

Resource Conservation Manager Deke Jones: Doing a thousand things better to improve the bottom line

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WSU Energy Program

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To advance environmental and economic well-being by providing unmatched energy services, products, education and information based on world-class research.

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Deke Jones is the go-to guy helping the cities of Auburn and Federal Way reduce their energy use. As the Shared Resource Conservation Manager (RCM) for these cities, Jones is finding ways to optimize building efficiency to save energy and money.

With guidance from Puget Sound Energy (PSE) and the Washington State University (WSU) Energy Program, Jones brings his eye for detail and knowledge of facilities management to this task, along with his affable commitment to “management by wandering around.”

The cities set ambitious goals for the three-year term of Jones’ Shared RCM employment: reduce energy use by three percent in Year 1, five percent more in Year 2, and an additional five percent in Year 3, for a total reduction in energy use of 13 percent by 2013.



Deke Jones works by the credo “Saving energy isn’t about doing one thing a thousand times better; it is about doing a thousand things one time better” – a concept he adapted from A Passion for Excellence by Tom Peters.

Results of implementing no-cost and low-cost conservation measures from July 1, 2010 to June 30, 2011

City of Auburn

Decreased overall energy consumption by 4.11 percent

Saved an estimated \$29,214 during Year 1

City of Federal Way

Decreased overall energy consumption by 4.24 percent

Saved an estimated \$28,494 during Year 1

These results beat the goal of three percent energy savings in each city

As Year 1 wrapped up in 2011, Jones reported clear success. Energy use decreased by over four percent in each city, which he attributes to making innumerable no-cost or low-cost adjustments and inviting city staff to pitch in by changing behaviors, such as unplugging device chargers and space heaters. To create this momentum, Jones focuses on four main tasks.

1. Identify and implement energy conservation measures

At the top of Jones' to-do list when he started this job was to visit each site managed by the cities of Federal Way and Auburn. "Site" normally refers to a stand-alone building with a separate electricity meter as well as parks, cemeteries and pump and lift stations.

During site visits, Jones talks with occupants to learn about their comfort issues and other concerns. He inspects each facility to find opportunities to make them more energy efficient.

He also identifies bigger projects that can be partially funded by grants and incentives from the utility, such as heating, ventilating and air conditioning (HVAC) system upgrades and replacement of air handlers, control systems, chillers and heat pumps.

No-cost measures = behavior changes

"Making sure we turn off the lights and the water when we're not using them are easy fixes, and the cheapest, most effective way to conserve," Jones says. "But that involves changing our attitudes and our behaviors, which happens gradually over time."

Simple things that building occupants can do to save energy include putting on sweaters instead of turning on space heaters, using desk lamps instead of overhead lights, unplugging personal devices, such as phone chargers, and respecting the thermostat set points. These little things add up.

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The search for energy savings can be quite infectious. Deke's enthusiasm for the RCM program has the entire City looking for light switches to turn off. Once bitten by the bug, it's hard not to go home and look for energy savings there also.

– Steve Burke
Construction Projects Manager
City of Auburn

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Would anyone notice if the lights surrounding this skylight were turned off during the day?

Low-cost measures = adjusting schedules, initiating retrofits

Jones monitors energy use and demand, and documents this information in an energy use profile for each site. He then meets with Operations and Maintenance staff and recommends actions such as:

- Installing light timers or occupancy sensors so lights are not on when no one is around,
- Sealing doors and windows to reduce leaks,
- Removing lights from overlit areas and vending machines, and
- Adjusting heating or cooling schedules to closely align with building use schedules.

The initial costs of these improvements are quickly paid for by energy savings.

Capital measures = construction, equipment, retrofits and controls

"Once we've looked at how we can save energy with little or no

cash outlay, and people are beginning to change their usage and habits,” Jones says, “we turn to some of the conservation activities that involve heavier capital investments and large-scale changes.”

These improvements are spelled out in the Resource Conservation Management Plan and Operating Standards that Jones has completed for each city. These investment measures may include:

- Installing roof and wall insulation,
- Upgrading to more efficient lights,
- Installing newer HVAC controls,
- Replacing aging HVAC equipment, and
- Upgrading building envelopes.

2. Manage energy use/cost database for city facilities

Jones uses the software applications Utility Manager and Energy Interval Service provided by PSE to monitor how energy is used in each facility. Jones can quickly spot abnormal or unusual trends by tracking use per day, cost per

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Deke has exceeded our expectations by successfully leading us to not only find ways to save energy, but implement cost effective solutions and motivate awareness in others, which has an influence beyond the work place.

– Steve Ikerd, Manager
Parks and Facilities
City of Federal Way

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day, unit cost, load factor and peak demand.

This information lets Jones bench-mark and prioritize which facilities to address first because they use the most energy. He can also understand how adjusting the facility’s systems, such as HVAC or lighting, may help save energy.

Jones shares this information with facility staff and managers so he can point to specific fixes that can lead to energy and financial savings.

Jones also reviews utility bills for each site to make sure the city has not been overcharged.

3. Develop and deliver information to promote conservation behaviors

Jones presented 11 all-staff RCM training sessions to City of Auburn employees and collaborated with PSE in a presentation targeting businesses in the Auburn community. These presentations focused on the efforts and impacts of the RCM program and the simple, everyday things people can do to save energy in the workplace and at home.

4. Administer grants, rebates and reports

As a Shared RCM, Jones prepares status reports and action plans to make sure city managers know what is going on at each site; it is crucial that managers understand the value of the energy efficiency investment decisions they will be asked to make.

In addition, Jones has cultivated a good relationship with the utility. He works closely with PSE staff



Deke Jones with Auburn City staff at Auburn water pumping station.

to make sure he applies PSE’s expertise and leverages all available rebates and incentives to save the cities money.

To date, the RCM program has secured rebates for low-cost efficiency measures totaling approximately \$5,000 for Auburn and \$4,500 for Federal Way. These rebate amounts will continue to grow as more and more low-cost measures are implemented throughout both cities.

Biggest hurdle

Because we cannot touch or feel energy efficiency, and someone else pays the bill at our workplaces, it can be difficult to understand how our small decisions over the course of a day or a month or an entire career make a difference.

“Energy savings are not sexy and too often are invisible,” Jones says. “But energy use is an ongoing expense that keeps rising, so we need to get it under control.”

To help people remain mindful of their energy use, Jones highlights

the importance of doing small things better, day after day. "The thousand small things we can all do to save energy add up to significant savings."

More information about RCM

WSU Energy Program provides technical and program support: www.energy.wsu.edu/PublicFacilitiesSupport/ResourceConservation.aspx

PSE provides support such as training, resource accounting software, incentives and outreach: www.pse.com/savingsandenergycenter/ForBusinesses/Pages/ResourceConservation-Manager.aspx

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Auburn: Spotlight on City Hall and the Operation and Maintenance Facility

No-cost/low-cost changes at Auburn's City Hall and Operation and Maintenance (O&M) facility reduced energy use at these facilities by more than seven percent in the past year. Deke Jones, the Resource Conservation Manager that Auburn shares with Federal Way, reports that these savings are due to improvements in the HVAC system, lighting and conservation behaviors.

Controls optimize HVAC operation

In the O&M facility, constant vehicle and staff traffic entering and exiting the building through roll-up bay doors caused continuous heating/cooling fluctuations and heavy demands on the HVAC system. Heaters in the shop area keep temperature at 70°F, but the heat escaped when the roll-up doors were left open even when there was no vehicle traffic.

To stop this huge energy draw, Jones and the facility manager had micro-switches installed so the heaters turn off when the doors are open. This simple change forces common-sense behavior: close the doors if you want the heaters to work. Jones reports that O&M staff "are not loving" this new set up – yet – but it is a change that makes sense and was long overdue.

Lighting retrofits and controls manage lighting levels

Auburn facilities management staff installed occupancy sensors in individual offices and shared areas in these buildings. They also replaced incandescent, halogen and metal halide lamps with compact fluorescent lamps (CFLs) and light-emitting diodes (LEDs) wherever possible. The biggest lighting offenders were in the O&M facility: the 400 watt metal halide

lamps were energy hogs and their lighting quality had degraded over time. Thanks to the recommendation of Jay Donnaway (another Western Washington RCM), Jones had these 34 lamps replaced with 180 watt CFLs, which provide better quality light and use less energy.

While mechanics did not like the light quality at first, Jones "met them in the middle" and added a few fluorescent fixtures where needed. The O&M staff members have grown to appreciate the lighting changes. In addition, they appreciate that Jones listened to their concerns and was receptive to compromise so they can stay focused on their work.

Conservation behaviors by staff and building occupants

Jones held meetings with Auburn staff and posted reminders in work areas to encourage staff members to reduce their energy use wherever possible.

One small change that really helped save energy in the glass-walled City Hall was when employees closed the

blinds at night. When the blinds were left open, the interior temperature of the building dropped by 10°F so the heating system had to work harder to bring the building back up to a comfortable temperature each morning. But when employees closed the blinds at the end of each day, the nighttime heat loss was cut in half, and the city saw a corresponding reduction in heating costs.

Jones noticed that some employees were using space heaters they brought from home. This is a problem; the additional heat generated by space heaters tells the thermostats that the building is warm enough so the HVAC system quits producing heat and may even go into cooling mode.

Jones and facilities staff dealt with this issue by adjusting the HVAC settings so employees would be more comfortable without supplemental heaters. And if some employees still required space heating, Jones recommended radiant panels, which use only a fraction of the electricity of typical space heaters.



Auburn City Hall

Federal Way: Spotlight on Energy-Saving Projects at City Hall

From June 2011 to December 2011, energy use at the Federal Way City Hall dropped 13.7 percent. Twelve percent is attributable to the new HVAC system; the rest – nearly two percent – is the result of no-cost/low-cost measures. Deke Jones, the Resource Conservation Manager that Federal Way shares with Auburn, says these savings are due to conservation behaviors by employees and easy but dramatic changes to how the building was illuminated.

Lighting controls and de-lamping

Federal Way facilities staff retooled the old-school lighting strategies in use at City Hall by:

- Installing 62 occupancy sensors in offices and common areas, including conference rooms and restrooms
- Removing unnecessary bulbs from 60 fixtures
- Installing five programmable timers to shut off large areas of lights
- Re-setting the schedules of large panels of lights so they did not remain on 24/7

In the Council Chambers, halogen spotlights were left on continuously because no one knew how to reprogram them. These lights burned out quickly and produced a lot of heat, which often forced the air conditioner to work harder. Jones replaced these spotlights with LED bulbs that have a much longer life expectancy and do not produce heat.

Jones also recommended that nearly 2,000 halogen bulbs used to light the curved soffit in the Council Chambers be replaced with LED rope lights that

cost only \$285 for 275 feet. This inexpensive change reduced energy use by this fixture by 1,000 percent. In addition, because LEDs do not produce as much heat as halogen lamps, the Council Chambers do not heat up as much and trigger the air conditioner. This simple and inexpensive change reduced energy use, maintenance costs and air conditioning expenses.

In the Art Hallway, overhead lights were left on 24/7. Jones and facility staff installed a light timer so the lighting can be shut off on weekends and holidays. They also removed seven halogen fixtures from existing track lighting and replaced the remain-

ing halogen lamps with LEDs. The Arts Commissioner is happy with the changes and feels that the art is now lit better.

These no-cost and low-cost measures will generate energy savings of 2.5 to 3 percent per year. Jones spent \$6,000 on occupancy sensors, energy efficient lamps and timers, plus \$2,500 for labor, totaling \$8,500. The city received a rebate from PSE for \$3,500, so net expenditures were only \$5,000. With reduced energy consumption, the simple payback is 3.5 years, not to mention the immediate improvement in cash flow.



Replacing the halogen bulbs in the Council Chamber soffit fixture with LEDs is reducing the fixture's energy use by 1,000 percent.