



Sustainability Bulletin #1 - Kenai NWR

A brief highlight of sustainability activities ongoing at the Kenai National Wildlife Refuge, Alaska

Greening of the Refuge

The Kenai NWR implemented a strategy to decrease carbon emissions, entitled *Greening of the Refuge*. The list of incremental changes is long and diverse but when taken together, the plan sets forth a broad greening effort that impacts the environment.

Greening of the Refuge Highlights

Installation of a Reusable Oil Furnace

To eliminate off-site transportation and disposal of used oil, the Refuge implemented cradle-to-grave management of motor vehicle oil by utilizing a reusable oil furnace. This additional furnace cuts heat recovery time by 33%, uses less natural gas, and maximizes the use of oil that is already on-site, while servicing over 60 Refuge vehicles and heavy equipment.

Utilizing Battery Packs for Trail Maintenance

The Refuge's trail crew utilized alternative energy sources at campsites on the Refuge. Instead of bringing a heavy gas powered generator to the campsites, the crew acquired backpack-sized solar powered cells to re-charge batteries for equipment. *For each gallon of gasoline saved, the crew reduced CO₂ emissions by 20 pounds.*

Installation of Natural Gas Boilers

The replacement of two 35,000 British Thermal Unit (BTU) natural-gas fired boilers increased energy efficiency in the 10,000 square foot headquarters building. The new boilers are 10% more efficient and require less maintenance. This technology is computer based, which allows unprecedented programming to account for warm spells, days and weekends, peak occupancy, and low occupancy days. *For every 10,000 ft³ of natural gas consumed, the new boilers reduced CO₂ emissions by 100 pounds.*

Replacement of Low Fuel Economy Trucks

The Refuge replaced four inefficient trucks that were averaging 12 MPG with newer energy-efficient trucks that get an average of 22 MPG. The new trucks have the same cargo capacity as the old trucks and were acquired in accordance with Green Purchasing and EPA standards. *For every 1,000 miles driven, the trucks reduce CO₂ emissions by 750 pounds and save 40 gallons of gasoline.*

Installation of Energy Efficient Light Bulbs

Several indoor and outdoor lighting projects were undertaken at the Refuge to eliminate older high-wattage bulbs and replace them with more energy efficient bulbs. Over 45 light bulbs were replaced with Light Emitting Diode (LED) technology in the 1,800 square foot Visitor Center. In addition, the Refuge replaced mechanical ballasts with electronic ballasts in 60 overhead fluorescent light fixtures. In the Visitor Center parking lot, the Refuge replaced energy consuming, high pressure sodium lights with LED technology. *By installing energy efficient light fixtures, the Refuge will reduce CO₂ emissions by 3.7 tonnes and save 8,730 kWh per year.*

Utilizing Sunflower Oil for Trail Maintenance

For the third year in a row, the Refuge is employing sunflower-based chainsaw oil for wood cutting operations. The four-person trail crew is using approximately 8 gallons of sunflower oil per season in their chainsaws to maintain over 300 miles of trails, including front country and wilderness trails.

Tightening the Building Envelope

The 25-year old wooden casement windows in both the law enforcement office building and the fire management office building were replaced with insulated vinyl casement windows. The vinyl casement windows have a much higher energy rating.

Climate Change Strategy – To address climate change, the Service's Strategic Plan employs three key strategies: Adaptation, Mitigation, and Engagement. Sustainability activities fall under the mitigation strategy.



Kenai NWR Visitor Center

Collaboration is Key

While the Refuge achieved many greening milestones, Kenai did not act without help. As an Environmental Management System (EMS) site, the Refuge prescribes to a written EMS plan, which provides a systematic approach to continuous improvement. In this way, online idea sharing is making inroads into greening other organizations.



Reusable Oil Furnace



Natural Gas Boilers

Green Purchasing

Green purchasing was enhanced through the adoption of real-time training for purchase card holders. A web link on the Refuge intranet connects users to the Environmental Protection Agency's web site to access greening standards and products. EMS language was contained in construction contracts let in 2010 to help ensure contractors are following the Refuge's environmental management plan and are held accountable for greening on the Refuge within the scopes of their projects.

Want More Information?

For additional detail on Kenai NWR's *Greening the Refuge* initiatives, contact the Kenai Facilities Manager at 907-262-7021.