The Computerworld Honors Program

Honoring those who use Information Technology to benefit society

Final Copy of Case Study

YEAR:
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STATUS:
Laureate

Organization:
JouleX

Organization URL:
www.joulex.net

Project Name:
AMEC Enterprise IT Energy Reduction

What social/humanitarian issue was the project designed to address? What specific metrics did you use to measure the project's success?

This project addresses energy reduction and the more efficient use of energy across the AMEC IT infrastructure. Sustainable development is at the heart of AMEC's values and Guiding Principles. Using energy more efficiently lowers operating costs, reduces carbon emission pollutants from electricity generation, and conserves our finite supplies of energy (energy security). The social and humanitarian benefits of reduced energy consumption are manifest as electrical energy is created by processing fossil fuels (oil, coal, natural gas) that pollute the environment by emitting carbon dioxide (CO_2e) into our atmosphere. These greenhouse gasses are sources of global warming and other environmental pollutants like acid rain. The project is divided into two phases: the distributed office environment energy reduction project and the data center energy reduction project. Both projects utilize the same metrics for measuring project success: baseline energy consumption, costs, and carbon dioxide emissions (kWh, $ and CO_2e), energy reduction metrics (kWh), energy reduction expense metrics ($), greenhouse gas emissions metrics (CO_2e), and classic return on investment analysis (ROI). The projected energy savings across the distributed office are a reduction of 7,141,129 kWh annually, resulting in cost savings of $2M annually and a reduction in greenhouse gas emissions of 5,142 metric tons of CO_2e annually. Total five-year savings in the distributed office are targeted at $10M in energy cost reduction, 36,000,000 kWh in energy consumption reduction, and a reduction in greenhouse gas emissions of over 25,000 metric tons of CO_2e. Phase two addresses data center energy reduction efficiency and utilizes the same metrics. The project goals target reductions in energy of over 20% of the baseline

consumption, with commensurate reductions in CO2e emissions. AMEC, headquartered in London, desires to reduce the amount of CRC taxes annually assessed to UK companies.

Please describe the technologies used and how those technologies were deployed in an innovative way. Also, please include any technical or other challenges that were overcome for the successful implementation of the project.

AMEC is using the JouleX Energy Manager (JEM) to automate the control of energy usage across its distributed IT and data center environments. JEM is an innovative network-based software application that automatically monitors, analyzes and controls the energy consumption of all network-attached devices, including personal computers, monitors, printers, copiers, switches, servers, storage devices, routers, access points, IP phones, IP lighting, and other network-connected systems like HVAC. The vast majority of devices connected to corporate networks are always on, consuming maximum power whether they are being productively utilized or not. The JouleX Energy Manager operates remotely across the network, automatically reducing power consumption of these underutilized devices dynamically. JEM has provided a single energy-management dashboard for all IT energy consumption for computers, monitors, switches, routers, VoIP, servers, storage, and even printers. AMEC has also utilized JEM to reduce energy consumption by powering down unused or underutilized IT equipment. JEM builds a "bottom-up" approach, providing a "virtual smart meter" for every IP-connected device at the company, which allows AMEC to allocate energy costs, savings, and usage across different locations, business units, and even cost centers. JEM's ability to quickly utilize AMEC's existing systems and management infrastructure to retrieve energy measurements and produce meaningful analytics has been key to the success of this project. Immediate energy analytics gives the company the ability to reduce energy consumption based upon IT behavior and utilization.

Please list the specific humanitarian benefits the project has yielded so far.

Reduction in carbon emissions from electricity production, projected CO2e savings represent the equivalent of removing over 2,000 vehicles off the roads per year. - Conservation of our finite supplies of energy (energy security), a reduction of more than 20,000,000 kWh per year. - Reduction in airborne pollutants resulting from the reduction of particulate emissions from the power-generating process. - Creates a culture of awareness and understanding of energy conservation with an employee portal tracking their individual contribution to energy, cost, and carbon savings.

Please provide the best example of how the project has benefited a specific individual, enterprise or organization. Feel free to include personal quotes from individuals who have directly benefited from the work.

Using energy more efficiently at AMEC makes sense for many reasons, including lowering operating costs, reducing carbon emissions from electricity production, and conserving our finite supplies of energy (energy security). Total project energy savings projected across the distributed office and data center environments are estimated at over $3.6 million per year, a reduction of more than 20 million kWh per year. Beneficiaries include the stakeholders of AMEC (shareholders, employees, customers), who are benefitting from a more economically efficient company, as well as the environment, which is benefitting from reduced CO2e emissions associated with the generation of electrical energy. Future generations also benefit, as fossil fuels are a finite resource that we should not waste for unproductive purposes.