



Solar Hot Water Heating Saves Thousands of Dollars Annually at Ute Mountain Detention Facility

VIDEO: Pilot energy project shows potential for OJS detention centers.

Annual Liquid Propane Gas Usage*		
2010	49,655 gallons	\$96,827.25
2011	27,668 gallons	\$53,954.55
2012	18,882 gallons	\$36,819.90

*as recorded in FMIS

Remarkable savings in the use of propane (LPG) for heating have been demonstrated (see chart above) at the Ute Mountain Ute Tribe's Chief Ignacio Justice Center in Towaoc, Colo., since an energy savings pilot project became operational in 2010.

The 64,000 square foot Ute Mountain detention facility features a total of 80 beds in the adult and juvenile detention areas and a treatment center. Opened in 2000, its annual energy costs were among the highest for BIA facilities of its size (though not all comparably sized facilities were detention centers). Prior to 2008, an energy audit was performed at the detention center which recommended energy improvements, such as a more efficient HVAC system, staged hot water heating based on expected load, and occupancy sensors for lighting control.

The Ute Mountain detention center is one of 50 OJS detention centers that are affected by the Energy Policy Act of 2005, under which the Department of the Interior is expected to achieve energy savings of two percent a year through 2015. Indian Country detention centers have a unique mission among BIA-funded facilities because they must operate at peak capacity around the clock for the health and safety of their staff and inmate populations.

The Department of Justice has funded the construction of numerous new detention centers across Indian Country, and their designs have focused on program priorities, such as cell-size and positioning, and security surveillance. Provisions to save energy at existing detention centers like the Chief Ignacio Justice Center likely would come via retrofitting the facility with energy savings techniques, including alternative energy applications such as solar power generation.

The techniques utilized at Ute Mountain include:

- Adding a 10kW solar carport.
- Installing a solar hot water booster system for 80 people.
- Upgrading an HVAC digital direct control system.
- Adding controls for domestic hot water.
- Adding start/stop controls as air handling units.
- Adding CO2 sensors to maintain minimum ventilation requirements.
- Installing a remote system to monitor water usage, electrical usage and LP gas usage.
- Installing check valves in cold water supply line at each domestic hot water storage tank.
- Installing motion/sensor light control system in two gymnasiums and lobby.
- Installing six new electric motors on HVAC units.
- Installing four instantaneous hot water heaters.
- Replacing three washing machines and three dryers.
- Installing a forced air blower on ventilation line.
- Installing a sidewalk, rail and lamp.
- Modifying the parking area by adding solar light.



Above Right: Wind damaged solar hot water panels atop the detention facility.



Left: Chief Ignacio Justice Center, Towaoc, Colo.

Bottom Right: Ute Mountain Agency Facility Manager Keith Yessilth shows the solar panel grid in the detention facility parking lot.

