Potawatomi Carter Casino Hotel

2013 Feasibility Study of Comprehensive Energy Efficiency Upgrades

Terry Rye - Director of Facilities
Forest County Potawatomi Community (FCPC) Tribal enrollment numbers about 1450 with about half living on reservation lands. The FCPC is a federally recognized Indian tribe governed by a 6 person Executive Council.
Originally located in Eastern Canada, the tribe migrated to the Western Lake Michigan area. As white settlers moved in, the tribe was relocated to Kansas. Many opposed removal and went to live in areas of Northern Wisconsin, Michigan and Canada. The tribe purchased its own land with Treaty monies in 1913.
The Potawatomi are a member of the Confederacy of the Chippewa and Ottawa, and were given the task of keeping the sacred fire, hence the name "Keeper of the Fire."

The Forest County Potawatomi (FCP) has lived in Forest County, Wisconsin, since the late 1800s. Around 1880, groups settled in areas near Blackwell and Wabeno and have lived in that area since, as well as in the Carter and Crandon (or Stone Lake) areas.
Today, life on the reservation is very different than it was for the elders. They have done much for the younger generation, and it is because of the elders that the younger generations are who they are today.

By pursuing a diverse set of business models, the Forest County Potawatomi of today are the largest employer in Forest County.

With revenues from various tribal enterprises, the Potawatomi have invested in the health, wellness, education, environment and future of its people.
Forest County is also home to almost 350,000 acres of national forest land known as the Chequamegon-Nicolet National Forest. In 1998 the two national forests in Wisconsin, the Chequamegon and the Nicolet, were combined in name for administrative purpose.
The Tribe has hired Grumman/Butkus Associates, Energy Efficiency Consultants and Sustainable Design Engineers, located in Wauwatosa WI. to complete a comprehensive energy efficiency feasibility study, including a full-scale energy audit. The PCCH Energy Study was completed 12-31-2012 and contains detailed reports and actionable recommendations to yield at least a 30% reduction in overall energy use, once implemented at the PCCH.
The Forest County Potawatomi Community (FCPC) reservation lands consist of 12,000 acres in rural Forest County, Wisconsin. The Tribe’s reservation lands are “checkerboarded” meaning that non-Indian owned land and Tribal reservation land border each other in several locations, resulting in a visual “checkerboard” of Indian and non-Indian lands.
FCPC Land Base

Forest County Potawatomi Land Base - 2013

FCP Lands Not on Map

Fee Lands
Sheawano County  86 Acres
Oconto County   80 Acres
Fond du Lac County  80 Acres
City of Milwaukee  26 Acres
Walworth County  < 1 Acre

Trust Lands
City of Milwaukee  19 Acres

Allotment
Forest Co., Town of Alvin  40 Acres

*All acresages more or less as of 1-1-2013

FCP Tribal Lands

Tribal Trust Lands  12,643 Acres
Individual Homesteads  400 Acres
Tribal in Fee  3,370 Acres

Total FCP Lands  16,413 Acres

Tribal Lands from BIA/TSR and deeds, 2013
Base Data from USGS 1:24,000 Topo Maps
National Forest Land from USFS, 2010
Water Features from WDNR, 2009
Compiled June 2013, S. Alspaugh
The proposed project is wholly located at the Potawatomi Carter Casino Hotel in Carter on the FCPC reservation south of the town of Wabeno, Wisconsin.
<table>
<thead>
<tr>
<th>Contact Information</th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Business Contact:</strong></td>
<td><strong>Technical Contact:</strong></td>
</tr>
<tr>
<td>Nathan A. Karman Legal</td>
<td>Mr. Terry Rye, Facilities Director</td>
</tr>
<tr>
<td>Department</td>
<td>Potawatomi Casino Carter</td>
</tr>
<tr>
<td>Forest County Potawatomi</td>
<td>Hotel</td>
</tr>
<tr>
<td>Community</td>
<td>618 State Highway 32</td>
</tr>
<tr>
<td>313 North 13th Street</td>
<td>Wabeno, WI 54566</td>
</tr>
<tr>
<td>Milwaukee, WI 53233</td>
<td>Phone: (715) 473-6797</td>
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Contact Information

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The Forest County Potawatomi Community with the aid of a Department of Energy Grant commissioned Grumman/Butkus to develop a comprehensive feasibility study with the goal of achieving at least a 30% reduction in energy consumption at the Potawatomi Carter Casino Hotel (PCCH).

The Potawatomi Carter Casino and Hotel is a 99 room hotel gaming center. Guest services include two restaurants, a swimming pool and a fitness center. The gaming center has an 18,000 square foot casino with slot machines and table games and a 4500 square foot bingo hall. There are also spaces for meetings and banquets. Employee areas include laundry facilities, kitchens, offices, storage and mechanical space. This report focuses mainly on these public and employee areas of the hotel.
• To identify and evaluate potential energy saving conservation measures, (ECM’s)

• To make recommendations regarding implementation of ECM’s in the context of current and anticipated infrastructure upgrades.

• To identify operations and maintenance procedures as they relate to energy.

• To provide guidance for the planned hotel renovation.
## Past Related Activities

**Table 2: Summary of Past Completed Energy Conservation Measures**

<table>
<thead>
<tr>
<th>ECM</th>
<th>Description</th>
<th>Electricity</th>
<th>Natural Gas</th>
<th>Investment Economics</th>
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</thead>
<tbody>
<tr>
<td>1-10-2010</td>
<td>Heating System Tune-Up</td>
<td>5765</td>
<td>$3,975.00</td>
<td>$0</td>
</tr>
<tr>
<td>6-12-2010</td>
<td>Cooling System Tune Up &lt; than 500 tons</td>
<td>43,335</td>
<td>$2,816.00</td>
<td>$0</td>
</tr>
<tr>
<td>1-04-2011</td>
<td>Replace 2 Neon “BEVERAGES” signs with LED back illuminated lighting. White acrylic letters on green background.</td>
<td>51.42</td>
<td>$493.44</td>
<td>$0</td>
</tr>
<tr>
<td>5-12-2011</td>
<td>Replace 17 year old furnace in Grounds Building with Rheem RGRM Furnace, 100,000 BTU with ECM motor and 2 stage gas valve</td>
<td>1076</td>
<td>331</td>
<td>$265.00</td>
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<tr>
<td>5-31-2011</td>
<td>99 low flow shower heads were installed in all the hotel guest rooms, flow rate is 1.6 GPM.</td>
<td>-----</td>
<td>-----</td>
<td>-----</td>
</tr>
<tr>
<td>6-15-2011</td>
<td>Installed 8 occupancy lighting sensors in hotel public restrooms</td>
<td>15,556</td>
<td>-----</td>
<td>-----</td>
</tr>
<tr>
<td>6-23-2011</td>
<td>Replacement of 172 150watt incandescent bulbs on Casino gaming floor with 18watt LED Par 38 dimmable floods</td>
<td>154,020</td>
<td>$10,411.72</td>
<td>-----</td>
</tr>
<tr>
<td>10-30-11</td>
<td>Replace evaporator motors in 20 Freezers (14) Coolers with Electronically Commutated Motors (ECM's)</td>
<td>25,658</td>
<td>$1,796.44</td>
<td>$0</td>
</tr>
</tbody>
</table>
• 103 Hotel Guest Room PTAC units 21-22 years old have been replaced with new PTHP units.

• Units are (83) 9000 BTU 3KW Heat Pump and (20) 12000 BTU 3KW Heat Pumps.
These new Package Terminal Heat Pumps in conjunction with the Guest Room Energy Management system being installed in March and April of this year should result in a 40% reduction in energy usage related to this ECM for a $13,000.00 annual energy savings with a payback of just over 3 years.
• Item 1: Add CO2 sensor to RTU-7
• Item 2: Reconfigure Hot water system
• Item 3: Provide Schedule and Setpoint changes for RTU-7
• Item 4: Provide scheduling for RTU-3
• Item 5: Provide Scheduling for RTU-6
Item 1: Add CO2 sensor to RTU-7

- Add a CO2 sensor to the return air of RTU-7. Program the exhibition hall VAV boxes (2 qty) so that the minimum CFM of each box is reset based on CO2 levels.
Item 2: Reconfigure Hot water system

- Provide all hardware and software to reconfigure hot water system as follows:

- Lead boiler to be automatically selected based on runtimes

- Hot water system to be controlled to maintain supply water temperature. Supply water setpoint to be reset based on outside air temperature.

- Each boiler to be staged to maintain setpoint. When one boiler has all of its stages on and their continues to be a call for heating then an additional boiler to stage on.
Item 3: Provide Schedule and Setpoint changes for RTU-7

- Schedule unit to operate based on need and reduce the static pressure setpoint to .75”

Item 4: Provide scheduling for RTU-3

- Provide a schedule for this unit to allow it to go into unoccupied mode when the space is unoccupied.
Item 5: Provide scheduling for RTU-6

• Provide schedules for the 24 VAV zones that GBA has determined can be set to an unoccupied mode. Reset minimum VAV flows to a lower value and reset space temperature set points during unoccupied mode. Make adjustments to RTU to allow it to operate with the lower demand that is caused by the unoccupied modes.
The Total Project Cost was $10,260.00.

The total Focus on Energy Incentive was $6,669.00.

The total WPS Bonus Incentive was $2,565.00.

Total out of pocket expense - $1,026.00

The energy savings verified were 135,191 kWhs and 17,597 therms. This equates to $21,605.30 in annual energy savings and equals a ½ month payback.
# Activities Yet to be Completed

## Table 1: Summary of Recommended Energy Conservation Measures

<table>
<thead>
<tr>
<th>ECM</th>
<th>Description of ECM</th>
<th>Electricity</th>
<th>Natural Gas</th>
<th>Energy</th>
<th>O&amp;M</th>
<th>Investment Economics</th>
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<tbody>
<tr>
<td></td>
<td></td>
<td>Energy Savings (kWh/yr)</td>
<td>Energy Savings ($/yr)</td>
<td>Energy Savings (therms/yr)</td>
<td>BTU Savings (kBtu/yr)</td>
<td>% Energy Use Savings</td>
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<tr>
<td>2</td>
<td>Casino Displacement Ventilation with Heat Recovery Chiller</td>
<td>1,048,461</td>
<td>$68,150</td>
<td>42,478</td>
<td>29,265</td>
<td>7,826,197</td>
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<tr>
<td>3</td>
<td>Bingo Hall RTU Demand Controlled Ventilation</td>
<td>44,059</td>
<td>$2,860</td>
<td>6,655</td>
<td>4,585</td>
<td>815,873</td>
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<tr>
<td>4</td>
<td>Springs Kitchen Variable Volume Hood Exhaust and Makeup</td>
<td>46,700</td>
<td>$3,000</td>
<td>3,800</td>
<td>2,615</td>
<td>539,387</td>
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<tr>
<td>5</td>
<td>Banquet Kitchen Variable Volume Hood Exhaust and Makeup</td>
<td>46,700</td>
<td>$3,000</td>
<td>3,800</td>
<td>2,615</td>
<td>539,387</td>
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<td>6</td>
<td>Flames Kitchen Variable Volume Hood Exhaust and Makeup</td>
<td>74,800</td>
<td>$4,860</td>
<td>8,000</td>
<td>5,510</td>
<td>1,055,262</td>
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<tr>
<td>10</td>
<td>Energy Miser for Vending Machines (1)</td>
<td>5,200</td>
<td>$336</td>
<td>0</td>
<td>0</td>
<td>17,748</td>
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<td>11</td>
<td>Lighting Fixture and Control Upgrades</td>
<td>89,651</td>
<td>$5,800</td>
<td>0</td>
<td>0</td>
<td>282,596</td>
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<td>12</td>
<td>Retrofit Casino Slot Machines with LED lights</td>
<td>96,000</td>
<td>$6,200</td>
<td>0</td>
<td>0</td>
<td>327,648</td>
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<td>15</td>
<td>Conference Room Unit replacement upgrade (6)</td>
<td>8,700</td>
<td>$565</td>
<td>4,100</td>
<td>2,825</td>
<td>439,693</td>
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<td>Total: Recommended Projects Budget Value</td>
<td>1,460,271</td>
<td>$94,771</td>
<td>68,833</td>
<td>$47,415</td>
<td>11,843,791</td>
<td>26.35%</td>
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</table>

**Note:** Estimated Capital Cost includes all known costs associated with the project.

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### Additional Information

- **Energy Savings:** Calculated based on the difference in energy usage before and after the implementation of the conservation measures.
- **O&M Savings:** Represents the cost savings associated with the reduction in energy usage.
- **Total Cost Savings:** Sum of energy savings and O&M savings.
- **Estimated Capital Cost:** Cost of the project, including all required equipment and labor.
- **Focus on Energy Incentive:** Amount of incentive available for energy conservation projects.
- **Simple Payback:** Time needed to recoup the initial investment, before and after the incentive.

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• Continue to seek funding to complete the unfinished Energy Conservation Measures identified in the Summary Graph of Recommended ECM’s
Carter C-Store

- The Carter C-Store is in the process of taking action on their energy study.
- They are working with Focus on Energy and are in the process of getting Bids for all the recommended lighting upgrades.
- They are hoping to complete their recommended ECMs this year.
Comments or Questions??

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Terry Rye - Director of Facilities