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Mr. John Zych
Board Secretary
Ontario Energy Board
2300 Young Street, 26th Floor
Toronto, ON, M4P 1E4

Subject: Tantalus Comments to RP-2004-0196

Further to the request for input regarding the Ontario Energy Board (OEB) Smart Meter Initiative Draft Implementation Plan, Tantalus Systems Corp. (Tantalus) is pleased to provide this submission for your review and consideration. As a leading provider of wireless, bi-directional, real-time data communications networks for utilities across North America, we strongly support the provincial government's desire to implement smart metering technology in a way that will enable consumers to effectively conserve and manage their electricity use.

The Minister of Energy set a clear vision to:

- Make way for sustainable, available power for all residents at a fair price.
- Facilitate energy conservation, energy efficiency, and load management through enabling technologies.
- Ensure that consumers that utilize energy efficiently do not subsidize those that do not.

While we recognize that the government is actively pursuing solutions to increase the supply of electricity in the market, Tantalus also contends that holistic solutions are necessary to confront the myriad of challenges presented in more effectively managing demand in all sectors of the market.

Smart metering represents an opportunity for government, utilities, generators and consumers to work together to revitalize the structure of Ontario's electricity market. We commend the steps taken to-date and encourage the architects of the OEB Smart Metering Implementation Plan to move beyond the initiatives currently drafted in order to bring effective and efficient demand-side management change to fruition.

By pursuing the full potential of smart metering, the vision will become a reality.

Recognize the Key Elements of a Successful Plan

Tantalus agrees with the OEB that the three key elements required for a successful implementation of smart metering are:

1. energy pricing that changes with real costs;
2. price visibility at the consumer level; and
3. the ability for consumers to take action and have those actions translated into tangible benefit.

We contend that the provincial government and the OEB have a responsibility to mandate a smart meter implementation framework that encourages LDCs to implement the best technologies possible. Tantalus recommends that such technologies must be selected and promoted based on both the capital and operating cost realities of LDCs in an increasingly price-sensitive market.

Tantalus also agrees that the decision-making responsibility ultimately lies with the LDC's to select technologies and systems that best meet the needs and operating capabilities of their customers over the long-term. As well, the capital and operating costs of these enabling technologies must be applied equally to all customers within LDC rate classes.

Move Beyond Automated Meter Reading

Tantalus believes that in order for Ontario to be successful in meeting projected supply shortfalls and to provide a mechanism that empowers and engages the public, Ontario needs more than reporting technologies like AMR (Automated Meter Reading). Automation of metering, energy conservation, energy efficiency, and load management must all be part of a coordinated solution to ensure a long-term supply-demand balance. It is Tantalus' experience that recently developed technologies, such as wireless, bi-directional, real-time data communications networks for utilities, provide the solution breadth the government requires within the price points the OEB has outlined.

Recognizing the importance of effective demand-side management is crucial for the overall realization of the provincial government's vision. Ontario enjoys a wide variety of demographic conditions and terrain. Installing a system that supports multiple applications will reduce fixed infrastructure and integration costs. More importantly, it will enable selective deployment of specific applications that meet the needs of individual LDCs and their customers, while at the same time contributing to the overall stability of Ontario's energy resources.

Tantalus believes that 1980's technology cannot adequately address the 2010 energy challenges Ontario faces.

Empower the Residents & Businesses of Ontario

The Ontario market and the Minister's vision necessitate that business and residential consumers respond to time-dependant pricing fluctuations. Without the ability to easily manage consumption under a variety of situations, Ontario residents and businesses will see pricing schemes designed to curb consumption as an added cost burden rather than as an incentive to modify consumption patterns.

An effective energy program must empower residents and businesses with the tools necessary to automate consumption adjustments. Providing automation options that help customers curb consumption and that enable customers to opt-in or out of energy programs will be key to the long-

term success of smart metering. Loosely coupling pricing signals (via the media or email) with metering and energy consuming devices will cause the program to fall short of otherwise realistic goals for power consumption reduction and load shifting, and will make future pricing schemes like real-time pricing impossible to deploy broadly.

Seek a Balanced Approach

Tantalus believes that Ontario needs to take a balanced approach to smart metering across all customer segments. Currently, only the industrial sector has the incentive to take evasive action if demand threatens to outstrip supply. Historically these interruptible rates made sense as industrial customers have large individual load levels and the automation to react to changing supply.

However, Tantalus believes there is significant benefit in targeting load management efforts in the commercial and residential sectors. By deployment of a system that embraces increased functionality inherent to bi-directional communication technologies, thereby maximizing the utility of smart meters as outlined in the Minister Duncan's Directive of July 14th, Ontario will be able to:

a) Benchmark industry by type, automating load management efforts on behalf of customers while also providing valuable data to help industry become more energy efficient and productive.

b) Provide energy efficiency information to homeowners with the ability to track the effect of specific initiatives they pursue in real-time.

c) Share curtailment responsibility between the industrial, commercial and residential sectors, thereby reducing unplanned interruptions on industry with its associated impact on jobs and the GDP.

d) Ultimately enable energy management practices at the residential level that are transparent to users and result in real energy savings with associated dollar savings.

Do Not Become Entrenched with One-Way Communications

Bi-directional or two-way communications is the only effective way to enable consumers to capture their choices in time to affect their overall consumption.

Tantalus recognizes the delicate balance the OEB has tried to reach between maximum supplier participation (to manage overall cost), and the functionality required to achieve a viable solution for the Ontario market after 2007. But favouring supplier inclusion comes at the expense of an optimum solution for Ontario.

Specifically, the focus on one-way communication systems does not speak to the needs as set out by the Minister of Energy, and will lead to:

- significant deficiencies in overall system capability;
- deployment delays as LDC's assess how to meet their long-term goals;
- excessive overall costs as parallel systems for metering and load management are deployed; and
- higher operating and integration costs over the short to long-term.

Bi-directional communication solutions are an integral part of future energy management programs. Given the many recent advances in communications technologies, these devices are proven, available, low risk, highly cost effective, and available for deployment today.

Specifically, bi-directional communications solutions do not always come at a higher cost. Tantalus agrees that the financial parameters set forth by the OEB of $3-4 per month per meter (or a capital cost of $250 per end-point) are achievable for full two-way system deployments. Tantalus believes that these price levels will enable the province to acquire systems that contribute to the goals the Minister of Energy has set forth.

With recent developments in technology, bi-directional systems can now be deployed that will help the province meet their goals without creating stranded assets or limiting options for future generations.

Prevent Stranded Assets

Stranded assets are a possible put manageable byproduct of a smart metering initiative. The first source of stranded assets is the disposal of electro-mechanical (E-M) meters that have not been fully depreciated as they make way for newer units.

Tantalus believes that the OEB reached its conclusions on electro-mechanical meter obsolescence prematurely. Solutions exist today that leverage the installed base of E-M meters by complementing their functionality with 'under-the-glass' smart metering and communications technologies. The benefits of this approach include:

- avoiding the total write-down of over $473M in metering assets;
- lowering the per-point installation cost dramatically;
- funding additional system capability (load management, in-home displays) from capital earmarked for meter replacement; and
- maintaining the economics for E-M retesting cycles, which are favourable to their electronic counterparts.

The second, and again mitigable, source of stranded assets is first-wave deployments of smart meter technology with limited, short-lived functionality. Here, Ontario residents would be best served by selecting technologies that address Ontario's smart metering vision rather than simply satisfying minimal short-term functional requirements.

Avoid Hidden Costs

Tantalus feels that the OEB, along with the Ontario Power Authority, needs to focus more financial attention on deployment costs, which can make up 25% to 40% or more of the overall project costs. These costs can be incurred during initial deployment, functional enhancement, maintenance and system expansion.

Ease of deployment and system management are critical to the long-term financial viability of smart metering initiatives.

In parallel with deployment costs, operating costs need to be tightly managed over the life of a smart metering project. Public network communications costs, for example, can make up 10% to 25% of the overall project lifecycle cost, and have been subject to poor predictability as public network technologies and network needs change.

Known and comprehensive operating costs are critical to effectively managing the overall costs of the system and the OPA needs to exercise significant vigilance over this area of the project.

Give LDCs Freedom to Exceed Expectations

Tantalus, like the OEB, believes that a comprehensive business case is the best mechanism to validate future business plans. Tantalus also believes that the Minister's vision is clear and is the necessary path to follow for energy self-sufficiency. In order to accelerate the selection and adoption of appropriate technologies, Tantalus believes that those LDC's that want to deviate from the functionality of a smart metering system as outlined by the Minister should substantiate their application with an appropriate business case that supports abandoning certain elements of functionality previously deemed necessary. Further, it is Tantalus' opinion that operational capabilities available to LDC's at no additional cost as part of a smart metering deployment should be permitted and encouraged.

Use Pilots to Seek New Knowledge

Tantalus agrees with the OEB that the development and implementation of pilot projects in 2005 will provide the needed insight to assess which technologies will meet the program's objectives. While older technologies like AMR are understood and well documented, the capabilities of newer technologies are less well known.

Pilot projects in multiple regions, implemented as soon as possible, will be the best vehicle to validate and better understand the benefits of newer technologies as they pertain to the government's vision for smart metering. To this end:

- Pilot projects should focus on newer technologies that demonstrate they have potential to meet Ontario's needs.
- Pilot projects should address a broader suite of applications beyond AMR.
- The funding process for pilot projects should be well defined and non-restrictive in nature.
- The pilot project process should be streamlined so that LDC's can assess new technologies within the timeframe of the Smart Meter Implementation Plan.

Tantalus agrees that new technologies need to be validated in the market, and that a minimum installed base is an effective way to perform such a validation. The installed base threshold of 10,000 units makes sense once pilot programs are complete, and Tantalus suggests that January 1, 2006 be the defining date for this installation threshold.

Please see below for Tantalus' Technical Comments on the OEB Smart Metering Implementation Plan and its Appendices.

In closing, Tantalus is proud to be part of this exciting and encouraging program. Bold steps need to be taken to break new ground and achieve the vision of the provincial government, industry, and Ontario citizens.

Regards,

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Technical Comments on the OEB Smart Metering Implementation Plan and Appendices

3.3 Stranded Costs

"All electromechanical meters will be rendered obsolete by smart meters." This assumption is incorrect. Some solutions turn electro-mechanical meters into smart meters with the fitting of a meter module. These modules report cumulative energy consumption as well as interval data, and report outages and monitor power quality. OEB should not assume that all electromechanical meters need to be replaced. There is likely a large reuse opportunity, for example, Puget Sound Energy reused 70% of their electromechanical meters for their advanced meter deployment and they provide TOU data to their customers. And for the remaining 30%, Puget purchased a large number of new electromechanical meters. Depending on the technology selected, electromechanical meters are adaptable to smart metering systems and stranded costs can be significantly reduced.

Appendix D-2

Meter Clock: We understand the need for the clock time to be accurate, but there are other methods of achieving accuracy without maintaining clock time during a power outage. Resynchronization to +/- 1 second is possible on some systems when power is restored. We recommend that this requirement be modified to: "Any clock within the meter must be capable of synchronization to the national time standard, without visiting the site, to a tolerance of 30 seconds. In the event of a power outage and restoration, clock time must be restored such that all recordings subsequent to power restoration are accurate to a tolerance of 30 seconds."

Appendix D-4

Daylight Savings Time (DST) Data Collection Requirements: As well as the ability to handle 25 hours of interval data based on a DST switch, OEB may wish to add a requirement for proper handling of 23 hours of interval data for the spring DST change. Handling one less hour of data as an exception can be as much or more of a problem than handling an additional hour.

Appendix D-11

Table 7: We recommend adding "Possible rural RF" as a WAN option for the Rural environment. Licensed RF networks other than microwave are available for rural WANs.

1.2.3 Regional Data Collectors: Note that an interim data collector may also be located at a utility owned or third-party radio tower as well as at a substation.

Table 8: A correction is required for RF 200 MHz in Rural environment. Table currently states that RF 200 MHz is "Not available in Can" for Rural environment. This statement is incorrect. 200 MHz systems are currently in place in Canada and Industry Canada is taking steps to make more 200 MHz spectrum available to users, including utilities. We recommend changing this statement to be consistent with Suburban category, i.e. "Possible if frequency is available for use." This statement is also true for Urban category.

Table 8: A correction is required for SS-900-928 MHz in Rural environment. The table currently states that 900 MHz systems in "public band may not be able to travel beyond 500 feet" This statement is more the exception than the rule, or may be applicable to one vendor's specific solution. There are 900 MHz solutions that reach a nominal range of 1,500 feet and in a rural environment, that often has less obstructions than an urban environment, there are regular occurrences of 900 MHz systems reaching 2,000 to 2,500 feet. We recommend this statement be modified to: "May be an option if radio technology can reach beyond 1,000 feet."

Table 9: There is an underlying assumption in the "Rural" column that the SMRC can only reside at a substation for rural environments. In the case of a rural RF solution (which is possible today), the SMRC may reside at an existing radio tower, which typically has other existing services available to it. The rural RF solution may also interface to dial-up or dedicated phone lines, a microwave system or a fiber system. PLC is only one option for rural smart metering and should not have solitary exposure in this table.