Sustainability with EUPMS' Intelligent Demand Response

By **Glenn Hasek** - July 7, 2020

According to the Zero Waste Alliance, the term "green facilities" refers to hotels that strive to be more environmentally friendly through the efficient use of energy while thriving for excellence. This brings up the issue on what solutions need to be implemented to effectively save energy—proven to use resources economically—while providing services that fit in the preconized levels of quality and reliability. The institution of such critical foundations—successful improvement programs, technologies, products and tools—are essential to sustained hotel management.

In today's energy panorama, most cost-saving solutions are being considered; Terawatt Intelligent Demand Response Technology (IDR) is a leader in its market niche, delivering unparalleled, proven and guaranteed electricity reduction to facilities, improving business sustainability by driving energy usage through actionable, real-time energy intelligence on designated equipment.

When gauging the critical energy usage equipment in a hotel, one tends to envisage motors and pumps, HVAC systems (AHU, RTU), resistive heating coils, chillers, cooling towers, walk-in coolers, compressors or electrical stoves; those are indeed the selected electric loads to be managed by the Terawatt IDR Technology to adjust a facility's load profile.

Real-Time, Entirely Automated Process

The Intelligent Demand Response—IDR Technology is exclusively tailored to monitor and improve a facility's electrical demand 24/7 in a real-time, entirely automated process synchronized with the utility's smart meter(s) integration interval, reducing consumption (kWh) and peak demand (kW), providing documented energy savings that support all monthly reporting.

Some people compare this Intelligent Demand Response event as an "orchestra maestro (IDR Tech) conducting his musicians (equipment) to perform a piece of music (energy usage) with the right instruments in the right moment (simultaneity management) in perfect harmonic tune (efficient use of energy)".

The IDR Technology systematically respects a facility's design intent (commercial or industrial) and does not impact either equipment integrity and reliability or quality of service. The energy conservation actions are recorded and valorized with the electric utility rate structure to sustain

monthly performance results, supporting the assessed cost-savings for a payback typically less than one year.

Terawatt IDR energy conservation projects, besides being complementary, are eligible for most utilities in their commercial energy efficiency programs with a stimulating range of rebates awarded.

Case Study: Facility type—Grand Hyatt Hotel (439 rooms – 30,000 Sq. Ft. of meeting space)
Location: Atlanta, Ga.
Project ROI < One Year
Project Highlights: 2,262,934 kWh offset with $70,000.00 cost-savings annually, or 1,629 Tons of CO2 offset annually, equivalent to 362 acres of planted trees or 184,474 gallons of gasoline saved.

Sixty-three Pieces of Selected Electrical Equipment Connected to the Terawatt IDR Technology:

- 35 AHU motors (variable frequency drive equipped air handler motors)
- 4 Pumps (variable frequency drives equipped motors)
- 2 Chillers
- 17 Walk-in coolers
- 2 Tower Fans (variable frequency drives equipped)
- 3 Electric Stoves

Installation Without Any Downtime: 3 Weeks

- Pulling command/data cable Carol 18 AWG E20385 (8 conductors shielded)
- Termination of the cable in equipment, done by certified technicians or equipment representatives (included in project)
- Installation of the Terawatt IDR head unit, termination of the command peripherals and connection of the remote access (TCP/IP or Modem)
- Programming, measures, and verifications with activation of the load management

Overall Performance & Technology Capabilities

- Completely automated technology with real-time electrical load management 24/7, synchronized with utilities' smart meter(s), providing totalization and sub-metering details.
- Chilled water temperature monitoring and recording 24/7 with safe power optimization without affecting established set-points for guaranteed comfort levels (optional).
- Monthly documented energy savings with detailed charts, tables, and economic evaluations on accomplished results.
- Remote (TCP/IP or Modem) and local access with proprietary state-of-the-art software.
- IDR Main head unit touch color screen allows password access to system's features for convenient servicing and monitoring.
- Smart Grid compatible, as well as distributed generation platforms, EMS interface, Modbus and Scada.
- Emergency grid optimization enabled, using different protocols of load management, in a fully automated process.
- Alarm management and emergency protocols enabled using TCP/IP or GSM.
- Sub-metering and real-time monitoring for any type of fluids (optional).
- Modular technology that grows with facility's eventual expansion or added equipment.

EU Power Management Systems (EUPMS.com) based in Atlanta has contributed to U.S. business sustainability goals since 2004, reducing electricity costs in proven and guaranteed projects while improving energy efficiency objectives and accomplishments in documented monthly detailed reports, offering 24/7 technical assistance.

Edmundo J. Duarte is the founder and CEO. Successful energy conservation projects cover a wide range of companies in several states, from industrial plants (textiles, paper mills, polymers) to hospitals, hotels and casinos with the exclusive patented, recognized technology, eligible for utilities rebates under commercial energy efficiency programs.

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