

# Energy & Sustainability



**MAJ Russ Gibson**  
**Oregon Army National Guard**

**ARMY EARTH DAY 2014**

*Acknowledge the past*  
by restoring Army lands to usable condition and by preserving cultural and historical resources.

*Engage the present*  
by meeting environmental standards, enabling Army operations, and protecting Soldiers, Families and communities.

*Chart the future*  
by institutionalizing best practices and use of technology to ensure future environmental resiliency.

**SUSTAIN THE MISSION** **SECURE THE FUTURE**

Assistant Secretary of the Army, Installations, Energy & Environment: [www.army.mil/asaieo](http://www.army.mil/asaieo)  
ARMY EARTH DAY: [aec.army.mil/Outreach/PublicInitiatives/EarthDay.aspx](http://aec.army.mil/Outreach/PublicInitiatives/EarthDay.aspx)

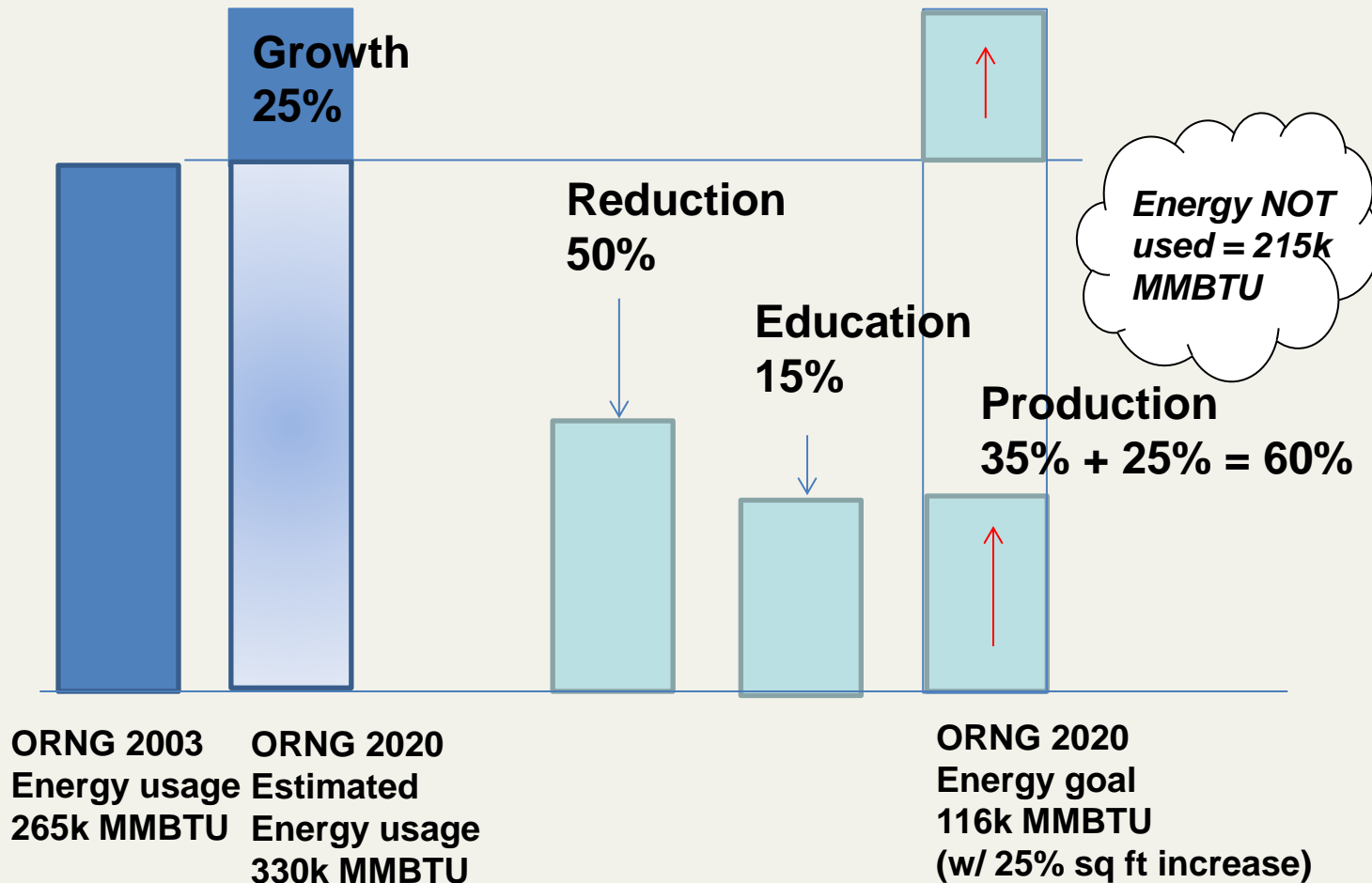
# Net Zero Energy Goals

## Mission:

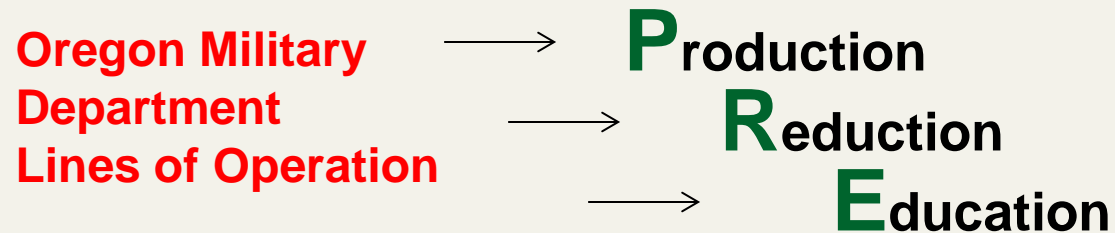
Oregon Military Department establishes a strategic energy program that provides for the management of our energy resource use in the most efficient, cost effective and environmentally responsible manner possible to meet federal and state energy reduction goals while ensuring mission readiness and continuity of operations.

- Executive Order (EO) 13514, Federal Leadership in Environmental, Energy and Economic Performance, October 2009
- Executive Order (EO) 13423, Strengthening Federal Environmental, Energy and Transportation Management, Jan 2007
- Energy Independence and Security Act, (EISA) 2007
- Energy Policy Act (EPACT) 2005
- Memorandum, ASA (IE&E), 24 Aug 2012, Subject: Energy Goal Attainment Responsibility Policy for Installations
- Guiding Principles for Federal Leadership in High Performance and Sustainable Buildings, December 2011
- Memorandum, ASA(IE&E), Utilization of Efficient Lighting, October 27, 2010
- Memorandum, ASA(IE&E), Exterior Lighting Technologies Policy, November 13, 2012
- AR 420-1 Chapter 22, Army Energy and Water Management Program

# Net Zero Strategy



# Net Zero Energy – Oregon ARNG



Biomass Pellet Boiler



Polk County RC  
36 kW

## Production:

- The Dalles Readiness Center installed 48 kW (DC) solar PV array - **\$4300** annual savings
- Biomass Pellet Boilers under construction at two sites in Central Oregon, replaces propane with thermal RE, uses 40% less energy and approx **\$12,700** annual cost savings
- Christmas Valley PV solicitation pending
- Biomass Central Plant at Umatilla Training Site awarded (FY15) - **\$85,000** annual savings. (\$348,000 projected annual savings at full utilization)
- 150kW solar PV installation at Pendleton AASF awarded. Projected annual savings = **\$14,000**

# Net Zero Energy – Oregon ARNG

Oregon Military Department Lines of Operation → Production  
→ Reduction  
→ Education

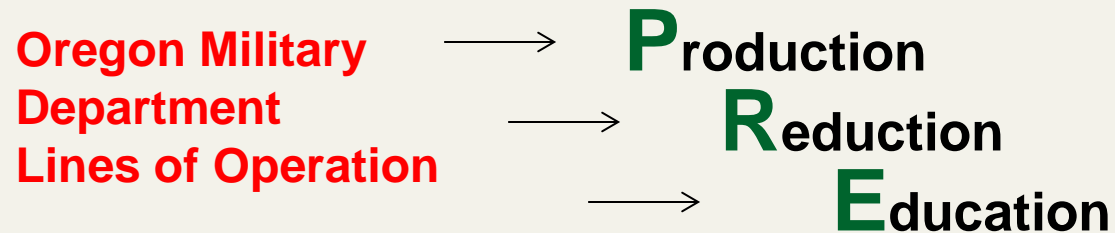
## Reduction:

- Installed GSHP system at The Dalles Readiness Center - **\$7,500** annual savings
- Lighting upgrade project under construction at Camp Withycombe - **\$53,000** annual savings
- Statewide lighting upgrade to be awarded (FY15) with an annual energy cost savings of **\$228,000**
- ESPC Technical Energy Audit draft completed and in review
- Salem AASF Energy efficiency project for HVAC, lighting and building envelop upgrades – 30% savings
- CRO barracks window replacement project complete - reduces energy use by 15%



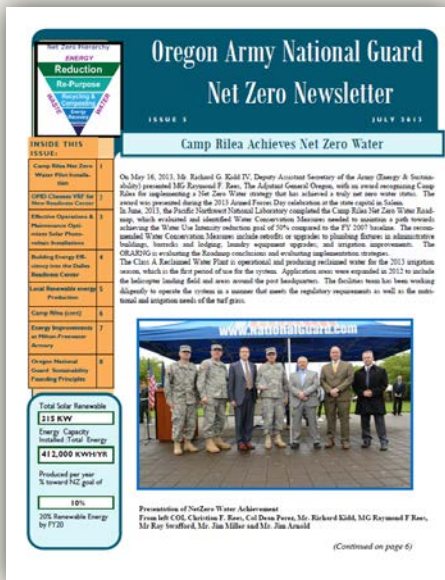
Camp Withycombe  
Industrial Lighting

# Net Zero Energy – Oregon ARNG



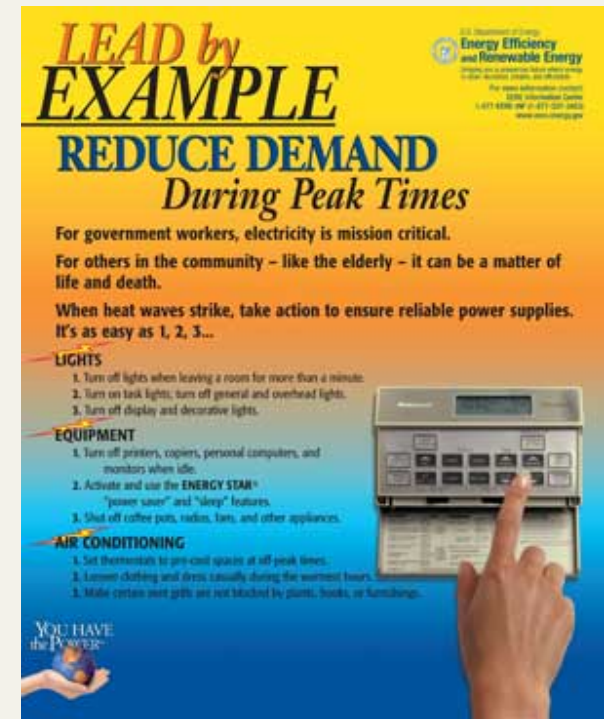
## Education:

- Strategic Energy Management (SEM) program - three workshops have been conducted. Expect to gain 5-10% energy savings.
- Energy behavioral study at Lane County Readiness Center with the Springfield Utility Board and Bonneville Power Administration
- Outreach within the organization through briefings and Net Zero newsletters
- Environmental branch integration for sustainment training



# Energy Culture

- New OMD Energy Policy
  - Requires commitment and Command Emphasis
- Lane AFRC behavioral study grant through BPA
- Strategic Energy Management (SEM) Program underway. Training workshops have begun
  - Tools, templates, and technical support
  - Peer-to-peer cohort networking and support
- Energy Trust will provide incentives for electric savings (\$0.02/annual kWh saved) and natural gas savings (\$0.20/annual therm saved) through operational improvements.



# Energy Projects

## 2013 Energy Projects:

- Biomass Boiler Brett Hall - Underway
- Biomass Boiler COUTES - Underway
- AASF Hanger 1 - Completed
- Camp Withycombe Lighting - Underway
- Camp Rilea Met Tower – Completed
- Kingsley Field Geothermal Study – Field work completed

## 2014 Energy Projects:

- Pendleton Solar (Production) - Awarded
- Camp Withycombe Compressed Air (Reduction)
- JFHQ Lighting Retrofit (Reduction)
- Salem FMS Lighting Retrofit (Reduction)





# Energy Efforts

**\$207,000 annual savings to date**

## Accomplishments:

- Completed OMD draft energy policy
- Completed incentive application for lighting ECIP (Energy Conservation Investment Program)
- Conducted wave energy outreach meeting in Warrenton
- ESPC (Energy Savings Performance Contract) technical energy audit completed
- Corps of Engineers initiating project administration on Camp Umatilla biomass project with a projected Nov 2014 award date
- 48 kW (DC) solar panel connected to grid, Ft Dalles RC
- Windows replaced in CRO barracks
- Energy upgrade at Salem AASF Hangar I
- SEM workshops conducted, retro-commissioning scope identified
- Completed geophysical testing at KANGB for geothermal power resource determination
- NREL commissioned met tower instrumentation, Camp Rilea















# Energy Efforts

## Proposed projects:

- Retro-commissioning at Camp Withycombe AFRC
- COUTES Warehouse Biomass Pellet Boiler (replacement of propane)
- JFHQ HVAC upgrade (ESCO developing COA)
- Umatilla lighting retrofit
- Umatilla street & parking lighting
- Milton-Freewater 25 kW solar array
- Fort Dalles 52 kW solar array
- ESPC projects identified from TEA audit
- ODOT potential partnership Sunrise Corridor solar array (PPA)
- Electrical transmission to end of CRO Slusher Lake Rd for wave energy net metering
- M3 Wave sea trial late summer 2014
- Resolute Marine Energy sea trial summer 2015

# ORARNG Scorecard

Mandate	Congressional/OMB Goal	Likely Army FY13 Score	Projected Performance	Issues/Actions
	<b>Reduction in Energy Intensity:</b> Reduce 3% per year to total by 30% by 2015 (2003 baseline)	 Score: Green	• <b>26.9% reduction in energy intensity</b>	<ul style="list-style-type: none"> <li>• Applied low cost energy reduction measures</li> <li>• Energy Efficient retro-fits</li> <li>•</li> </ul>
	<b>Use of Renewable Energy:</b> At least 3% of total electricity consumption (FY07-09), 5% (FY10-12), 7.5% (FY13 +)	 Score: Amber	• <b>2.0% vs 7.5% goal. Additional capacity installed by FY15</b>	<ul style="list-style-type: none"> <li>• Additional 185KW by end of FY14</li> <li>• Larger production project in RFP Stage for 5-20KW</li> <li>•</li> </ul>
	<b>Reduction in Potable Water Intensity:</b> Reduce consumption by 2% annually for 26% total by FY 2020 (2007 baseline )	 Score: Green	• <b>11.52% reduction in water use intensity. On track to 26% by 2020</b>	<ul style="list-style-type: none"> <li>• Net Zero Water Project at Camp Rilea</li> <li>• Low water landscaping</li> <li>•</li> </ul>
	<b>Green Buildings:</b> Sustainable green buildings:	 Score: Green	• <b>All buildings FY09-FY14 LEED Gold with EUI 50 or less</b>	<ul style="list-style-type: none"> <li>• Fort Dalles Net Zero Ready Installation</li> <li>• Building to Oregon Energy Efficiency Design standards 20% above code</li> </ul>
	<b>Reduction in Fleet Petroleum Use:</b> Reduce by 2% per year thru FY2020 (Baseline 2005)	 Score: Amber	• <b>5.6% decrease petroleum use in Army Owned Vehicles</b>	<ul style="list-style-type: none"> <li>• FY05-FY12 Army-owned vehicles only in GSA FAST</li> <li>• Total fleet data create new baseline FY14 forward</li> <li>• ARNG on track with NTV reduction plan</li> </ul>
	<b>Solid Waste:</b> 50% of Non-Hazardous Solid Waste Diverted from the Waste Stream by FY 2015	 Score: Amber	<ul style="list-style-type: none"> <li>• <b>49% Non-HW diversion rate vs. 50%</b></li> <li>• <b>94% diversion Construction &amp; Demolition Debris</b></li> </ul>	<ul style="list-style-type: none"> <li>• Increasing local solutions</li> <li>• Exploring green procurement                             <ul style="list-style-type: none"> <li>• Precycling</li> <li>• Material reductions</li> </ul> </li> </ul>



# Electric Vehicle Initiative (EVi)

## ENERGY SUPPORT:

- **Chargers planned**

JFHQ

ARC

Camp Withycombe

The Dalles



# Questions