

Considerations for Powerline Communicating Systems

prepared for

Regroupement des organismes environnementaux
en énergie (ROEE)

regarding

Régie de l'énergie hearing R-3788-2012

*Demande de modifications des tarifs et conditions de
distribution d'électricité relative à une option d'installation
d'un compteur n'émettant pas de radiofréquences*

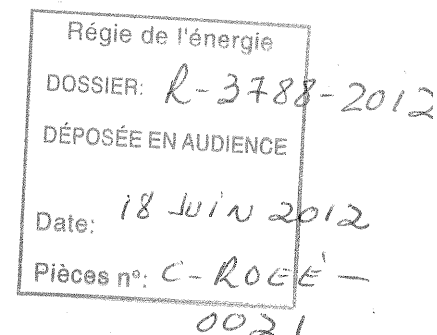
Expert report of:

Errata/Revisions – footnotes 16,32,33

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We are aware some smart meter deployments in other states have raised questions about potential hazards related to wireless transmissions from AMI meters. The technology we are deploying in Idaho is fundamentally different from the technologies in question. The smart meters being deployed in Idaho Power's service territory do not transmit wirelessly; they use the 60 Hz power line to communicate."

Another example is Washington Electric Cooperative (WEC) which use:

"meters that use the electrical wires to send data instead of radio frequency transmissions, which are still the source of controversy among some members of the public because of concerns over perceived health risks."¹³

These are all clear indications that the fear of a reasonable segment of the population is related to the use of smart meters which use radio frequency (or wireless), but that fear does not extend to other communicating techniques such as powerline – in some areas, the use of powerline is promoted.

3.0 Powerline communications

Over the last several decades there has been a wide range of systems which use the powerline itself as a communications method. For example, historically power utilities have used the powerline communication (PLC) for telemetry purposes¹⁴. Some utilities today still believe PLC systems are slow because of another "historical" system, called "Turtle"¹⁵.

Today, PLC systems are *"the number one technology for smart metering in Europe"*¹⁶ with a range of modern technologies. Echelon claims 81% share of installed base of smart meters in Europe in 2010¹⁷ and that *"...the latest generation of Power Line technology which is vastly superior to early-technology PLC..."*¹⁸

¹³ <http://www.smartmeters.com/the-news/3283-vermont-to-get-more-smart-meters.html>

¹⁴ Landis & Gyr, "Introducing the power of PLC", page 3;

<http://www.nrs.eskom.co.za/nrs/Specifications/The%20Power%20of%20PLC%20-%20LandisGyr%20White%20Paper.pdf>

¹⁵ Echelon Smart Meter Model Status Quo in Europe, Exception in U.S., Feb 3, 2011;

<http://www.pikeresearch.com/blog/articles/echelon-smart-meter-model-status-quo-in-europe-exception-in-u-s>

¹⁶ Landis & Gyr, *ibid.*, page 4

¹⁷ Market Share Leadership, Energy & Power Systems Industry – Europe, 2011, page 3;

http://www.zirode.com/Downloads/Frost-Sullivan_Market_Share_Leadership_Award2011.pdf

¹⁸ *ibid.*, page 5

3.5 Pacific Gas and Electric “Opt Out”

While considering the various alternatives to consider when evaluating potential “Opt Out” programs for Pacific Gas and Electric, the following alternative was considered:

*“Wired smart meter – Under this option, interval energy consumption data would be transmitted to the utility through a traditional telephone line, fiber optic, a **power line carrier** or other wired technologies. Since this option would allow the meter to communicate with the utility, the meters would not need to be read manually every month.”³²*

(emphasis added)

4.0 Costs

It is recognized that pricing of the smart meters, whether they be wireless or powerline, will need to be finalized through procurement processes, so such details are difficult to discuss. In addition, consideration of overall system and infrastructure requirements vary from system to system, and are challenging to compare. The costs will also vary dependent on the specific configurations (e.g. number of meters per concentrator or router).

On the other hand, there are public documents, although somewhat dated, that do provide some guidance on comparison pricing for powerline and wireless smart meters.

The “Benefit-Cost Analysis for Advanced Metering and Time-Based Pricing”³³ document prepared for the Vermont Department of Public Service.

For the Washington Electric Cooperative:

“the large number of concentrators (36) and repeaters (almost 1,000) needed to cover the sparsely populated service territory for WEC drove the mesh network costs about the PLC costs, which required only 8 of the more expensive PLC concentrators.”³⁴

For Green Mountain Power:

“As with CVPS, the difference in the two technologies is not large. For the mesh system, the cost of the initial AMI investment equals \$11.1 million, or about \$118 per meter.”³⁵

³² R-3770-2011, Exhibit C-ROEE-0028, Page 36 of 39, Footnote 0137, Page 8

³³ <http://psb.vermont.gov/sites/psb/files/docket/7307smartmetering/VermontReportFinal.doc>; “Benefit-Cost” Analysis for Advanced Metering and Time-Base Pricing, Final Report, March 26, 2008

³⁴ Ibid., Page 78

³⁵ Ibid., Page 69