The Mohegan Tribe's Integrated Energy Management Approach

Authored by: Jean McInnis, BS, MS, CHMM
Mohegan Environmental Protection Administrator
Compliance and Regulation Department
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MEPD Core Values

- Develop, maintain and evolve state of the art, cost saving tribal environmental management programs.
- Program includes:
  - Regulatory compliance
  - Litigation avoidance
  - Technical credibility
  - Leadership in Native American sovereignty
  - Expeditious permit processing
  - Minimal engineering retrofits/rework
  - Reliable, low emitting power
  - Economic competitiveness
  - Acceptable risk
  - Public Outreach Programs

Mohegan Tribe Cooperative Agreement with the State of CT

- Through an MOU with CTDEEP the Tribe adopted the State Implementation Plan in 1995
  - Ensured that Tribal activities didn't negatively affect the attainment of National Ambient Air Quality Standards (NAAQS)
  - Tribe agreed to offset vehicle (car and bus) emissions from patron visits in the form of Emission Reduction Credits (ERCs)
  - Tribe agreed to an emission reduction trading order to offset NOx and VOCs from patron vehicles
  - In 1996, Tribe began purchasing ERCs at market value at a cost of $1000/T of NOx and $2500/T of VOCs.
  - In 2000, Tribe proposed to substitute energy conservation project capital costs in lieu of purchasing ERCs

2012/2013 OZONE SEASON

EMISSION REDUCTION OFFSETS (tons)

			TOTALS
2012 & 2013	VOCs	55	
	NOx	149	204

Calculation: Based on 2012 & 2013 patron counts and $1000/T for NOx and $2500/T for VOCs, the annual offset expenses are equivalent to $143,250 per year. If not for this MOU with the State of CT, renewable energy credits would have to be purchased on the open market by the Tribe to offset vehicular emissions from patrons cars, trucks & buses.

2002 First Energy Conservation (EC) Project for Public Outreach

- Purchase of 2 fuel cells at $3 million in support of a demonstration and public outreach program to encourage the use of renewable energy. These fuel cells lasted 10 years and were removed from the site in 2013.

Energy Conservation Project in Support of the Fuel Cells

- Purchase of 2 – 50 acre plots in Costa Rica for sequestration of CO2 given off from the 2 fuel cells.

This Costa Rican forest will sequester 1600 tons of carbon on average annually for 25 years from all other combustion sources at MS

Sequestration Project Benefits

- Carbon dioxide is taken up by the trees biomass and oxygen is released into the atmosphere by photosynthesis
- Species diversity is encouraged by planting fruit trees among the hardwoods to provide food for birds and animals
- The farmer benefits by receiving income by harvesting trees every 5-7 years after the 10^{th} year.

2002 Energy Conservation Projects

- Installed Variable Frequency Drives (VFDs) on water pumps, chillers, air handlers, heat exchangers with 10 year monitoring of energy consumption with Johnson Controls

- Installed CO2 sensors on air handlers in patron areas and CO sensors for valet garage which activate fans when the sensors hit a set point to provide demand controlled ventilation

- Hotel room infrared occupancy detectors (HVAC) activated by guest check-in which regulates heating or cooling temp of the room with 5 year monitoring program to show energy savings.

2005 Energy Conservation Projects

- Vending miser installation w/passive infrared sensor which powers the vending machine down when the area is not occupied by a patron and re-powers the machine back up when it is re-occupied

2005 Energy Conservation Projects

- Longlite QL3 energy saving devices installed on 2600 light fixtures to increase average lamp life by reducing the voltage and saving 10% energy
- Hybrid electric cars & mountain bikes for police surveillance

2006 -2007 Energy Conservation Projects

- Energy efficient lighting conversion for all parking garages from HID metal halides to T-8 fluorescents

2005 Energy Conservation Projects

- Ultra low sulfur fuel replacement and exhaust emission control retrofits for employee buses

2008-2009 Energy Conservation Projects

- Glycol heat recovery system for heat transference between exhaust/intake air for Casino of the Wind
- Dehumidification energy saving controls for Earth/Sky Casinos and Hotel
- Load shedding program controls automated into BMS when ISO NE determines a need for reduced energy consumption

2010-2011 Energy Conservation Projects

- Wombi Rock upgraded lighting system to LED

2010-2011 Energy Conservation Projects

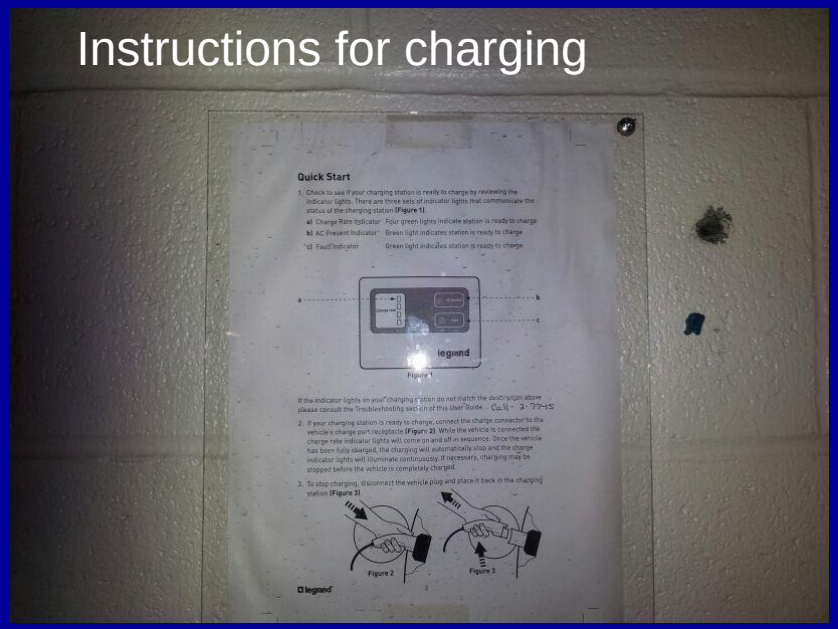
- 4500 LF of Xenon rope lighting replaced with dimmable LED strip lights for store fronts in the Sky Concourse between the arena and the Tuscany Restaurant.

2011 Energy Conservation Projects

- Retrofit Central Plant lighting from HID metal halide to LED providing energy savings of $20K/year for the boiler & chiller side of the plant.

More Recent Energy Conservation Projects

- Installation of LeGrand EV Chargers at Hotel Valet and Indian Summer Garages



Contact information:
Email: jmcinnis@moheganmail.com
Phone: 860-862-6112