



July 10, 2007

Commonwealth of Virginia
State Corporation Commission
Division of Economics and Finance
Attn: Mr. Dave Eichenlaub
1300 E. Main St.
P.O. Box 1197
Richmond, VA 23218

Mr. Eichenlaub,

Please accept the attached information packet for consideration into the report to the Governor and the General Assembly as directed by the Third Enactment Clause of SB 1416/HB 3068 amending the Virginia Electric Utility Restructuring Act in regards to reducing electric energy consumption by 10% by year 2022.

Winn Energy Controls Inc. (WEC) has been supplying energy management systems to the market since 1994, during that time we have installed in excess of 4,000 systems nationwide. Our product is called EMS2000; it is a wireless system controlling rooftop HVAC units utilizing wireless sensors taking temperature data from throughout the facility. Sensors are also capable of monitoring lighting, appliances, and any equipment that uses electricity. One component of EMS2000 is an AMR (Automated Meter Reader), this component monitors electrical usage and in unison with the entire system can control load management and be utilized in load shed management programs promoted by Utility Companies in regions suffering from rolling blackouts. Our systems are capable of being controlled and monitored through the Internet, allowing facilities management to monitor and control thousands of buildings from a single Internet portal.

The attached information will describe in detail the capabilities of the WEC EMS2000 system and some of the benefits it can provide for the Commonwealth of Virginia in your pursuit of meeting the Governor's call for a 10% reduction in energy usage by 2022.

Please contact us for pricing and installation information that the Commission may need to further assess the capabilities of the EMS2000 and current customer statistics. WEC is capable of performing an on-line presentation showing live time monitoring of an existing customers facility.

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Also, if requested WEC is willing to participate in a demonstration of multiple buildings of various size, at no cost to verify the functionality of the product, please contact us for specifics.

Sincerely,

John Deniken
Winn Energy Controls

Enclosures



Product and Service Description

EMS2000 System Functionality and Theoretical Description

The EMS2000 Energy Management System is a flexible microprocessor based intelligent and programmable energy management system with the following capabilities:

- Control and monitoring of HVAC systems.
- Control and monitoring of lighting systems.
- Electric, gas and water meter reading and data storage.
- Monitoring / alarming of refrigeration, fuel tanks, food processing equipment, etc.
- Remote control, monitor and programming using a variety of communication gateway modem technologies.
- Local and remote alarm generating and reporting.
- Local or remote Demand Side Management control.

The EMS2000 system produces a high rate of internally verifiable energy savings in commercial and residential applications. Designed for packaged air conditioning units of 2.5 to 40 ton capacity and up to 500,000 BTU heating furnaces. The EMS2000 system optimizes HVAC energy efficiency by causing the equipment to operate in an energy recovery mode for a significant portion of each cooling or heating cycle, without impacting the comfort zone of the affected facility. It further reduces energy consumption and demand by programming the HVAC equipment to cool or heat the facility on an optimum schedule. The EMS2000 has a built-in testing mode for verification of actual energy consumption and savings. The EMS2000 system is remotely accessible for programming, control, and energy analysis and can optionally be configured with capability for utility demand side management control based on specific utility criteria.

The Energy Management System produces energy and cost savings through improved efficiency, operational and maintenance savings while allowing a utility to implement real time demand side management on a local or remote basis.

Energy Conservation

Energy conservation is achieved by programming the EMS2000 for more energy efficient temperature settings for heating and cooling at all times and especially when a commercial building or residence is vacant. This type of set point control has been widely accepted by the U.S. Department of Energy, utility commissions, and utilities as an effective means of conserving energy. The EMS2000 goes beyond typical setback thermostats by being able to program holidays, vacations, and complex work schedules in commercial applications and produces all of the energy savings provided by larger, more expensive computer controlled energy management systems.

In addition to the programmable thermostat energy savings, the EMS2000 conserves additional energy by operating the HVAC system in its most efficient mode by monitoring output or supply air temperature, return air temperature, room temperature and outdoor temperature. This allows the EMS2000 to make complex decisions about compressor, indoor fan, economizer and gas valve / burner operation.

Some new and more expensive air conditioning systems are furnished with a time delay relay (TDR) that keeps the indoor fan operating 30 to 60 seconds at the end of a cooling call to salvage the cold stored in the mechanical system. American Refrigeration Institute (ARI) has recognized this technique for improving energy efficiency and has provided an additional 0.15 to 0.25 improvement in the SEER rating of the equipment.

The EMS2000 performs this function for equipment that does not have a TDR (most equipment in the field) and goes beyond the simple TDR function. The EMS2000 monitors the temperature of the supply air and keeps the indoor fan operating until the BTU output has dropped to 25% of its normal output. This is done by monitoring the temperature drop across the indoor coil (return air temperature-supply air temperature).

At the 25% level, the BTU output from the system is about equal to the power required to operate the indoor fan to recover the BTU's.

Monitors and Alarms on Performance

The EMS2000 monitors the performance of the HVAC equipment and even its routine maintenance schedule to assure the equipment is continuing to operate at its most efficient level. The EMS2000 accumulates, records and stores the energy consumption and run times of each component in the HVAC system. Analysis of this data determines normal system efficiencies and identifies any degradation or deficiencies occurring in the system. The EMS2000 will generate alarms on a number of temperature and operation parameters of each HVAC unit. These alarms can be reported on a local and remote basis using the various modem communication alternatives back to a central monitoring computer.

Utility Demand Side Management

Utility demand side management (DSM) is first achieved by programmed efficient loading and operation of the HVAC equipment. Real time DSM is achieved by allowing a utility or ESCO to control the setpoint temperature used for either air conditioning or heating on a local level, remote basis through two way modem communications or optionally with an easily accessed radio frequency wireless radio modem system. The setpoints can be proportionally or continuously controlled and changed by the utility as the demand for electrical power increases or decreases. The EMS2000 can be programmed to raise the cooling setpoint temperature or heating setpoint temperature in small increments, cycle units on a timed operational basis or shut units off. The EMS2000 automatically advises the consumer of these changes and can report DSM load shedding to the utility via modem communications. These types of DSM

scenarios can be configured to be executed at the local level based on preset peak demand limits being read and calculated from the electric meter.

Consumer Electrical Demand Savings

Consumers with single or multiple HVAC systems can achieve electrical demand savings by the programmed use of the EMS2000 and by the EMS2000 sequencing the operation of multiple air conditioning systems to limit the number of air conditioner compressors operating at any one time. The utility / consumer can also place setpoint limits on the amount the room temperature can rise during DSM load shedding control in cooling and establish priorities for unloading each HVAC system.

System Hardware Components

Winn Energy Controls has and is continuing to expand our product line to develop and integrate:

- Utility grade metering for Gas, Electric and Water
- Sub metering for Gas, Electric and Water
- Integration of newest wireless communication networks
- Continual expansion of EMS2000 hardware to control / integrate with other manufacturer's food prep and dispensing equipment, energy conservation systems and metering systems.
- Integration of open protocols.
- Expansion of additional Internet Capabilities.

We are also developing additional real-time DSM control over the systems integrated with real-time energy metering to allow for optimization if real-time power pricing or rate structures are adopted.

Substantial expansion of our EnergyPro software continues to allow alternative communication options, added Internet functionality and machine automation to deliver the data and information generated from the EMS2000 systems in the field. As new communication infrastructure is developed by the telecommunication industry and new cheaper cellular service becomes available, our current controls are designed to immediately utilize these new technologies when they become proven and more cost effective than present communication options.

System Functionality

The central office EnergyPro software is a MS Windows based application which allows for minimal setup time to expand the EMS2000 system to control / monitor multiple locations. It is the ease of use of the EnergyPro software, which has gained immediate acceptance of the overall system.

