

**ADDITIONAL RESPONSES FROM HYDRO-QUEBEC DISTRIBUTION TO THE  
REQUEST FOR INFORMATION no. 1 FROM GRAME**



## **Reference**

HQD-1, Document 1, page 21:

### **Collectors and Routers**

*Collectors (mostly placed on Hydro-Quebec installations [distribution stations] or existing communication towers) are distributed throughout the various regions of the territory served by the Distributor. The function of each collector is to aggregate the consumption data from a set of meters located nearby for forwarding on a Wide Area Network (WAN).*

*The function of the routers installed on the Distributor's poles is to assure the geographic coverage of the NAN network on the periphery of the collectors.*

*Collectors subsequently transmit the acquired data to the acquisition front-end.*

### **Telecommunications Network (WAN)**

*In addition to the radiofrequency mesh network connecting the meters, routers and collectors, the AMI requires the use of a WAN. The purpose of the WAN is to 24 interconnect the data acquisition front-end (located in the Distributor's IT centres) to the collectors. The telecommunication links used are cellular or satellite.*

## **Questions**

**23.** Please confirm whether the collectors, routers and meters will be able to directly gather information on the line voltage and therefore provide monetary savings for the CATVAR automation Project.

### **Answer:**

**See the response to question 1 a) from the Outaouais ACEF to part HQD-4, document 2.**

**As for the impact on the CATVAR automation project, the question is outside the scope of the present case (see part B-035).**

24. If yes, please explain the mechanism technically and indicate what equipment will allow for this application.

**Answer :**

**See the response to question 1 a) from the Outaouais ACEF to part HQD-4, document 2.**

**Additional question(s):** Without going into details, indicate the possible connections between the AMI technology and the CATVAR project and, if applicable, the benefits which can be drawn from it (decision D-2011-168, par. 35).

**Additional answer:**

**The CATVAR system is based on the use of some 1,000 remotely monitored voltage transformers and 800 capacitors used to serve about 2,000 lines. Currently, the real-time operation of this equipment is based on telecommunications infrastructure using telephone lines.**

**The Distributor is currently proceeding with an evaluation of the opportunities for use of the AMI telecommunication infrastructure for network applications (notably CATVAR and the PARD distribution network automation program). The evaluation of the potential replacement of the telephone line telecommunication means currently used by the AMI network (NAN and WAN) could make it possible to save on operating costs in addition to minimizing the deployment cost for these applications. For this purpose, the Boucherville interactive zone (“Smart Grid Zone”) was targeted for conducting compatibility tests between the aforementioned applications and the AMI. Note that the Distributor has already completed the installation of some 5,700 new generation meters together with the AMI telecommunication infrastructure in the same zone. At this stage, the Distributor is not able to confirm whether it will or will not replace the telecommunications means for these grid applications by means from the AMI network, since the tests are not yet complete.**

Another possible link between the AMI and CATVAR technologies is the use of data measured at the clients for better calibration of the CATVAR system grid voltage control algorithm. In fact, non-real-time analysis of the information coming from the AMI could provide a precise reading of the electrical voltage levels supplied to the client and may also constitute a more precise CATVAR load profile.

(...)

## **II Questions about Risk Management, Network Reliability and Choice of Technology**

### **Questions**

(...)

**51** Please indicate whether the technology selected by the Landis + Gyr meters could support an exchange platform between the client base and the Distributor that would provide for a return of energy produced by the client (solar or other energy).

#### **Answer:**

**See the response to question 1 a) from the Outaouais ACEF to part HQD-4, document 2.**

**Additional question(s):** Indicate whether the platform will allow incorporation of self-production clients (decision D-2011-168, par. 35).

#### **Additional answer:**

**The Distributor confirms that the LAD system provides for the incorporation of clients who currently use the net measurement option for self-producers and it will also operate for clients who will use this option.**

**56** Please indicate whether the 3.7 million meters, which could be voltage and current measurement points in order, among other things, to meet the objectives of the CATVAR project, will be connected directly to the smart Grid network in time or instead via an interface to the acquisition front-end.

**Answer:**

The Distributor confirms that the new generation meters will be connected to its distribution network.

**Additional answer:**

Yes, it will be possible to use the data coming from new generation meters, acquired through the acquisition front-end, in Smart Grid type applications for grid management like the CATVAR system. See also the additional response to question 24 from the current document.

**II. Requests Related to the Presentation and Discussion during the Information Meeting September 14, 2011**

References: part HQD-3, document 1 and HQD-1, document 1

(..)

68. Please indicate whether the cellular technology used by the Landis + Gyr collectors is expected to disappear in the short or medium term.

**Answer:**

**No. The Distributor selected the cellular technology offering the best coverage, while meeting performance and evolvability criteria at the best price.**

- a. If yes, please indicate the probable period (e.g., next five years, next ten years).

**Answer:**

**Not applicable.**

- b. ~~If yes,~~ please indicate whether the longevity of the cellular technology used for the WAN in order to communicate with the acquisition front-end is under the control of the telecommunication service supplier, namely Rogers Inc.

**Answer:**

**~~Not applicable.~~**

**Revised answer:**

**Yes. Additionally, the service agreement established with Rogers guarantees service availability on the Rogers HSPA network for a minimum of 10 years.**

- c. ~~If yes,~~ please indicate the options planned by the Distributor when the telecommunications service supplier, namely Rogers, moves ahead with the modernization of its data transmission technology (obsolescence of GPRS, EDGE, HSPA, LTE, etc.)**

**Answer:**

**~~Not applicable.~~**

**Revised answer:**

**It is clear that the Distributor will benefit from all modernization options that Rogers implements in its data transmission technology. It is worth noting that the AMI telecommunications infrastructure acquired by the Distributor is bidirectional which enables remote updating of any new applications introduced by Rogers, thereby providing for a continuous enhancement of the AMI.**

**Additionally, the distributor has already observed the benefits arising from the solidity of the Rogers cellular network based on the results obtained in the pilot projects to date which are summarized in the following table.**

**TABLE R-68: DAILY CONNECTIVITY PERFORMANCE RESULTS<sup>1</sup>**

Pilot Projects	Recognition at the Acquisition Front-End (Required: 100%)	Collection of Data in the Consumption Register (Required: 99.4%)	Number of Meters	Communications Link
Boucherville	100%	99.55%	5,700	Fibre optic
MRC Memphrémagog	100%	99.54%	1,900	Cellular (Rogers)
Montréal (Villeray neighbourhood)	100%	99.77%	7,600	Cellular (Rogers)

Note 1: Daily reading

The cellular solution is very effective because the results obtained in the rural environment (MRC Memphrémagog) are comparable to those obtained in the high density urban environment. Additionally, the results from the pilot projects show that the cellular link is as effective as the fibre optic. The selected telecommunications solution is very effective.

Furthermore, the AMI technology selected by the Distributor is also compatible with all the cellular suppliers who share this market, Bell and Telus in particular. The Distributor is therefore strategically well-positioned to benefit from any potential technological breakthroughs and advantages pertaining to this growing and highly competitive market.

Finally, fibre optic and satellite communications technologies are also compatible with AMI.