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January 7, 2005

Ontario Energy Board  
2300 Yonge Street  
26<sup>th</sup> Floor  
Toronto, ON M4P 1E4

Attention John Zych, Board Secretary

Dear Sir:

**Re: Smart Meter Initiatives – Further Consultations. Board File No. RP-2004-0196**

In response to your request for comments RP-2004-0196 and in light of the consultation session held Thursday, January 6<sup>th</sup>, 2005 at the Ontario Energy Board, Olameter would like to submit the following observations and recommendations:

**Referring to your diagram Province Wide Meter Network (distributed at the January 6, 2005 meeting):**

The schematic suggests that it might be desirable to define an ownership demarcation between the distributors and a network operator. In essence the distributor would own the meter while the network operator would own the collector and switches and own or control the communications links (meter to collector, collector to regional switch, regional switch to central switch and central switch to IESO).

The technologies available today cannot readily support this architecture. Rather they are based on the premise that each LDC controls the assets and communication links from the meter to the server(s) at the LDC's central office<sup>1</sup>. The communications protocols linking the meters to the servers are proprietary to each manufacturer. The links are provided variously by common carriers (e.g.: telco, cableco, pageco or celco), virtual private networks operating over common carrier facilities, private networks (including LDC owned networks consisting of power lines or even fibre-optics) or "sneaker" networks. "Sneaker" networks, which today are a mixture of manual meter reading, walk-by radio-based meter reading or drive-by radio-based meter reading provided the link to ~ 97% of the sites served today.

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<sup>1</sup> The "central office" need not be, and increasingly is not, located on the LDC's premises but rather at a hosted environment, owned and operated by a third party service bureau. These service bureaus, whose clients can include banks, communications companies and other industries, offer much better economies and security features than clients can obtain for themselves.

Currently there are, roughly, half a dozen or so vendors who are willing to undergo licensing by Measurement Canada<sup>2</sup> and whose technologies can or will meet the needs set down by Ministry of Energy for one or more of the dozen or so classes of service which an LDC must provide<sup>3</sup>. Each vendor's product line involves some degree of proprietary communications protocols, irrespective of whether the links are provided through private or public networks.

With this context in mind we offer the following observations to each of the questions raised the request for comments. We have taken the liberty of changing the sequence of the questions.

### **Would an open data protocol aid in the development of end devices and services?**

Any requirement that these vendors must abandon their proprietary communications protocols in favour of a government defined open architecture will lead to the following:

- i.* virtually all remaining multinational vendors will withdraw from the Ontario market
- ii.* the increase in equipment costs will overshadow the potential decrease in communications costs<sup>4</sup>, and
- iii.* the targets set for deployment, namely 20% by 2007, 100% by 2010 will need to be deferred by several years.

Essentially this question, then, becomes academic.

### **Should electricity distributors be responsible for operating the communications network?**

Yes. There is no way that the responsibility for operating the communications network can be taken away LDCs unless the Province is willing, at the same time, to take away their accountability for any aspect of service quality which is dependent upon communications. Everything from the need to issue timely and accurate invoices right through to outage management would be affected.

In practice, while retaining responsibility, different LDCs approach the execution of this responsibility in different ways. Roughly two thirds of all residential and commercial sites in the province today use "sneaker" networks that are staffed and equipped by third party companies. Hydro One, which uses its own forces, accounts for most of the rest in

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<sup>2</sup> Although most of the major North American meter and AMR vendors service the Canadian market, most of the remaining international meter and AMR vendors are focusing on the very large Asian and under-developed markets and do not bother with the Canadian market at all.

<sup>3</sup> Single phase energy, single phase energy and demand, polyphase... etc. at various voltage levels

<sup>4</sup> As an example, as has been demonstrated in Newmarket and elsewhere, roughly 80% of the sites in Ontario (urban, suburban and semi-rural sites involving homes apartments, and small businesses) can be served using various vendors with bi-directional communications for well under \$3.00 per month at scales as small as 500 meters. The servers, licenses and communications links represent less than 20%, of which roughly half represents communications and less than a quarter is the effect of the proprietary components. Meanwhile the equipment costs (meters and "collectors") accounts for 60% of the monthly cost with the balance representing the blended life-time cost of meter file management, equipment warranties, verification and calibration.

this category<sup>5</sup>. The typical average range of prices per residential meter read is from \$0.35 for urban and sub-urban sites to \$1.50 for rural areas. However automated meter reading, which is used for all industrial customers (perhaps some 0.5% of all sites) usually depends on networks, typically dedicated telephone lines to each individual meter, which are ordered by the LDC. Commercial telephone lines cost about \$45.00 per month.

Of course the desire to implement time of use and critical peak pricing is driving the decision to automate virtually all sites. This is forcing the LDCs to rethink their network design and provisioning<sup>6</sup>.

### **How should a communications operator be selected?**

There are three ways an LDC can do this. One is to do it with internal staff. The second is to issue a turn-key request for service which is, of course, how “sneaker” networks have always been done (again with the exception of Hydro One). A third way is to select a 3<sup>rd</sup> party manager for the LDC (or a pool of LDCs) who is then mandated to obtain bids for each of the components, the manager’s fees being either a fixed fee or a per cent of capital cost.

The third method offers a number of advantages since each LDC will need to deal with multiple equipment vendors and communications service companies.

### **How should the rates for the communications operator be set and collected?**

In order to test for LDC prudence respecting including costs incurred by the LDCs into just and reasonable rates, in-house solutions should be “benchmarked” for price and risk avoidance against commercially available third-party solutions.

### **What are the benefits and drawbacks of mandating two-way (versus one-way) communications?**

Many LDCs are gravitating toward two-way communication technologies for the following reasons:

- i.* two-way communications is the direction most vendors are migrating to, if they do not currently support them today
- ii.* the cost of two way systems, except for extremely remote locations, is no greater than for one way and “one and one half” way systems
- iii.* two way systems open the door to a whole series of feature sets<sup>7</sup> (outage management, theft detection, care-and-comfort services, multi-utility services)

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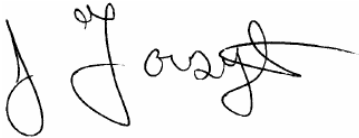
<sup>5</sup> This is not necessarily because of the rural nature of Hydro One’s service territory. For instance Fortis in Alberta, which has an essentially rural clientele has outsourced its services for a number of years.

<sup>6</sup> This is how Newmarket Hydro and a number of other utilities have chosen to go with a buying pool manager, in that case Olameter. The manager is responsible for the provision of both equipment (whether LDC owned or not) as well as communications. The manager is responsible for providing functional system-wide specifications, detailed specifications, issuance of requests for quotations, tabulation of bids, negotiation with equipment & communication vendors, provision of quality assurance and expediting services. The manager must also underwrite the execution of the project with not-to-exceed price caps and with completion guarantees. Fees for all of this average well under 10% of the total cost depending on the size and scale of the project.

The real issue is the degree to which the Province wishes to enforce the same performance standards over 100% of the territory. The proverbial hunting camp in the woods with a 40-Amp service that only has occupants for six weeks out of the year could be outrageously expensive to serve. On the other hand LDCs are loath to have too many manual exceptions to what is otherwise an automated platform because of their impact on back-office costs. Third party vendors or buying pool managers can readily provide quotes that reflect the cost of these outliers. Thus for instance the Board might consider insisting that LDCs benchmark and obtain quotes for 95%, 99%, 99.9% as well as 100% coverage for a given class of service.

In the hope that these comments may prove useful, I remain

Sincerely yours,  
***Olameter Inc.***

A handwritten signature in black ink, appearing to read 'J. Peeters', with a stylized flourish at the end.

Per:

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<sup>7</sup> The Smart Metering Plan is premised upon energy conservation. However most implementations elsewhere in North America are being justified on the merits of these “side benefits” alone.