ArKion Systems

Universal Energy Monitoring and Control

ArKion's Comments on Smart Metering Implementation Plan

November 24, 2004

ArKion Systems

230 Union Street
New Bedford, MA 02740
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Dear Mr. John Zych,

ArKion is pleased to present comments for Smart Metering program to Ontario Energy Board to achieve project targets and objectives.

We had the opportunity to review Draft Report of the board for comments; as the plan has identified the project is complex due its size and magnitude. However, the return on investment of implementing such a plan is tremendous in terms of long term energy conservation, customer confidence and satisfaction. Careful consideration needs to be given to a system that can achieve immediate and long term objective of the board. To achieve such an objective, the Smart Metering System has to provide longevity through many inherent requirements. For example:

1. Open Architecture:
    a. Follow open standards for all components of the system; this provides longevity via many vendors supporting the standards.
    b. Ease of use: customer interface to the system should be via any secure web standard devices such as PC, handheld, cell phones, etc.

2. Low maintenance cost:
    a. On Going maintenance cost, and Open Architecture are not mutually exclusive. The more off the shelf technology and standards are used, the lower the life cycle cost of the system. Standard technology gets better, cheaper, and faster with time.

3. Third party meter support
    a. Smart Metering System should be agnostic to any types of meters; the system should support any existing and future manufacturer of meters. The system should support plug and play of meters.

4. Ease of installation
    a. A major cost saving can be achieved through ease of installation, the objective should be for the installer to visit a home only once during installation.

At ArKion we have deployed complete working system similar to the proposed system; we would be pleased to advise the board with the broad range of real life experience and knowledge.

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ArKion can provide detail analysis, knowledge and information on the following key components:

1. System architecture specifications
2. Reliability analysis
3. Security analysis
4. Life cycle cost analysis
    a. Initial capital cost
    b. On-Going system cost
5. Maintenance requirements
6. Installation Process
7. Energy Management and conservation services
8. Power outage management and services
9. Aid in Rate Control and Management for distributors and customers
10. System expandability to support additional features, functions and services over time.

At ArKion we would be pleased to provide you with a complete working pilot system to address the above needs.

Our initial comments: Smart Metering Project should include the following benefits:

Smart Metering Benefits

- **Increased awareness of Electricity usage patterns:**

  Enable simple tools for customers to learn how much power is being consumed when and where. Alert the appropriate departments to excess and wasteful usage patterns. Deploy other conservation methods specific to discovered trouble spots.

- **Provide customers tools for accurate cost allocation:**

  Increase accountability for energy consumption. Establish cost centers for various departments. Provide incentives for energy management, track usage of facilities by various non-governmental entities for accounting or billing purposes.

- **Participation in programs such as Demand and Price Response:**

  Receive credits from Ontario System operators to reduce power during periods of peak demand.

- **More sophisticated purchasing of power:**

  Utilize load curve data to optimize the buying of power from various utilities with various rate structures.

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- **Managed HVAC, and other high power consumption devices during high energy Demand:**

  Example, automatically change set points when rooms are not occupied or during off-hours. Develop and incorporate more advanced energy management algorithms to control demand.

- **A means to monitor the health of equipment:**

  Set alarms for sudden increases in power consumption for circuits containing critical equipment.

- **Managed access to power:**

  Automatically limit and or cut power to unauthorized areas at particular times of day, override and reschedule access to power.

- **Ability to read individual meters remotely and automatically:**

  Capture consumption information remotely based on 15 minutes intervals.

- **Frequent and efficient data collection:**

  The collected data is entered into a database for subsequent data mining including trend analyses, peak-demand profiles, or any other desired purpose.

- **Billing reconciliation:**

  Billing data for energy suppliers can easily be compared with data on the system using a simple report. Time of use data should be utilized to further simplify the billing verification process.

- **Sub-metering support:**

  Multiple private sub-meters in concentrated areas should be handled as single monitoring and billing units and the collected data can made available to sub-metering customers as a on going revenue generation.

- **On-line account management and billing:**

  Completely automate and integrate the account management and billing process from meter data collection to invoicing. Generate invoices at the end of each billing cycle or on demand for opening and closing accounts. Use various filters to batch process the generation of invoices.

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Simplified aggregate data processing:

Meter readings should be sorted by location, usage volume, or custom parameters. This provides a powerful tool for analyzing demand trends and for energy forecasting.

The ability to access any meter data anywhere, anytime, and any where:

Secure authentication procedures to allow users real-time access to all data including advanced power outage notifications and management.

About ArKion Systems

Summary: ArKion Systems provides an end-to-end two-way remote monitoring solution that provides advanced AMR features as well as connecting automated meter reading with other remote monitoring solutions such as checking and controlling thermostats and other electricity control devices as well as monitoring for carbon monoxide, water leaks, etc. ArKion's network architecture and standard communications protocols enable rapid development of connectivity solutions for almost any industry, giving access to data and control functions from any secure point on the Internet.

Compatible with virtually any water or electric meter, Arkion's Galileo online meter reading system and platform provides continuous, two-way communications between utilities and their customers. Components include spread spectrum 900MHz end-point RF modules, central communication modules that use GSM/GPRS, Wi Fi, broadband Ethernet or V.90 dialup for WAN connectivity, and networking and server software.

Galileo captures, interprets, and aggregates energy consumption data from existing electric meters by using the Internet and industry-standard communication protocols. Energy consumption data can be accessed by any Internet-enabled PC or handheld device, anywhere and at any time.

ArKion looks forward to working with Ontario Energy Board in what is certain to be a very exciting and beneficial program.

Sincerely,

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