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Resource Conservation Manager Katherine Morgan: Focusing on details to find savings

By Melinda Thiessen Spencer, WSU Energy Program

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Katherine Morgan inspects equipment at the Bremerton Wastewater Treatment Plant.

Katherine Morgan, the Shared Resource Conservation Manager (RCM) for the Port of Bremerton and the cities of Bremerton, Bainbridge Island and Poulsbo, is adept at balancing energy-saving ideals with purse-tightening realities.

Serving in this role since mid-2010, Morgan is employed by Cascade Power Group under an Inter-Local Agreement among these jurisdictions. Start-up funding for Morgan's position was provided by grants from Puget Sound Energy (PSE) and the Washington Department of Commerce using American Recovery and Reinvestment Act funds. Her position is now funded by a grant from PSE and contributions from the agency partners. The Washington State University (WSU) Energy Program has provided technical assistance since the Shared RCM program began. Cascade Power Group assists Katherine by providing support with software, report preparation and a myriad of other functions to help her achieve her RCM objectives.

Morgan's goal is to save the partners money by reducing costs for energy, water and waste disposal. Her strategy is to look for conservation opportunities so the partner agencies and taxpayers can save money while spending little – if any – on upgrades that require capital funds.

Working with facilities operators, Morgan looks for unusual trends in energy or water use. "We work together to find out what is causing overuse," she says. Often, a small change will fix the problem. And typically, those changes will start saving money right away.

Morgan is modest when asked about her accomplishments as RCM. "I support what facilities managers in the partner agencies are already doing by flagging anomalies in resource use so they can check them out," Morgan says. "The biggest thing I've influenced is working with facilities and building staff to look at controls and adjust settings. Small changes can save agencies thousands of dollars with little effort."

Tracking resource use to deliver savings

Morgan uses a software application called *Utility Manager*® – provided through the grant from PSE – to identify where to reduce waste so the partners get the most value from their expenditures for energy, water and waste disposal.

Cascade Power Group seeded *Utility Manager* with historical data and regularly imports current data so Morgan can track trends in utility consumption by comparing historical data with current use. Guided by these insights, she:

- Assessed each site operated by the four partners – 93 in all
- Recommended conservation opportunities for each site
- Worked with facilities staff to make operational and behavioral changes to help meet conservation goals

Morgan says, "The challenge is to manage equipment – and ourselves – to save resources while still providing comfortable working conditions and meeting the needs of those who use these facilities." As detailed below, she is making progress in each jurisdiction.

Bremerton

The City of Bremerton is the largest partner and host agency in the Shared RCM program. Collectively, the 38 sites Morgan monitors here spent over $1,290,000 on energy in 2011.

Morgan works with Bremerton's facility operators to enhance and encourage conservation measures that the city has already identified. She credits committed facilities staff with helping the city save resources by:

- Tuning digital control systems
- Reviewing and resetting heating and cooling schedules and temperature setpoints
- Upgrading lighting

These types of no-cost/low-cost changes resulted in a 15 percent drop in energy use at the Kitsap Conference Center. Ken Millsap, the new General Manager with Columbia Hospitality, formed a Green Team at the conference center. He also actively micro-manages the light and HVAC schedules to conform with the facility's actual use and is looking for better ways to manage food waste.

Other city facilities also turned in impressive improvements. Morgan reports a 7 percent drop in electricity use and a 9 percent drop in gas use in 2011 compared with 2010.

Port of Bremerton

The Port of Bremerton operates the Bremerton National Airport, Bremerton and Port Orchard marinas, and the Olympic View Industrial Park. The port is working to reduce energy use by 10 percent – a challenge because:

> *Katherine's insights have proven valuable in helping us make better decisions about what we can do to reduce our energy consumption and improve our facilities for our tenants.*
>
> Tim Thomson, CEO
> Port of Bremerton

- Much of the energy use is by customers – tenants, boating guests and hangar renters. But Morgan emphasizes that there are still opportunities to reduce the port's operating costs in guest facilities and area lighting.
- Most of the spaces are older and are not in compliance with current energy standards. For example, the airport terminal – characterized by thin walls with many older windows – has been reconfigured many times, but it is difficult to deliver on comfort and energy efficiency when the facility is simply out of date.

Morgan evaluated 17 sites at the Port of Bremerton. Overall, energy use dropped by 2 percent during her first year on the job. In addition, from July 2011 through June 2012, electricity use dropped by nearly 6 percent and demand charges also went down, saving the port over $13,204.

Paying attention to how resources

are used is the key, Morgan says. For example, "The maintenance supervisor at the airport keeps a sharp eye on things. His vigilance was rewarded when the maintenance shop posted the greatest improvement" among the port's facilities.

Poulsbo

Morgan evaluated 24 sites in Poulsbo. Pinpointing how much resource use changed since Morgan began her Shared RCM position in 2010 is difficult because several city departments moved to the new City Hall. But for the group of buildings in continuous use, energy use went down 9 percent for the year ending June 2012, saving $6,343.

To achieve these savings, Morgan credits staff who pay attention to resource use trends. "I work with facilities staff to re-program thermostats at the library and make sure a hidden-away air intake is kept clear. And staff at other buildings make sure thermostats, lights and equipment are used efficiently."

For example, a Poulsbo operations supervisor noticed that energy use was increasing at the caretaker's residence at Raab Park. The supervisor worked with the caretaker to make sure space heaters and lights were turned off when not needed and to verify that the filter on the heater was clean so it would run more efficiently. These small changes cut energy use at the caretaker's residence by over 15 percent.

But, as Morgan is careful to note, "It's not always about immediate savings. It is just as important to spot trends that indicate a problem and work with staff to fix the underlying problem."

Port Orchard's Marina Park

Port Orchard's Marina Park hosts community waterfront events and serves as a neighborhood playground.

By monitoring energy use at the park, Morgan was able to catch a big increase (52 percent) in energy use in one of the park's restrooms over the winter. "If we hadn't been monitoring energy use, we wouldn't have noticed this spike," she adds.

A space heater was being used to keep the pipes from freezing, which was very inefficient. "After we added a thermostat to the heater, electricity use dropped by 21 percent. This is a good example of the savings we can capture just by paying attention," Morgan says.

The long-term solution will probably involve insulating the pipes. Until that happens, having the heater on a thermostat is helping reduce its impact on energy use and costs.

Spending money to save money: Poulsbo's new City Hall

Spending money to save money is a tough sell, even in a rollicking economy. But, as Morgan notes, "If agencies are willing to make timely capital investments, these strategic improvements will continue to pay back over time by reducing utility costs."

The City of Poulsbo is a case in point. Between 2010 and 2011, staff moved from several older buildings to the new Poulsbo City Hall. The new building is more efficient than the buildings that were vacated.

This efficiency is demonstrated by the aggregate energy use per square foot (Energy Use Intensity, or EUI). A building's EUI is calculated by taking the total energy consumed in one year and dividing it by the total floorspace of the building.

The combined EUI for the old city hall, police station and public works administrative office was notably greater than the EUI for the new city hall, which now houses these city departments and provides much improved work and community spaces. The EUI for the older buildings in 2010 was 66; **the EUI for the new city hall as of mid-2012 is 54, an 18 percent reduction that reflects a significant decrease in energy use**. The new city hall recently qualified to apply for the U.S. Department of Energy's ENERGY STAR® certification.

Old City Hall + Police Station + Public Works =
Overall 2010 EUI of 66

New City Hall =
Overall mid-2012 EUI of 54

Bainbridge Island

Morgan evaluated 14 sites in the City of Bainbridge Island. Energy use at these facilities went down by nearly 2 percent between mid-2010 and mid-2011. In fact, every building except the Bainbridge Island City Hall reduced its electricity use during this time. The biggest reductions were at the police station (down 8 percent) and the senior center/commons (down 6 percent). Morgan attributes these successes to managers who vigilantly monitored heaters, lights and thermostats.

The City of Bainbridge Island is a strong advocate of resource conservation, with policies in place to support conservation goals. For example, over the past year, improvements at the municipal courts facility saved 59 percent of electric costs, avoiding over $1,000 in annual operating cost. And when the senior center portion of the commons facility was rebuilt, many green features were incorporated.

Morgan describes one of the challenges that Bainbridge facilities operators face when trying to meet conservation goals. "At one public works facility where staff members wash vehicles and store equipment, the lights were designed to never be turned off." She says, "The only option staff have is to turn off half the lights at the breaker. But by going the extra mile and doing this during the long days of summer, public works staff saw the value of installing light switches as a permanent fix," which Morgan hopes will happen in the near future.

Dollars Saved During Katherine Morgan's First Two Years as Shared RCM
July 2010 – June 2012

Partner/Group	Total Energy Cost Savings
Bremerton/Occupied	$86,217
Bainbridge Island/Occupied	$3,888
Bainbridge Island/Utilities	$9,212
Poulsbo/Occupied	$8,646
Poulsbo/Utilities	$4,223
Port of Bremerton/Airport	$8,858
Total	$121,044

Buildings that opened or closed during this period were excluded. The Bremerton utilities group and port marinas group had increased costs unrelated to the program and were excluded here. Base year July 2009 – June 2010, adjusted for weather where valid.

For more information

The **WSU Energy Program** provides technical and program support:
WSU Energy Program
RCM Network website:
www.energy.wsu.edu/PublicFacilities Support/ResourceConservation.aspx

Puget Sound Energy provides training, resource accounting software, incentives and outreach:
PSE's RCM Program website:
www.pse.com/savingsandenergycenter/ForBusinesses/Pages/Resource-Conservation-Manager.aspx

Contact:
Katherine Morgan's grant-funded RCM position ends on September 30, 2012. If you have questions about ongoing resource conservation efforts, please contact:

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