First Net Zero Electric Commercial Building in the U.S.

Presented by: John Grabowski
NTIS Joint Venture / American Energy Partners

Federal Information Experts
Bridging the gap between government information and those who put it to work
• Term applied to a building with a net energy consumption of zero over a typical year.
  
  Equation: Net Zero = energy produced - energy used

• Buildings that produce a surplus of energy over a typical year may be known as “energy Plus+”

  Equation: Net Plus = energy produced - energy used

At the end of the year the Net Zero Electric project resulted in 1 full month of excess energy!
Project Awards

- Perfect 100 pt Energy Star Rating
- ASHRAE (American Society of Professional Engineers) award for High Performance Building
- 2008 DIGGIE award from REALCOM for excellence in innovation and application of energy technology
- 2008 Globe award from ARTBA for environmental project of the year
- Clean Energy Market Innovator award from State of NJ
- Business and Industry Environmental Quality Award
- Radiant Flooring Association Commercial Project of the Year
- Two U.S. Senate Citations for work in energy efficiency and reducing greenhouse gases
Achievements of the “31 Tannery Project”

• First Net Zero Electric commercial building in the US

• First building in NJ to meet NJ State Executive order 54 for reduction of Green House Gas emissions – 80% by 2050. Achieved a reduction in emissions of 86% - that is 6% above target and 50 years ahead of schedule

• Reduced buildings CO2 emissions by 1 million pounds per year – equivalent of taking 100 cars off the road.

• 80% reduction in overall gas and electric energy use combined over typical construction building per ASHRAE and DOE standards
“31 Tannery Project – Back to the Grid”
High Performing Buildings - ASHRAE

http://www.hpbmagazine.org/images/stories/articles/Back%20to%20the%20Grid.pdf
The Net Zero Formula ©

- Renewable energy is only part of the picture – the “exercise”
- Renewable without efficiency is like exercise without diet.
- Real time monitoring is the “personal trainer” of systems performance
Diet = Energy Efficiency
Exercise = Renewable Energy
Trainer = Continuous Energy Monitoring
Actual Performance of the Net Zero Building

As of June 10 2008 7:38:06 pm

Kilowatt Hours
Electricity consumed from the grid this month:

- Pre-Engineered Base: 12,910.8
- Hi performance Solar: 3,744.0
- Actual Building: -3,960.7
100% Return on Investment

5 to 7 years
Continuous Energy Monitoring

• Our Future depends on reducing energy use in buildings

• Energy Use in buildings is dynamic. Even a building that is built and rated as Energy Efficient will change over time.

• Being Green with Energy is not a one time effort it requires continuous effort and continuous monitoring
Brendan Owens, USGBC’s vice president for technical development of LEED pointed out that "monitoring a building’s ongoing operations and maintenance is as important as designing a green building in the first place. High performance is a process that requires the ongoing discipline and commitment to green practices in order to deliver these savings over time."
Key Points

- Renewable energy is only part of the picture – the “exercise”
- Renewable without efficiency is like exercise without diet.
- Real time monitoring is the “personal trainer” of systems performance
- You can implement renewable energy and high efficiency in a commercial environment and get a strong return on investment
- You MUST use high efficiency systems and renewable energy to get the greatest benefit
- REAL TIME MONITORING of your systems is critical
For more information Contact

Shannon Burrington – Associate Director NTIS
703-605-6136
sburrington@ntis.gov

NTIS Joint Venture - American Energy Partners
John Grabowski – 856-816-3161
johng@aepartnersllc.com

The Office of Business Development
703-605-6835
obdinfo@ntis.gov

http://www.ntis.gov/services/eng-mgmt.aspx