January 7, 2005

Peter H. O'Dell, Assistant Board Secretary
Ontario Energy Board
P.O. Box 2319
26th Floor
2300 Yonge Street
Toronto, ON M4P 1E4

Dear Mr. O'Dell,

This letter is a response to your recent request for further information on several topics related to 2-way communications and the Smart Meter Initiative, Board File No. RP-2004-0196.

I am writing to express Hexagram's opinions on these questions. Hexagram is well qualified to comment on these topics since we have become one of the leading providers of advanced, fixed-network, meter reading systems in the United States and in Canada. See the attached summary sheet for a description of some of Hexagram's recent AMR activities.

Hexagram has been monitoring the OEB Smart Meters Initiative and is interested in participating in the planning and implementation of this landmark project. Please feel free to involve Hexagram, or me, in any way that would be helpful. Thanks for your interest.

Kendall Smith
Product Manager, AMR

Hexagram, Inc.
23905 Mercantile` Road • Cleveland, Ohio 44122
216/464-1057 • 800/969-1057 • Fax:216/464-5308
www.hexagram.com • star@hexagram.com

Hexagram, Inc
Response to Letter of December 21, 2004

1. What are the benefits and drawbacks of mandating a two-way communication network?

Benefits:
- If 2-way is the eventual outcome for the entire system, mandating 2-way eliminates the inefficiency of some Distributors implementing "lesser" technologies before moving to 2-way.

Drawbacks:
- Where 2-way is not needed, a mandate for 2-way increases system cost.
- Where 2-way is not needed, a mandate for 2-way can decrease reliability
- A mandate for 2-way decreases the suitability of the Smart Meters solution for other than electric metering such as gas, water, or non-metering applications.
- A mandate for 2-way makes battery powered devices much less feasible.

Conclusion:
A mandate for 2-way communications can decrease the quality of the solution(s) by increasing the expense of the Smart Meters Initiative and limiting the solutions available. No such mandate should be part of this project.

Hexagram believes that the optimal fixed network technology provides for both 1-way and 2-way operation. This allows the benefits of 1-way devices (lower cost, higher reliability, and battery operation) and the benefits of 2-way devices (higher functionality, control of accessory devices, and inter-active operation) to be achieved with one system. (Our fixed network product, STAR, is this type of system.)

2. In the event of Province-wide two-way communication, should electricity distributors be responsible for operating the communications network?

No. This is not a "core-competency" and is not advantageous to the electricity distributors.

Note, Hexagram distinguishes between the connection between a Wide-Area Network (WAN) from the connection between a local WAN node and the nearby meters. The question and answer above are related to the WAN network only. Hexagram believes that the connection between the local WAN node and the local

meters is best handled as a responsibility of the distributor and should be the focus of the Smart Meters Initiative planning. See the next question and answer.

3. If not, how should a communication operator or operators be selected?

We are in the early stages of a series of Internet connectivity technologies (such as Wi-Fi, WiMax, GPRS) that can provide high-speed, low-cost connectivity over large areas of Ontario. These technologies are being driven by broad demand for Internet connectivity by mobile users, by residential users, and by increasing populations of internet-enabled personal devices (PDAs, phones, etc.).

The market forces of competition, technology development, and a fluid customer base insure the rapid deployment of successive generations of connectivity technology. These forces are far stronger than any impact from the Smart Meters Initiative and will speed the low-cost, widespread availability of connectivity options.

Conclusion:

The best strategy for the Smart Meters Initiative would be to concentrate on the meters, the connectivity between the meters and the WAN nodes, and the IT structures to support the Smart Meters Initiative goals; and let the market develop and select the appropriate WAN solutions.

4. How would rates for the communication operators be set and/or collected?

Same answer as the question above.

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The best strategy for the Smart Meters Initiative would be to concentrate on the meters, the connectivity between the meters and the WAN nodes, and the IT structures to support the Smart Meters Initiative goals; and let the market develop and select the appropriate WAN solutions.

5. If there is a two-way communication network, would an open data protocol aid the development and availability of end-devices and services?

Yes and No.

Yes, if the "open data protocol" is concerned with the connection of an AMR device to a meter. This "plug compatibility" would be a tremendous benefit to the Smart Meters Initiative since it would foster competition between meter manufacturers, while insuring that all meters can be used with a given AMR system. Similarly, this standard would also insure that a given meter population would have multiple AMR suppliers to chose among.

A suitable standard, of this type, already exists as an ANSI and IEC standard and has been developed with the significant involvement of Measurement Canada. Known as ANSI C12.19 (and C12.21, C12.22) this standard has achieved a significant level of adoption by meter manufacturers, AMR suppliers, and utilities.

No, if the "open data protocol" is too board to achieve market adoption or is not technically suitable for the adoption. A mandated "standard" that does not achieve "critical mass" is worse than no standard at all since it suppresses technology development and stifles market selection.

Hexagram believes that the best strategy for the Smart Meters Initiative would be to adopt the C12.19 (and related) standards for the meter-AMR connection. Hexagram does not believe that adopting a WAN communications protocol would be in the best interests of the Smart Meter Initiative.