented through efficient and effective regulatory processes.

The consultation consists of five initiatives, one of which is on *Establishment, Implementation and Promotion of a Smart Grid in Ontario*, EB-2011-0004 (“Smart Grid”). The Board’s November 8, 2011 Notice states that the Smart Grid initiative is intended “to ensure that the development and implementation of a smart grid within

Ontario achieves the objectives set out in a November 23, 2010 Minister's Directive (the "Directive") to the Board with regard to "guidance and direction to the Board as to the principles and objectives which must be met in order to fully achieve the Province's objectives related to the Smart Grid in a cost-efficient manner" ("Guidance"). In developing the Guidance and evaluating the utilities' smart grid activities the Directive states that the OEB shall be guided by the following government policy objectives:

- (i) **Efficiency:** Improve efficiency of grid operation, taking into account the cost-effectiveness of the electricity system.
- (ii) **Customer value:** The smart grid should provide benefits to electricity customers.
- (iii) **Co-ordination:** The smart grid implementation efforts should be coordinated by, among other means, establishing regionally coordinated Smart Grid Plans ("Regional Smart Grid Plans"), including coordinating smart grid activities amongst appropriate groupings of distributors, requiring distributors to share information and results of pilot projects, and engaging in common procurements to achieve economies of scale and scope.
- (iv) **Interoperability:** Adopt recognized industry standards that support the exchange of meaningful and actionable information between and among smart grid systems and enable common protocols for operation. Where no standards exist, support the development of new recognized standards through coordinated means.
- (v) **Security:** Cybersecurity and physical security should be provided to protect data, access points, and the overall electricity grid from unauthorized access and malicious attacks.
- (vi) **Privacy:** Respect and protect the privacy of customers. Integrate privacy requirements into smart grid planning and design from an early stage, including the completion of privacy impact assessments.
- (vii) **Safety:** Maintain, and in no way compromise, health and safety protections and improve electrical safety wherever practical.
- (viii) **Economic Development:** Encourage economic growth and job creation within the province of Ontario. Actively encourage the development and adoption of smart grid products, services, and innovative solutions from Ontario-based sources.
- (ix) **Environmental Benefits:** Promote the integration of clean technologies, conservation, and more efficient use of existing technologies.
- (x) **Reliability:** Maintain reliability of the electricity grid and improve it wherever practical, including reducing the impact, frequency and duration of outages.

On November 8, 2011, the OEB released a staff discussion paper entitled *Staff Discussion Paper in Regard to the Establishment, Implementation, and Promotion of a Smart Grid in Ontario*, EB-2011-0004 ("SG Discussion Paper") that solicits comments on issues to be considered by the Board in providing guidance on the establishment,

implementation and promotion of the Smart Grid. The Board formed a working group (“SGWG”) to assist it in the development of the guidance. The SGWG’s advice is documented in the SG Discussion Paper.

2 POWER WORKERS’ UNION’S VISION AND CONTEXT FOR THE RRFE

The Power Workers’ Union (“PWU”) appreciates the opportunity provided by the Board for stakeholders to share their views on issues related to the RRFE. The PWU’s views on the RRFE stem from its energy policy statement:

Reliable, secure, safe, environmentally sustainable and reasonably priced electricity supply and service, supported by a financially viable energy industry and skilled labour force is essential for the continued prosperity and social welfare of the people of Ontario. In minimizing environmental impacts, due consideration must be given to economic impacts and the efficiency and sustainability of all energy sources and existing assets. A stable business environment and predictable and fair regulatory framework will promote investment in technical innovation that results in efficiency gains.

The PWU’s vision for a sustainable and long-term regulatory regime for the electricity utilities is one that focuses on customer value and establishes appropriate and transparent incentives based on Ontario utility data to achieve performance levels that align with customer expectations.

To achieve this vision it is necessary to recognize customer value as the key input to the regulatory framework. This key input would be obtained through robust customer Willingness to Pay (“WTP”) surveys that will establish the utilities’ service quality (i.e. customer service and system reliability) standards and provide the context for the utilities’ network investment planning and the regulatory framework.

The OEB and utilities will need to educate customers to build an understanding of the value and cost of electricity services and the impact of Government energy policy on them. Customer WTP surveys will form the basis for utilities’ asset management and investment planning thus incorporating customer value into the utilities’ determination of service quality standards and cost. Regulatory incentives and benchmarking based on empirical analysis of Ontario utility data would be used to achieve service quality

and total cost performance. Standards for asset management best practices would ensure system sustainability while mitigating time and cost of regulatory review processes. To enhance the sustainability of the regulatory framework, issues that utilities are or will face (e.g. aging assets, aging workforce) should be addressed expeditiously. The framework needs to recognize that customers are unlikely more able to accommodate rate increases in the future than they are today and that postponing maintenance and capital investments to mitigate rate increases today compromises future service quality and results in higher future rate increases. Therefore bill impact mitigation will be limited to *ex-post* mitigation.

The PWU addresses the Board's guidance on the *Establishment, Implementation and Promotion of a Smart Grid in Ontario* in the context of its vision and context for the RRFE set out above. In addition the PWU provides input on the questions posed in the SG Discussion Paper.

3 BOARD GUIDANCE ON THE DEVELOPMENT, IMPLEMENTATION, AND PROMOTION OF THE SMART GRID

While the SG Discussion Paper seeks comments from stakeholders on issues to be considered by the Board in providing Guidance to the utilities on the development, implementation, and promotion of the Smart Grid, the PWU observes that it does not set out a Smart Grid Framework ("SG Framework") from which the Guidance would emanate.

In the PWU's view, as a first step, the Board needs to articulate its interpretation of what the Directive makes the Board responsible for with regard to the Guidance, the expected outcome of the Guidance, and action the Board must take with respect to the development and implementation of the Guidance. This would need to be considered in the broader context of a province-wide SG Framework that would establish:

-
- A vision;
 - A roadmap;
 - A Smart Grid Implementation Plan;
 - The cost and benefits of the plan; and,
 - Central coordinator for the plan.

3.1 Smart Grid Vision and Roadmap

A province-wide smart grid vision and roadmap with milestones, timelines, and minimum standards and functionality should provide the context for the Board's Smart Grid initiative.

In a February, 2009 report entitled *Enabling Tomorrow's Electricity System*¹ the Smart Grid Forum ("SG Forum") made recommendations that "reflect the central belief that Ontario should develop a smart grid to improve the prosperity of its citizens, the performance of its electricity system and the environment." The SG Forum forwarded its position that the "rapid development of a smart grid to benefit electricity consumers and advance environmental initiatives should be the policy of the Province of Ontario". The SG Forum set forth the following vision:

Smart grid is the term applied to tomorrow's electricity system. It encompasses a variety of changes that will transform the way electricity is used, delivered and produced, and result in a cleaner more efficient and more interactive electricity system. It represents a paradigm shift for electricity much in the way that cell phones transformed communications. The concept is broad; it stretches beyond modernization of the transmission and distribution grid to include devices that allow consumers to better manage their electricity use, new ways of creating and storing electricity, and the widespread adoption of electric vehicles.

Ontario's move to a culture of conservation and its substantial commitment to renewable energy will also be supported by the smart grid. Smart meters, a major smart grid component, can give consumers timely information on price and consumption. Emerging devices will empower consumers to act on this information automatically while at the same time improving their energy efficiency, comfort and convenience. New sensing, monitoring, protection and control technologies will enhance the ability of the grid to incorporate renewable generation.

¹ IESO. *Enabling Tomorrow's Electricity System*. Report of the Ontario Smart Grid Forum. Page 6 http://www.ieso.ca/imoweb/pubs/smart_grid/Smart_Grid_Forum-Report.pdf

The institutional structure of the electricity industry makes it easy to look at how the smart grid will impact each piece of the system in isolation, but the most profound impact of a smart grid may be its ability to link these pieces more closely together. In Ontario we have numerous distribution utilities, one large transmission company and a few smaller ones; one large generating company and many smaller ones. The province has a system/market operator and a corporation responsible for longer-term system planning, and procuring electricity supply and demand resources. While the smart grid will affect each of these segments in different ways, it will affect all of them by increasing their ability to work together to better serve consumers.

In its May 2011 report the SG Forum presented an Ontario Smart Home Roadmap (“Home Roadmap”) for home technologies and services enabled by the smart grid over the next 5, 10 and 20 years with the following vision statement:

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.

There is no reference in the SG Discussion Paper either to the SG Forum’s vision or Home Roadmap and it is therefore unclear whether the Board is adopting them in carrying out the Directive. The SG Forum report links the Minister of Energy’s recognition of the SG Forum’s principles and objectives to the Directive’s principles and objectives. It would be reasonable therefore for the Board to adopt the SG Forum’s vision and Home Roadmap.

3.2 Smart Grid Implementation Plan

The PWU submits that the Guidance should emanate from a Smart Grid Implementation Plan (“Implementation Plan”) that embodies a Smart Grid vision and roadmap, and provides for the coordinated development and implementation of the utilities’ Smart Grid Plans (“SG Plans”) into an integrated province-wide smart grid. The Implementation Plan would set out minimum technical, operational and process standards determined in consideration of the benefits associated with the standards. This will help in coordinating the development of a smart grid that functions as an integrated whole while addressing the Directive’s objectives. In addition such an

Implementation Plan will allow for an efficient regulatory review process for the utilities' SG Plans.

In the Smart Meter initiative the Minister issued a Directive ("Smart Meter Directive") that required the Board to develop an implementation plan for the achievement of the Government of Ontario's smart meter targets.² In response to the Smart Meter Directive the Board initiated a consultation on an implementation plan that would identify: mandatory technical requirements for smart meters and distributor support operations; set priorities; cost recovery regulatory mechanisms; and mitigate barriers.³ The outcome was a Smart Meter Implementation Plan that proposed a basic smart meter system and included proposals and considerations on: the rollout of smart meters; parties responsible for the implementation process; impact on customers; and, costs.

The OEB's development of an implementation plan in the absence of an explicit Minister's Directive has precedence in the Board's proactive development of Ontario's Retail Market Readiness Plan.⁴

The SG Forum's Home Roadmap focuses on home technology and services that address the Directive's Customer Control Objectives related to: access; visibility; control; participation in renewable generation; choice; and education. The Implementation Plan would also need to address the Directive's Power System Flexibility Objectives and Adaptive Infrastructure Objectives. The Power System Flexibility Objectives address flexibility as it relates to: enabling distributed renewable generation; visibility of network conditions related to siting and operating of distributed renewable generation; improved control and automation to promote distributed renewable generation; and, maintaining/improving power quality. The Adaptive Infrastructure Objectives address: smart grid flexibility to support innovative

² July 14, 2004 Directive from the Minister of Energy to the Chair of the OEB.

http://www.ontarioenergyboard.ca/documents/cases/RP-2004-0196/smartmeters_directiveJuly14_190704.pdf

³ OEB. EB-2004-0196. July 19, 2004 Letter. http://www.ontarioenergyboard.ca/documents/cases/RP-2004-0196/smartmeters_initiationletter_190704.pdf

⁴ OEB. Framework for OEB's Retail Market Readiness Plan. December 20, 2000. http://www.ontarioenergyboard.ca/documents/cases/market_readiness/framework.pdf

applications (e.g. electrical vehicles and storage); compatibility to minimize stranded assets and incorporate modularity, scalability and extensibility; innovation; and maintaining the pulse on innovation.

An example of such a roadmap is the Electricity Networks Strategy Group's ("ENSG") Smart Grid Routemap.⁵ The ENSG is a forum of key electricity network stakeholders chaired by the U.K.'s Department of Energy and Climate Change and the Office of Gas and Electricity markets ("Ofgem") that supports the U.K. government and Ofgem in meeting long-term energy challenges on climate change and ensuring secure clean and affordable energy. ENSG identifies and coordinates work to address the transition of electricity networks to a low carbon future.

Once an Implementation Plan has been developed, guidance and regulatory review processes can be developed that will ensure the consistency of the utilities' SG Plans with the provincial Implementation Plan.

Indeed, in a May 2011 report the SG Forum made the following observation on the need for a provincial SG Plan:

... The Forum found that the level of smart grid investment was insufficient and that there was no comprehensive provincial plan in place to coordinate such investments. It recognized that alignment, from the start, with security and technology standards would be crucial to such a plan.⁶

3.3 Smart Grid Minimum Standards and Functionality

In its May 2011 report the SG Forum identified six broad issues that need to be addressed to overcome potential barriers to the development of the Smart Grid. One of these issues relates to standards:

As the smart grid develops, technical, operational and process standards become increasingly important to its various pieces, as well as the advanced communications systems that connect them. The Forum's Corporate Partners Committee emphasized the need for Ontario utilities to embrace and seek

⁵ Electricity Networks Strategy Group. A Smart Grid Routemap. February 2010. http://webarchive.nationalarchives.gov.uk/20100919181607/http://www.ensg.gov.uk/assets/ensg_routemap_final.pdf

⁶ IESO. Modernizing Ontario's Electricity System: Next Steps. Second Report of the Ontario Smart Grid Forum. May 2011. Page 9. http://www.ieso.ca/imoweb/pubs/smart_grid/Smart_Grid_Forum-Report.pdf

development of North American-wide standards and codes for smart grid infrastructure and technologies. Open, broadly accepted standards will encourage third-party innovation, promote competition, give confidence to investors, and could ultimately lead to more affordable, reliable and interoperable products for new market entrants and electricity consumers. This can be a challenge for jurisdictions such as Ontario. By taking an early lead on smart grid development, they risk making large infrastructure investments before standards have sufficiently matured.⁷

The need for standards holds true not just for Ontario's province-wide smart grid relative to other jurisdictions, but also to smart grid standards of an individual Ontario utility relative to other Ontario utilities.

As pointed out in the SG Discussion Paper almost all of the Directive's objectives can be addressed through threshold requirements and "can be largely achieved by requirements that either regulate conduct or through the assessment of information submitted as part of planning filings indicating that certain procedures have been followed or any required standards met". Including minimum standards in the Implementation Plan therefore can help in realizing the Directive's objectives

3.4 Central Coordination

The SG Forum identified coordination at several different levels as key in developing a smart grid that functions as an integrated whole. The Directive also addresses the need for coordination:

In furtherance of the government's policy objective as described in item (iii) of paragraph 4 above, the Board shall undertake a consultation process with licensed electricity distributors and other relevant stakeholders for the purpose of developing a regional or otherwise coordinated approach to the planning and implementation of smart grid activities by licensed electricity distributors that promotes coordination amongst them having regard to, among other things, cost-effective outcomes.

⁷ IESO. Modernizing Ontario's Electricity System: Next Steps. Second Report of the Ontario Smart Grid Forum. May 2011. http://www.ieso.ca/imoweb/pubs/smart_grid/Smart_Grid_Forum-Report.pdf

While an Implementation Plan will facilitate the coordination of the planning and implementation of smart grid activities, a central coordinating body will be required to coordinate the implementation of the plan.

The SG Discussion Paper notes that the SGWG members suggested the establishment of a central coordinating body to facilitate coordination at the hardware level as well as in the integration and deployment of investments. If the OEB does not consider itself to be the appropriate agency (e.g. Hydro One) to fill this role, it should raise the need for the appointment of a smart grid central coordinating body with Government and other electricity sector agencies.

3.5 Workforce Smart Grid Training

In its February, 2009 report the SG Forum identified the need to integrate the development of workforce training in deploying smart grid technology in order to realize the potential of these technologies:

.... Integrating the development of workforce training and appropriate processes with the deployment of technology is also necessary....⁸

The potential of smart grid technologies will only be realized if they are operated by skilled employees and feed into processes designed to take full advantage of the new technologies. Ontario must continue to educate and train employees who are capable of designing, developing and operating the smart grid. Together, technology, people and processes will permit the realization of a modern electricity system that benefits all Ontarians.⁹

The U.S. Department of Energy includes workforce development as a key activity in its Smart Grid strategy:

Workforce Development intends to address the impending workforce shortage by developing a greater number of well-trained, highly skilled electric power sector personnel knowledgeable in smart grid operations. ...¹⁰

⁸ IESO. Enabling Tomorrow's Electricity System. Report of the Ontario Smart Grid Forum. Page 43 http://www.ieso.ca/imoweb/pubs/smart_grid/Smart_Grid_Forum-Report.pdf

⁹ IESO. Enabling Tomorrow's Electricity System. Report of the Ontario Smart Grid Forum. Page 3. http://www.ieso.ca/imoweb/pubs/smart_grid/Smart_Grid_Forum-Report.pdf

¹⁰ <http://energy.gov/oe/technology-development/smart-grid>

The PWU submits that it is essential that an Implementation Plan include deliverables on staff education and training and workforce development in order for the smart grid technologies to be realized. To this end, the SG Discussion Paper notes that *the Board's Filing Requirements: Distribution System Plans – Filing under Deemed Conditions of Licence* (“DS Filing Requirements”) has already established deferral accounts for Smart Grid technology demonstration expenditures as well as Smart Grid education, training and studies.

3.6 Electric Vehicle Integration

The SG Discussion Paper assumes that there is a “substantial” amount of time to address electric vehicle (“EV”) grid infrastructure challenges and forwards the SGWG’s consensus, supported by Board staff’s discussions with several auto manufacturers that EV uptake will likely occur at a “fairly slow rate – if hybrid vehicles are any indication”. However, in its May 2011 report the SG Forum points out that almost all the major and some new auto manufacturers plan to introduce EV models over the coming few years and that some already have. According to the report General Motors and Nissan were expected to launch EV models in Canada in late 2011 and Tesla Motors was already selling luxury EV models in Ontario. There were two ongoing pilot studies in Ontario and a number of EV charging stations had been installed at spots around southern Ontario to support the pilot studies. The report also referenced new research from McKinsey, a global consulting company, that indicates that EV could represent about 5% to 16% of new car sales by 2015 in large urban areas such as New York and Paris and that some communities in large southern Ontario cities may see similar uptake. The Ontario government’s vision is for one out of every 20 cars on Ontario roads powered at least in part by electricity in 2020. The report also notes research out of the University of Waterloo that indicates that while EV are expected to have “meaningful impact” on the grid in three to five years, and

that stress points could manifest themselves earlier should high-density clusters of EV uptake develop in certain areas.¹¹

Given the current lack of an Implementation Plan, by the time the development of an implementation plan is initiated, the “substantial” amount of time identified by the SGWG to address EV grid infrastructure issues will likely have contracted considerably given the information provided in the SG Forum report. Indeed the Home Roadmap includes the establishment of standards for smart home technologies for EV in 2015 and one in 20 cars as electrically powered in 2020. Unless there is recent evidence that justifies an adjustment to the Home Roadmap, an Implementation Plan should be consistent with the Home Roadmap to ensure that there is one common provincial SG Plan that parties coordinate efforts on and in this case, in particular with regard to the development and uptake of EV.

4 REGULATORY TREATMENT OF SMART GRID INVESTMENTS

4.1 Utility Network Investment Plan

The SG Discussion Paper sets out two models for the regulatory treatment of smart grid investments in rate setting: (A) the smart grid is an evolution of the modernization of the grid; or, (B) the smart grid is a collection of distinct technologies that are separate from the “traditional” grid. The PWU proposes a third model for the Board’s consideration that is a hybrid of (A) and (B) (“Hybrid Model”).

In its May, 2011 report the SG Forum noted that the utilities have been challenged in trying to keep up with the high levels of demand, highlighting the need to accelerate investment in grid renewal and expansions. The SG Forum suggested that the

¹¹ IESO. Modernizing Ontario’s Electricity System: Next Steps. Second Report of the Ontario Smart Grid Forum. May 2011. Page 25. http://www.ieso.ca/imoweb/pubs/smart_grid/Smart_Grid_Forum-Report.pdf

“opportunity is ripe to introduce smart grid features and functionality to the grid as equipment is modified, replaced or added.”¹²

The PWU agrees that the ongoing need to modify, replace and add equipment to their systems to maintain/improve service reliability and accommodate growth should set the pace for the evolution of the utilities’ systems towards a smart grid vision. From a regulatory perspective evolution towards a smart grid vision that can be accomplished cost effectively as part of a utility’s asset condition management process, should be considered to be part of a utility’s basic network investment plan and not part of its SG Plan. The prudence of these costs would be established in the review of a utility’s network investment plan in its cost of service rate proceeding and not in the review of its SG Plan.

4.2 Smart Grid Plan

On the other hand, smart grid investments required to accommodate minimum standards and functionality set out in an Implementation Plan that are incremental to a utility’s basic network investment plan would be included in its SG Plan. These investments are unlikely to be cost effective in the near term.

Smart grid investments required to accommodate minimum standards and functionality to address the Directive’s Power System Flexibility Objectives that are incremental to a utility’s network investment plan and would be included in a utility’s SG Plan should be considered by the Board as an “eligible investment” for the purpose of connecting or enabling the connection of a “qualifying generation facility”. As such these costs should be allocated to all customers on the province-wide system as provided for in Section 79.1 of the *Green Energy and Green Economy Act, 2009* (“GEA”):

79.1 (1) The Board, in approving just and reasonable rates for a distributor that incurs costs to make an eligible investment for the purpose of connecting or

¹² IESO. Modernizing Ontario’s Electricity System: Next Steps. Second Report of the Ontario Smart Grid Forum. May 2011. Page 12. http://www.ieso.ca/imoweb/pubs/smart_grid/Smart_Grid_Forum-Report.pdf

enabling the connection of a qualifying generation facility to its distribution system, shall provide rate protection for prescribed consumers or classes of consumers in the distributor's service area by reducing the rates that would otherwise apply in accordance with the prescribed rules.

Distributor entitled to compensation re lost revenue

(2) A distributor is entitled to be compensated for lost revenue resulting from the rate reduction provided under subsection (1) that is associated with costs that have been approved by the Board and incurred by the distributor to make an eligible investment referred to in subsection (1).

As in the allocation of other GEA infrastructure costs the utility costs associated with its SG Plan would thus be allocated to customers province-wide rather than imposed only on the customers of the utility. Having the utilities recover SG Plan costs through their distribution or transmission rates unfairly increases the utilities' portion of the total bill amount and creates a false impression of the utilities' responsibility for the imposition of the increased total bill amounts related to the smart grid.

The remaining costs of a utility's SG Plan would be recovered through a Smart Grid Funding Adder ("SG Funding Adder"). The Board's provision of the SG Funding Adder should therefore be extended to provide advance funding for smart grid procurement and deployment in addition to the current provisions for the development of SG Plans and pilot studies as contemplated in the Board's G-2009-0087 guidelines.¹³

With the smart grid initiative's objective of realizing government policy on environmental benefits associated with electricity supply, the utilities' SG Plans should not impose financial risk on the utilities and should leave them financially whole. The Guidance therefore should include guidelines on the recovery of SG Plan costs and the issue for review of a utility's SG Plan should be limited to the SG Plan's consistency with the Guidance and cost recovery guidelines.

The Board should recognize that the distributors' systems are at different levels in their evolution towards smarter systems. While the Board has demonstrated a penchant for benchmarking, given the differences in the technological advancement of the distribution systems, attempts at benchmarking the costs of SG Plans would be excessively challenging. Unreasonable expectations as a result of flawed

¹³ OEB. G-2009-0087. Guidelines: Deemed Conditions of Licence on Distribution System Planning.

benchmarking would result in increased financial risk and eventual deterioration of service reliability as utilities re-allocate funds from system maintenance and investments to maintain ongoing service quality to smart grid investments required to respond to the Guidance. Needless to say, deterioration in the basic function of the distribution systems should not be a result of smart grid implementation.

Further, writing off assets with remaining useful life to accommodate the government's smart grid initiative will result in utility rate increases over the SG Plan implementation period. Consistent with the Board's cost recovery guidelines for Smart Meters, the Board should allow distribution assets stranded as a result of a utility's SG Plan to remain in rate base for the remainder of their prescribed depreciation cycle as a rate mitigation option.

4.3 Smart Grid Specific Services at Customers' Option

Utilities that include customer service options in their SG Plans that are above the minimum requirements set out in the Implementation Plan should recover the costs of these services from customers that value them and choose to subscribe to them through specific service charges or at actual cost. This will mitigate bill impact for customers that do not subscribe to these services. Smart grid specific services are CDM services and CDM is a core distribution function as set out in Section 29.1(1) of the *Electricity Act, 1998* and it is therefore within the distributors' legislative authority to carry out these services:

29.1 (1) Subject to section 71 of the *Ontario Energy Board Act, 1998* and such limits and criteria as may be prescribed by the regulations, a transmitter, distributor or the OPA may provide services that would assist the Government of Ontario in achieving its goals in electricity conservation, including services related to,

- (a) the promotion of electricity conservation and the efficient use of electricity;**
- (b) electricity load management; or**
- (c) the promotion of cleaner energy sources, including alternative energy sources and renewable energy sources. 2004, c. 23, Sched. A, s. 40.**

Third parties providing smart grid enabled CDM services should be required to coordinate efforts with the distributors. Facilitation of these services through the province's SG Plan can result in substantial uptake and impact the distributors' operations. The distributor needs to be aware of how these third party services might impact the system in order to keep its system balanced and maintain service reliability.

4.4 Smart Meter Investments

The Smart Meter initiative has provided for minimum functionality consisting of an advanced metering communication device, a local area network, an advanced regional collector, and an advanced metering central computer. The Board has addressed the cost recovery of these smart meter investments and as noted in the SG Discussion Paper costs are already being recovered through distribution rates. Therefore the Smart Meter investments should not be considered as part of the utilities' SG Plans. Any additional investments in smart meter functionality required to accommodate the Implementation Plan (e.g. two-way communications) however, would be included in a utility's SG Plan.

4.5 Power Quality

The SG Discussion Paper raises the issue of whether distributors should be allowed to charge increased rates for premium power quality services or if this service should be limited to competitive third parties including distributor affiliates. The Directive's objective for power quality is to:

Maintain the quality of power delivered by the grid, and improve it whenever practical.

This objective addresses the system's overall power quality and not specific consumer requirements for premium power quality. The issue raised in the SG Discussion Paper therefore does not appear to be an issue related to the Smart Grid initiative and smart grid discussions should not impact the utilities' ongoing practice of providing premium power quality services.

4.6 Consumer Technologies and Control

The SG Forum notes how the distributors' role is expanding with the provision of smart metering and smart grid requirements:

Ontario's distribution system brings electricity to the vast majority of homes and businesses in the province. Historically, the principal job of distributors has been to deliver electricity to consumers reliably and affordably. Today, this job is rapidly expanding to include the provision of smart meters, the integration of distributed generation and assisting communities and consumers in meeting their energy needs on a sustainable basis. Distributors are being challenged to perform these new functions and continue performing existing functions, all while managing costs. Smart grid development is essential if the distribution system is to meet this challenge.¹⁴

With regard to smart grid consumer technologies the SG Forum believes that consumers are best served when they have maximum opportunity to procure innovative products. In line with this belief, the SG Forum describes an approach that allows the distributors to provide these products as part of their conservation efforts consistent with the way they currently provide load control devices. The PWU agrees with the SG Forum that consumers should be able to obtain in-home energy management devices and services from their distributor.¹⁵ This maintains the status quo and precludes the introduction of new and unnecessary regulation that adds to consumer confusion and that can turn them off energy management services.

Further, the current framework for data access provisions described in the SG Discussion Paper should remain in place:

Any consumer has the right to access the "raw data" produced by the meter attached to their location and to assign this right to third parties as long as the customer compensates the LDC for any costs incurred to enable such access, specifically any additional communication or meter costs. ...

Again, changes to this framework could add to customer confusion and may in some circumstances result in inadvertent access to consumers' data by parties that the consumers did not intend to give access to.

¹⁴ IESO. Enabling Tomorrow's Electricity System. Report of the Ontario Smart Grid Forum. Page 19. http://www.ieso.ca/imoweb/pubs/smart_grid/Smart_Grid_Forum-Report.pdf

¹⁵ IESO. Enabling Tomorrow's Electricity System. Report of the Ontario Smart Grid Forum. Page 18. http://www.ieso.ca/imoweb/pubs/smart_grid/Smart_Grid_Forum-Report.pdf

5 APRIL 5, 2012 LETTER FROM THE BOARD - ATTACHMENT A: ISSUES FOR COMMENT

In this section the PWU provides comment on issues listed in Attachment A of the Board's April 5, 2012 correspondence related to an RRFE vision and context as well as on the issues listed under "Other". The PWU's comments on "Planning", "Performance and Incentives", and "Rate-setting & Mitigation" issues are provided in the PWU's submissions on those respective topics.

5.1 What is your vision for a sustainable and long-term regulatory regime?

The PWU's vision for a sustainable and long-term regulatory regime for the electricity utilities is one that focuses on customer value and establishes appropriate and transparent incentives based on Ontario utility data to achieve performance levels that align with customer expectations.

5.2 What changes would be needed to evolve planning, mitigation, and performance policies towards your vision?

To achieve this vision it is necessary to recognize customer value as the key input to the regulatory framework. This key input would be obtained through robust customer WTP surveys that will establish the utilities' service quality (i.e. customer service and system reliability) standards and provide the context for utilities' network investment planning and the regulatory framework.

The OEB and utilities will need to educate customers to build an understanding of the value and costs of electricity services and the impact of Government energy policy on them. Customer WTP surveys will then form the basis for utilities' asset management and investment planning thus incorporating customer value into the utilities' determination of service quality standards and cost. Regulatory incentives and benchmarking based on empirical analysis of Ontario utility data will be used to achieve service quality and total cost performance. Standards for asset management

best practices will ensure system sustainability while mitigating time and cost of regulatory review processes. To enhance the sustainability of the regulatory framework, issues that utilities are or will face (e.g. aging assets, aging workforce) should be addressed expeditiously. The framework recognizes that customers are unlikely more able to accommodate rate increases in the future than they are today and that postponing maintenance and capital investments to mitigate rate increases today compromises future service quality and results in higher future rate increases. Therefore bill impact mitigation will be limited to *ex-post* mitigation.

5.3 As a means of representing the Board’s vision for the regulatory framework, Board staff prepared a strawman that summarized the key elements of the regulatory framework. In providing comments on the issues the Board would be assisted if stakeholders also provided comments in relation to this vision.

The PWU opposes the following three aspects of the strawman table.

1) Feature: Performance Standards and Incentives

Model Framework: Experts retained to assess utility plans and audit utility planning processes to assess the utility’s effectiveness in prioritizing and pacing network investment with regard to bill increases to consumers.

Change: Potential for expedited review based on utility’s effectiveness in prioritizing and pacing network investment with regard to bill increases to consumers.

Utilities should prioritize and pace network investment according to its asset management plan based on asset condition assessment: not based on bill increases. While utilities do consider bill impact in investment planning, prioritization and pace of network investment should be based on the value customers place on service reliability determined through WTP surveys. Any mitigation of bill increases required should take place after (i.e. *ex-post*) such a network investment planning process and the regulatory approval process in order to ensure sustainability of the system at levels that provide for service quality performance valued by customers. Mitigating bill increases as a part of (i.e. *ex-ante*) the planning process will result in service

performance at levels below customers' expectations and that they are willing to pay for.

2) Feature: Approach to Rate Setting

Model Framework: Partial PBR - OM&A is indexed to performance outcomes and a productivity measure; capital based on approved plan is a pass-through.

Change: Sever treatment of OM&A and capital to increase pursuit of operating efficiencies and recognize significant need for capital investment.

The RRFE should provide for regulatory certainty that will provide the incentive for long term structural change and increased efficiency. Efficiencies should be driven through Incentive Regulation ("IR") on total cost. Applying IR to O&M only creates an incentive to transfer costs from O&M to Capital that incentivizes cost allocation inefficiency that results in higher costs for customers over the long term. It also creates intergenerational inequity with a disproportionate amount of costs imposed on future customers. Further, there are similar issues related to O&M related to the replacement of aging assets as there are with the need for incremental capital investments. In addition there is the significant issue of replacing an aging workforce and the need to attract additional skilled workers for the incremental work that will have significant impact on O&M.

IR on total cost plus an improved incremental capital module would be appropriate.

3) Feature: Total Bill Mitigation

Model Framework: Ex-ante and ex-post; total bill considered.

Change: Ex-ante added. Changes in all charges considered.

The PWU does not support *ex-ante* bill mitigation as it impacts the utility's business planning (e.g., investment plan, asset management) and puts at risk long term system sustainability and service at levels expected/valued by customers. It would impede the efforts required to address the significant issue of replacing aging assets and an aging workforce. To ensure a viable electricity industry the Board needs to address this urgent issue and in doing so recognize the potentially catastrophic outcome of postponing the required capital investments until such time when service reliability deterioration is evident. *Ex-ante* bill mitigation would result in the postponement of

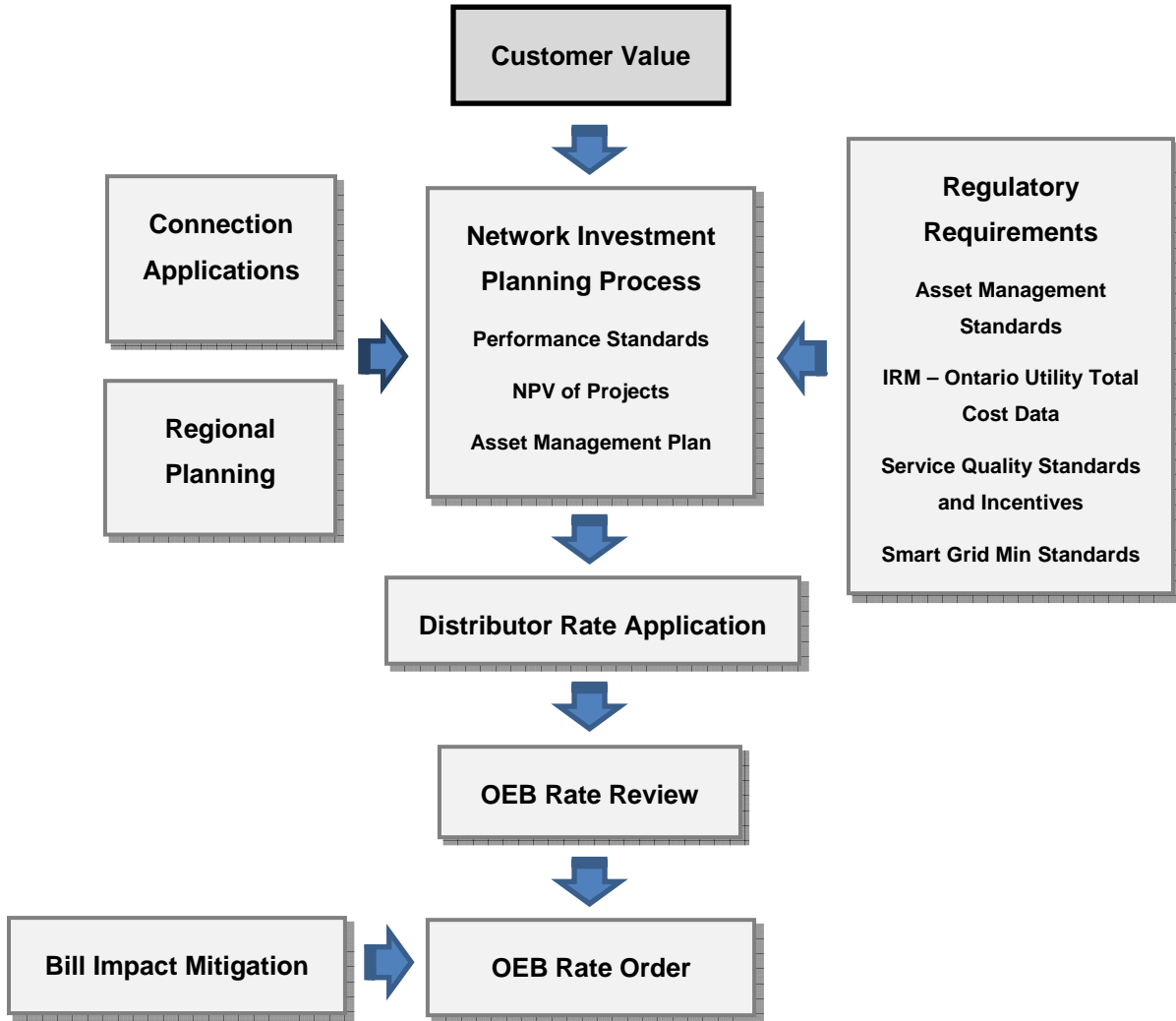
investments. The impact is exacerbated where the utility's mitigation must also address increases in bill items that are not the utility's bill items (i.e. electricity price). Utilities do consider the total bill impact of their investment plans, which they have control over. The utility should not be responsible for mitigating bill line items that it has no control over through the mitigation of its rates. Further, *ex-ante* bill mitigation exacerbates the impact of revenue disallowances that are the outcome of cost of service reviews on a utility's ability to sustain and develop the system.

The PWU position on the strawman flow chart is as follows:

- The customer expectations/value determined through WTP surveys is the start point;
- The regulatory framework would include asset management standards; total cost performance incentives (IRM) based on Ontario utility data; service quality standards and incentives; and smart grid minimum standards; and,
- *Ex-post* mitigation.

The PWU's RRFE model flow chart is illustrated below.

PWU Proposed Model



Other

5.4 In light of what you heard at the March 28-30, 2012 Stakeholder Conference, what are your priorities for the Board's development of the RRFE and how might the Board manage the transition to the renewed regulatory framework in a manner consistent with your priorities?

Priority needs to be given to the replacement of aging assets and an aging workforce within the 3rd Generation IR term. Consistent with the PWU's vision and context, for the transition to the RRFE the Board will need to:

- Work with the utilities on educating customers to build an understanding of the value and cost of electricity and the impact of Government energy policy on them;
- Conduct customer WTP surveys;
- Develop standards for utility asset management and a self-certification process for utility compliance with the standards;
- Develop service quality standards and incentives;
- Develop line loss standards, performance metrics and incentives; and,
- Develop a total cost IRM based on Ontario utility data.

5.5 Are there other key issues that should be considered in the development of the RRFE?

In developing the RRFE the Board should address the issue of what the impact of its regulation of the electricity utilities has been to date on their cost and service quality performance. This issue should be addressed through research and analysis of all the utility data that the Board has in its possession including the data the Board collected for First Generation PBR. Doing so will help the Board understand the start point for the RRFE and allow it to assess the impact of the RRFE going forward.

6 SMART GRID DISCUSSION PAPER'S ISSUES FOR COMMENT

The following are the PWU's input to the issues for comment set out in the SG Discussion Paper.

Key Issue No. 1:

6.1 Staff invites comments from stakeholders on which model is preferred: (A) the smart grid is an evolution of the modernization of the grid, or, (B) it is a collection of distinct technologies that are separate from the "traditional" grid?

The PWU proposes a model that is a hybrid between models (A) and (B) as described in Section 4.1 above. The Hybrid Model recognizes that the smart grid is the eventual result of the evolution in the modernization of the system but that the province's SG Plan requires accelerated investments relative to the evolution rate of a system based on the net present value of the investments. Further, aspects of the province's SG Plan that address province-wide supply issues would not normally be part of a distributor's network investment plan.

As a start the PWU proposes the development of a framework that encompasses a smart grid vision, roadmap and implementation plan with a central coordinator responsible for the coordination of the implementation plan. The Board's Guidance to the utilities in support of the establishment and implementation of a smart grid would emanate from the implementation plan which would set out minimum smart grid technology standards and functionality that ensures the province-wide smart grid functions as a whole and addresses the objectives set out in the Directive.

In the Hybrid Model smart grid investments that are a part of a utility's ongoing asset condition management process that addresses network service reliability and cost efficiency, would be a part of a utility's network investment plan and would not be included in the utility's SG Plan. On the other hand, smart grid investments that are incremental to a utility's network investment plan would be included in its SG Plan.

The prudence of the utility's SG Plan would be established in a review of the plan's conformance with the Board's Guidance.

Key Issue No. 2:

6.2 Does the Board staff's classification of benefits appropriately capture all the benefits of the smart grid?

While the SG Discussion Paper captures smart grid benefit considerations, the PWU submits that consistent with the SG Framework that the PWU forwards in Section 3.5 of this submission, a comprehensive assessment of the cost and benefits of the province-wide SG Plan needs to be undertaken in developing the minimum standards and functionality that are to be included in an Implementation Plan. Establishing the benefits upfront and embedding them in the Implementation Plan will facilitate the regulatory review of the utilities' SG Plans that comply with Board Guidance based on the Implementation Plan.

Key Issue No. 3:

6.3 What is the level, if any, of BTM services should the consumer expect from distributors? Should third parties other than retailers be allowed to provide BTM services? What minimum level of functionality should distributors provide for BTM applications that use distributor meter data?

The PWU believes that the issue of the level of behind the meter ("BTM") services that the consumer should expect from the distributor and the minimum level of functionality that the distributors should provide for BTM applications that use distributor meter data need to be assessed in the development of minimum standards and functionality to be included in an Implementation Plan. The issue of whether third parties other than retailers should be allowed to provide BTM services can then be assessed in terms of the minimum standards and functionality established in the Implementation Plan.

Key Issue No. 4:**6.4 What are the most appropriate considerations in setting a demarcation point or points? Should the Board set one demarcation point for all purposes or different points for different purposes?**

All assets up to, and in the case of the distributors, including the meter are owned by the utilities who are responsible for these assets and the services that the assets provide. Therefore, the demarcation point for the development of a smart grid and all other initiatives by distributors and transmitters is the meter. Further, any development that abuts the utility's system should only be carried out with its involvement so that the utility can ensure that service and safety are not negatively impacted and the utility's assets are not compromised.

With regard to CDM related behind the meter activities, given that CDM is a core distribution function, it is appropriate for distributors to be involved in all CDM related BTM services.

Key Issue No. 5:**6.5 Which model is preferred: (a) privacy and cyber-security requirements as part of the approval of smart grid plans; (b) privacy and security as conditions of licence either by licence amendments or code requirements; or, (c) a combination of both?****6.6 What guidance should the Board provide regarding evidence of co-ordination?**

Under the PWU's proposed SG Framework (see Section 3) standards for privacy and cyber-security requirements would be included in the Implementation Plan. The Board's review of a utility's SG Plan's conformance with its Guidance, which is derived from the Implementation Plan, would include the privacy and cyber-security standards.

The Board's Guidance, privacy and cyber-security standards included in an Implementation Plan and Board approval of SG Plans must ensure that any out of province systems and third-party companies directly or indirectly involved in a utility's smart grid activity are subject to all Ontario legislation relating to privacy and cyber-

security. In the absence of such a requirement the Directive's objectives for privacy and cyber-security will not be realizable.

The guidance that the Board would provide regarding evidence of coordination would be evidence on the utility's SG Plan's conformance with the Implementation Plan's coordination requirements.

Key Issue No. 6:

- 6.7 What evidence should the Board require in COS and/or GEA plans that future flexibility has been addressed?**
- 6.8 What guidance, if any, should the Board provide regarding cost recovery of technology monitoring and forecasting?**
- 6.9 Are the existing DS Filing Requirements clear enough with respect to these kind of activities?**

Under the PWU's proposed SG Framework (see Section 3) the Board's Guidance would be based on flexibility standards set out in the Implementation Plan and the evidence that the Board should require would be on the utility's SG Plan's conformance with the standards set out in the Implementation Plan.

Costs of smart grid technology monitoring and forecasting that would be incremental to that carried out for the utility's network investment plan would be recovered as part of the utility's SG Plan costs.

The *DS Filing Requirements* could clarify that technology monitoring and forecasting are included in the filing requirements on smart grid education.

Key Issue No. 7:

- 6.10 What level of materiality should be applied to applications involving smart grid investments?**

The PWU believes it is premature to set the level of materiality that should be applied to applications involving smart grid investments. In the context of the PWU's proposed

SG Framework (see Section 3), this issue would be addressed following the development of the Implementation Plan.

Key Issue No. 8:

6.11 How should the Board take cognizance of international standards processes?

Within the context of the PWU's SG Framework a central coordinating body responsible for the development of the SG Plan should remain cognizant of the developments of international standards through participation in those forums.

All of which is respectively submitted