

Springfield Utility Board and Oregon Military Department Behavior Based Energy Efficiency Study

Study conducted at Oregon National Guard's Lane Readiness Center



Lane Readiness Center

Located in Springfield, OR

Approx 160,000SF

260 FTE

800 Drilling Guard and
Reserve Soldiers

Springfield Utility Board and Oregon Military Department Behavior Based Energy Efficiency Study

- Overview

- Springfield Utility Board (SUB) worked with the Oregon Military Department to develop a behavior based study at the Lane Readiness Center

- Study Design: Strategic Energy Group (SEG)
- Study Implementation: SEG and Northwest Water and Energy Education Institute at Lane Community College (NWEEI)

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- **Government Facility**

- **Federal Tenants:**

- U. S. Forest Service (USFS)
- Department of Interior
 - Bureau of Land Management (BLM)
- U.S. Marine Reserve
- U.S. Navy Reserve
- Oregon National Guard



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- Net Zero Energy 2020
 - Oregon National Guard participated in Net Zero Energy 2020 pilot with Department of the Army
 - Behavior and Culture is one of the aspects to implement the energy reduction goals.



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- Study Objective

- Achieve a 10% reduction in energy consumption
- Increase awareness of Federal energy reduction goals and actions to reduce energy waste

- EPACK 2005
- EISA 2007
- EO13423 2007
- EO 13514 2009

The Alphabet Soup of
Energy Reduction Goals!

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- Study Approach
 - Operator Behavior
 - Engage Facility Operator on Best Practices for Energy Management
 - Occupant Behavior
 - Engage Facility Occupants to Reduce Energy Waste
 - Measurement and Verification
 - Monitoring, Tracking and Reporting Tool

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- Study Design
 - Operational Assessment and Operator Engagement
 - Occupant Outreach and Awareness Engagement
 - Measurement and Verification

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- Operator Behavior
 - Facility operational hours vs occupied hours
 - Equipment optimization
 - Fine tune building automated control
- Occupant Behavior
 - Increased knowledge of mandates to reduce energy waste
 - Actions to reduce energy waste
 - Examples: Turn off and unplug electronic peripherals, dress for the season, reduce extra hours outside operational hours

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Study Results:

Documented Energy Savings

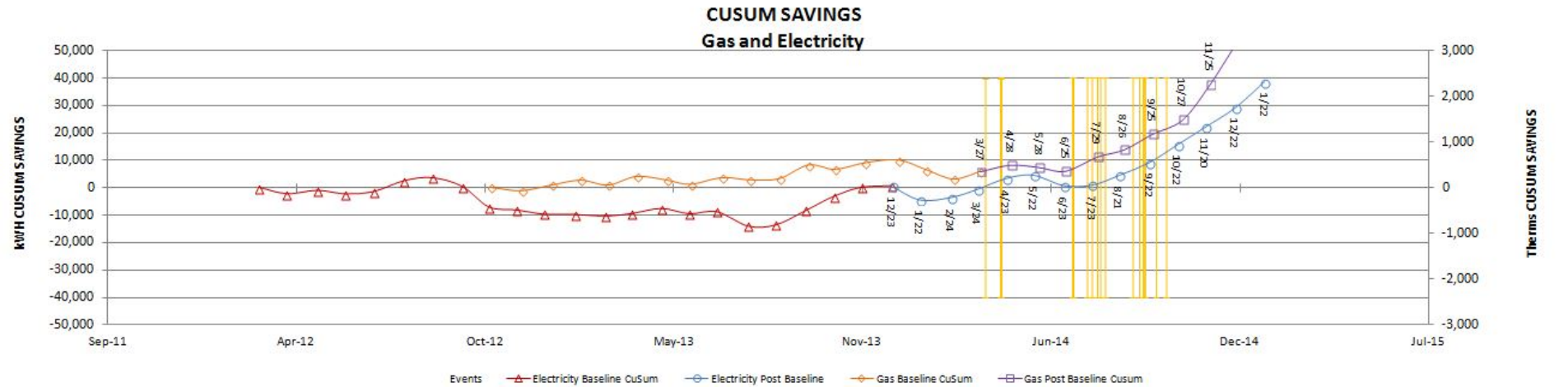
Greater Occupant Awareness

MT&R Report For:		Oregon Military			Building:	Lane Readiness Center		
Program Period:					4/1/2014	Thru	10/31/2014	
Primary Building Usage or Occupancy Type:					Offices - Armory			
Building MT&R Discussion								
Performance tracking for electric usage was completed through MT&R modeling								
Electric Account	Electric Meter	Annual Consumption (kWh)		Natural Gas Account	Natural Gas Meter	Annual Consumption (Therms)		
1464408	05031108 & 12050009	949,520		2003231-4	992068	30,385		
0	0			0	0			
0	0			0	0			
0	0			0	0			
0	0			0	0			
Total Annual Electrical Consumption (pre-program)		949,520		Total Annual Gas Consumption (pre-program)		30,385		
Electric Data Source				Monthly use was obtained through the customer utility records				
Natural Gas Data Source				Monthly use was obtained through the customer utility records				
Independent Variable(s) Source				Holidays and misc. shutdown days were provided by the customers Energy Manager				
Measured Electric Savings (kWh) to date:	1/22/2015	14,848	kWh	1.6%	Projected Annual Electrical Savings:	29,777	kWh	3.1%
Measured Natural Gas Savings (therms) to date:	1/29/2015	1,045	Therms	3.4%	Projected Annual Gas Savings:	1,758	Therms	5.8%

MT&R Report for the Lane Readiness Center

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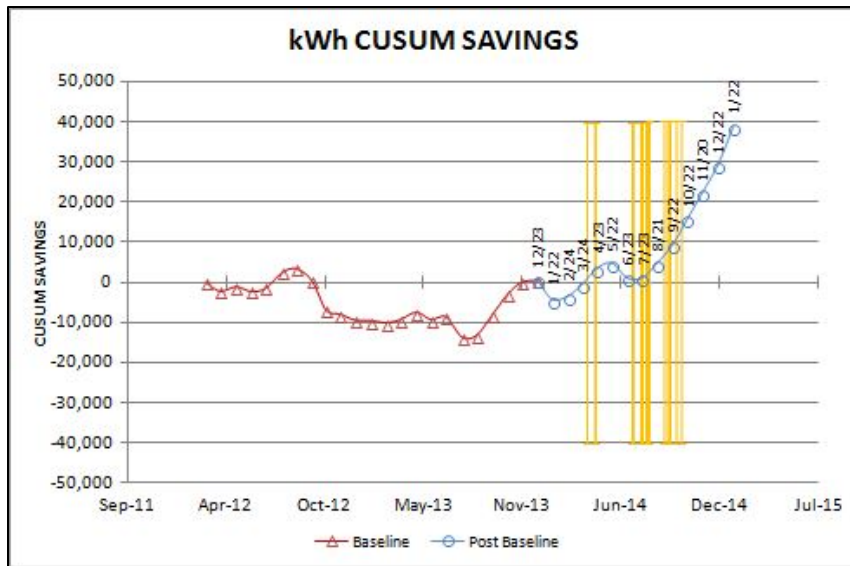
- Study Results
 - From Monitoring, Tracking and Reporting Tool (MT&R)



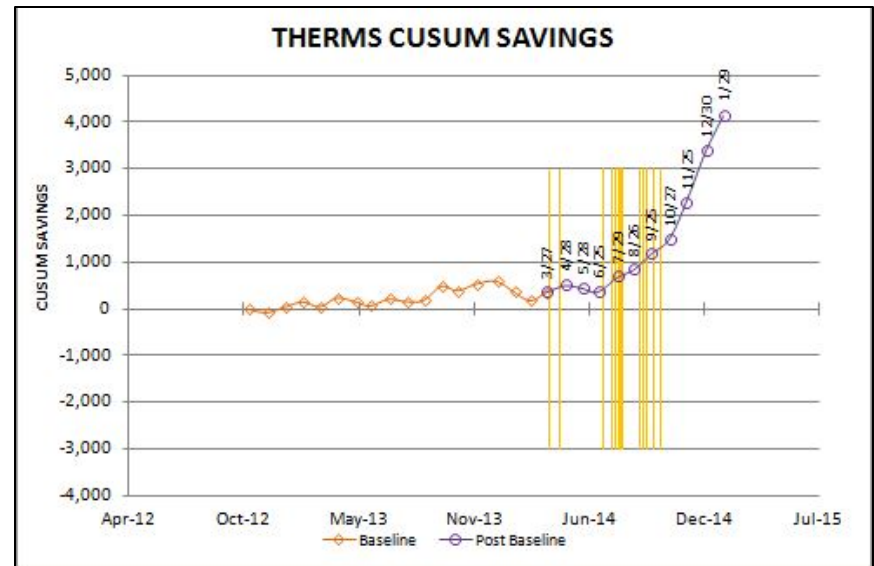
kWh Savings to date 14,800 / Therms Savings to date 1045

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- Study Results



kWh Savings to date 14,800



Therms Savings to date 1045

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JOIN THE Energy CHALLENGE

30% of Energy Consumed in Many Oregon Government Facilities is Wasted.

Together we can easily reduce that waste with little or no cost but it requires your help. Be on the lookout for upcoming events, information and surveys. Join the energy challenge happening right now in your building!

We Are Committed to Meeting the Federal Energy Reduction Mandates and Need Your Help.

Join the Energy Challenge

- * **Increase Your Awareness of Energy Use Within Your Facility**
- * **Take Action to Reduce Energy Waste**

Over the next 60 days, look for additional information & activities.

JOIN THE Energy CHALLENGE

QUESTIONS?
margaret.m.towlestrong.nfg@mail.mil

The goal of *the Energy Challenge* was to increase the awareness of the need to reduce energy waste at the facility

PERFORMANCE REQUIREMENTS FOR FEDERAL BUILDINGS

What does it all mean?

These Federal policies establish goals to reduce energy usage by 30% and eliminate wasted energy by 2020. They also contain goals for sustainable buildings, transportation and procurement.

The Energy Challenge is working with these goals right here at the Springfield Interagency Office/Lane Readiness Center.

Why reduce your Energy Waste?

- 1.** You can reduce the cost of operating the building.
- 2.** You can reduce the energy consumed within the building.
- 3.** You can reduce the air & water pollution from energy generation.


Waste Prevention = A More Responsible Use of Our Federal Resources.

JOIN THE Energy CHALLENGE

QUESTIONS?
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Samples of Awareness Outreach

Desk Audit Messaging



*You Have the Power
to Reduce Energy Waste*

TAKE SIMPLE STEPS AND MAKE A DIFFERENCE

If it's On, Turn it Off

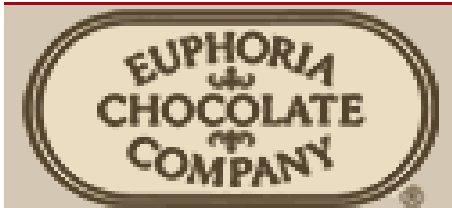
- ✓ Unplug entire cubicles not in regular use
- ✓ Task lights, Monitors & Computers (if possible)
- ✓ AV equipment (especially large TVs & projectors)

Choose Less Energy not More

- ✓ A laptop can use less than half the energy of a desktop computer.
- ✓ Make 'low energy consumption' a criteria when purchasing this years new gear.

Change Your Habits

- ✓ Don't be the last one/first one in the office. Occupancy sensors are waiting for you to turn off large sections of lights and equipment. (Working alone outside normal operating hours can cost the agency money).
- ✓ Wear light clothing in summer and warm clothing in winter. You'll be comfortable and help save energy by not needing to raise or lower the thermostat.
- ✓ Need more air? Your high performance building features beautiful windows that YOU can control. Open and close them when the outside air temperature is mild. (not too, hot/not too cold)



Chocolates were left as a motivator!

Red

Yellow

Green

Perhaps we missed something but it appears your using a lot more energy then your neighbors.

Changing the way you do things isn't always easy but check out what others are doing and you might get some ideas.

Want to do something about it?
For starters, look at the list below.

<input type="checkbox"/> Computers Off	<input type="checkbox"/> Use Of Powerstrip
<input type="checkbox"/> Monitor On Standby	<input type="checkbox"/> No Personal Fridge
<input type="checkbox"/> Monitor Off (or switched)	<input type="checkbox"/> No Personal Coffee
<input type="checkbox"/> Misc. Equipment Off	<input type="checkbox"/> No Personal Printer
<input checked="" type="checkbox"/> Task Light Off	<input type="checkbox"/> No Space Heater
<input checked="" type="checkbox"/> Cabinet Light Off	

Good Job.

Your usage is about average with others and overall - that's pretty darn good!

Want to do more?
Check out the list below.

<input type="checkbox"/> Computers Off	<input type="checkbox"/> Use Of Powerstrip
<input type="checkbox"/> Monitor On Standby	<input type="checkbox"/> No Personal Fridge
<input type="checkbox"/> Monitor Off (or switched)	<input type="checkbox"/> No Personal Coffee
<input type="checkbox"/> Misc. Equipment Off	<input type="checkbox"/> No Personal Printer
<input type="checkbox"/> Task light Off	<input type="checkbox"/> No Space Heater
<input type="checkbox"/> Cabinet Light Off	

Let's Face it,
You're Just Awesome!

Keep up the great work.

People can depend on you for
inspiration and a trendsetter.

<input type="checkbox"/> Computers Off	<input type="checkbox"/> Use Of Powerstrip
<input type="checkbox"/> Monitor On Standby	<input type="checkbox"/> No Personal Fridge
<input type="checkbox"/> Monitor Off (or switched)	<input type="checkbox"/> No Personal Coffee
<input type="checkbox"/> Misc. Equipment Off	<input type="checkbox"/> No Personal Printer
<input type="checkbox"/> Task light Off	<input type="checkbox"/> No Space Heater
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- Findings-Operator Behavior
 - Significant Savings Opportunity: OMD will continue to work to implement improvements to scheduling, set points and air volume
 - Controls: Older American AutoMatrix system is not intuitive, it is difficult to review or modify
 - Results in slow implementation of operational improvements
 - Operations & Management : High turnover results in loss of institutional knowledge of facility operations

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- Findings- Occupant Behavior
 - Address occupant comfort issues as part of engagement strategy
 - Multi agency facility creates difficulty with occupant engagement. Stronger executive support would be beneficial.
 - Timing of study coincided with high seasonal operational tempo for agencies
 - Communication: No centralized communication, applied a low tech approach with messaging in central areas for daily traffic.

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- **Applicability of Study Approach:**

Operator Engagement: Maximizing Operator Engagement and Training will help ensure long term energy savings.

Occupant Engagement: Increasing awareness and participation of occupants in attaining energy reduction goals helps utilize a highly trained resource-your employees!

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- Next Steps:

Oregon Military Department will:

- Continue with Operation Improvements as indicated in BBEE Operational Plan for Lane County Readiness Center
- Continue Occupant Engagement: Activities are being developed for Earth Day in April and Department of Army's Energy Awareness Month in October.
- Continue M&V of energy reduction

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The Oregon Military Department wishes to thank the following:

Springfield Utility Board, for its support of the BBEE study at Lane Readiness Center

Bonneville Power Administration for its support of the BBEE study and input in the study design and implementation

All the dedicated federal and state workers at the Lane Readiness Center for participating in our Energy Challenge!

Questions?
Energy Manager, Oregon Military Department