

Case Study

Boeing presents internal "Best Practice" award for energy management applications; Vykon used to implement strategy



**Boeing factory- Renton, Wash.
Home of Boeing 737 and 757 production**

With customers in 145 countries, employees in more than 60 countries, and operations in 26 states, it is not surprising that Boeing has been the world leader in commercial flight for over 40 years.

Boeing is also a world leader in environmental and conservation efforts.

Since 1991, Boeing has invested more than \$100 million to find and introduce safer and more environmentally friendly materials and processes, and to conserve energy whenever possible.

Each year Boeing encourages their employees to find more efficient and environmentally favorable processes by awarding "Best Practice" Awards.

This year's "Best Practice" Award for energy went to Jim Greif. Jim, a 15-year Boeing veteran, is responsible for the lighting systems at the facilities in Renton, Washington.

The Renton area facilities house the assembly lines for the 737 and 757 aircrafts. The facilities consist of six buildings with an aggregate peak load that approaches 25 megawatts. The annual expense of lighting alone is \$3.5 million at a single facility.

Greif's most recent challenge was to reduce energy consumption in Boeing's manufacturing facilities. Because lighting constituted about 30 percent of the total energy expense, Greif chose to focus on

strategies to integrate and control the different lighting systems in the various plants. Installing Vykon™ by Tridium™ offered the means to achieve Boeing's goals.

Boeing

- Largest aerospace company in the world
- World's largest manufacturer of commercial jetliners and military aircraft
- Largest U.S. exporter, based on sales
- Total company revenues were \$51 billion for 2000.

Boeing's Needs

- Reduce energy expense
- Conserve energy for a favorable environmental impact
- Create a system with flexible lighting zones that users could access with a standard web browser
- Maintain a safe working environment

Vykon Provided

- A reduction in energy expenditures
- Load shedding capabilities allowing energy conservation
- An open architecture for controlling lighting zones and schedules
- A safely-lit working environment

Benefits

- Boeing reduced electric consumption by 20 percent during peak usage and 50 percent on weekends in facilities with Vykon
- Ability to profile energy and lighting
- Ability to shed load during peak usage

Boeing uses Vykon™ energy management applications and reduces energy consumption by 20% during peak usage and 50% on weekends!

"I used Vykon to implement my energy saving strategy that won Boeing's 'Best Practice' award for energy management" Jim Greif, Boeing



The Challenge

In defining a solution, Greif had several challenges including integration of two different lighting systems with electric meters and sub-metering technologies. As the lighting system in Boeing's Renton facilities had fixed lighting zones, load shedding was difficult since the lighting within a zone could not be disaggregated.

Safety was another consideration for Boeing, and flexible scheduling of lighting was essential. "Having one million dollar wings rolling around without proper control of lighting is just not safe," said Greif.

Another challenge that Boeing faced was to provide access and control from common web browsers, since Greif and other technicians divide their time between facilities and are frequently out of range of the control system. Finally, the system needed to be flexible enough to handle changes in production schedules.

The Solution

After searching unsuccessfully for a product that could interface with his diverse lighting systems, Jim heard about Tridium's web-enabled suite and decided to put Vykon to the test.

Boeing installed Vykon energy management applications at their 4-20(21) building, which is one of Boeing's largest at 1,063,750 square feet. By installing Vykon, they were able to integrate both of the lighting systems with the electric metering system.

Furthermore, by having the systems interoperate, Boeing gained real-time alarming and profiling of energy and lighting. Since Vykon is web-enabled, they were able to access and control set points throughout the system from any web browser.

"I can control it so easily with Vykon's open architecture. Within one day I programmed the zoning and scheduling. Now I can change schedules with a click of a mouse," said Greif.

"Plus, supervisors can shed lighting and not even notice a difference on the floor. Some areas have shed 20-30 percent during peak usage and 50 percent on second-shift and weekends. We have achieved these savings without adversely affecting operations at all."

Boeing officials are so pleased with the results of building 4-20 that they have accelerated their commitment to the energy management system Greif created using Vykon. Several internal meetings have given Greif the opportunity to present his results to his peers.

"I used Vykon to implement my energy saving strategy that won Boeing's 'Best Practice' award for energy management."

The Benefits

Boeing is pleased with the favorable environmental impact of their energy conservation efforts.

With Vykon energy management applications, Boeing conserved 18000 kWh on weekends and 10080 kWh on weekdays.



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