

2003 Energy *An Energy-Efficiency Workshop and Exposition
Orlando, Florida*

**Achieving Energy Efficiency with
Energy Management Reviews**

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Please be courteous to our speakers



Turn off all cell phones
and
Set pagers to vibrate



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Energy Overview



- The Service spent \$8.6 million for energy in FY 2002 for over 6 million energy-using gsf
- Building energy is -50% from 1985
- But total energy use/costs +5% from 2001
- Implemented 43 projects in FY 2002 for \$767,024
- Looking good on paper is not enough!

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Why EMS?

- A good business practice
- Fosters planning instead of reaction
- Achieves cohesive implementation of energy policy and more on-site energy assessments



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Model for Continual Improvement



Do less inspections

Plan for Sustainability

Continuous improvement

Provide tools

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How Does Energy fit in to the EMS?

The  of the Energy Management Review is the Energy Walkthrough



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Ask Questions First

- Has the field station contacted the Regional Energy Manager to discuss potential energy efficiency?
- Has the field station taken steps to educate staff on energy efficiency practices?
- Has an energy audit or renewable energy opportunity assessment been performed?

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More Critical Questions

- Are key procedures written down?
- Are energy files well organized?
- Are responsibilities documented?
- Is everyone trained at the right level?
- Are there goals and objectives for improving energy performance?

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Use a systems approach to avoid secondary effects

- Switching to energy-efficient lighting may reduce cooling loads in a building
- Switching to water-conserving showerheads may reduce water heating requirements and heating costs
- Environmentally preferable renewable and alternative fuel energy sources may not be economically feasible




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Identify less glamorous, no-capital operational changes

- Tune up and maintain equipment
- Adjust thermostat settings, reduce unnecessary lighting, caulk windows and doors, educate employees
- Fix plumbing and equipment leaks




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Office Equipment, Computers, Appliances

- Turn off/shut off
- Power saver mode
- Purchase Energy Star equipment



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Lighting

- Turn off lights/remove excess lights
- Use Task lights
- LED Exit lights
- Motion detectors
- Replace incandescents with CFL's
- Daylighting!






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HVAC

- Maintenance/tune-ups
- Seal leaks
- Upgrade systems with Energy Star
- Use outside air
- Chill water off-peak
- Switch fuels



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Buildings

- Install programmable thermostats
- Adjust thermostats to 72°F as reasonable and customary per location
- Seal leaks/caulking
- Insulation: attics, windows, doors
- Install blinds and window treatments
- Replace single-paned windows/use film





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Utilities

- Review “Demand Side Energy Management Guidelines”
- Call the utility to arrange a free audit
- Determine if rebates are available




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MMS

- No benefit in installing advanced or renewable energy technologies in energy-inefficient buildings!
- Only energy-related deferred maintenance projects in the MMS will be funded



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Renewable Energy

- Geothermal →
- Solar outdoor lighting (Merritt Island NWR)
- Solar PV (Farallon) →
- Passive solar energy (NCTC) →
- Wind energy (Eastern Neck NWR) →






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Drive Green

- New internal Service web site
- Combine trips/car pool (don't need the 4x4 to go to town!)
- Good Maintenance
- Acquire AFV's/ hybrids




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Water Conservation

- Best Management Practices
 - 1.6 gallon toilets 
 - 2.5 gpm shower heads 
 - Faucet aerators and in-flow restrictors
- Maintenance/fix leaks/adjust valves
- Irrigation/xeriscaping 



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Fish Hatcheries

- Repair/replace pumps with variable-speed drive pumps
- Minimize waste of pumped water 
- Maintain water heating systems
- Evaluate solar mats to heat H₂O
- Use **infrared local heaters** 




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Reporting

- Has the station provided an annual energy report via the web-enabled database?
- Included information about projects?
- Updated the Facility Energy Strategic Plan (in the EMP)?



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Recommendations

Implement energy and water conservation measures within an EMS that cost-effectively addresses:

- What can be done?
- When it should be done?
- How it will be funded?

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