

Confederated Salish and Kootenai Tribes

Feasibility Study to Identify Potential Reductions in Energy Use in Tribal Buildings

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A People of Vision

Notice: The following is a compilation of Annual Program Review Presentations, Award Modifications, and Quarterly Progress Reports submitted to the Department of Energy's (DOE) Office of Indian Energy Policy and Programs by the Confederated Salish and Kootenai Tribes under agreement DE-EE0005171. This report covers project activities from September 30, 2011 through December 31, 2014 and has been uploaded to OSTI by DOE as a substitute for the required Final Technical Report which was not received by DOE from the project recipient.

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CSKT Tribal Complex and Veteran's Memorial

Summary:

Under this project, the Confederated Salish and Kootenai Tribes (CSKT) assessed the technical and economic feasibility of energy efficiency improvements to existing Tribally-owned buildings. The feasibility study followed a systematic approach in identifying, selecting, and ranking recommended measures, recognizing that the appropriateness of a measure would depend not only on technical issues but also on institutional and organizational issues, such as financing options and occupant requirements.

The completed study provided the Tribes with the information needed to commit necessary resources to reduce the energy use and cost in approximately 40 Tribal buildings, including the changes that may be needed in each facility's operation and maintenance and personnel requirements. It also presented an economic analysis of energy-efficiency capital improvements and an annotated list of financing options and possible funding sources for implementation and an overall strategy for implementation.

This project was located in various Tribal communities located throughout the Flathead Indian Reservation in Western Montana.



Tribal Health & Human Services Clinic located in Polson, Montana

Background:

The Flathead Indian Reservation, homeland of the CSKT, was established by the Hellgate Treaty of 1855. The reservation comprises 1,316,871 acres or 2,050 square miles located in the Upper Columbia River Basin. The Tribal headquarters are in Pablo, Montana.

CSKT was the first Indian tribal government to adopt a federally approved constitution pursuant to the Indian Reorganization Act of 1934. Since 1935, CSKT has been governed by an elected Tribal Council. Ten representatives from 8 districts throughout the Reservation comprise the Tribal Council.

CSKT is a progressive and successful Self-Governance Tribe under the Indian Self-Determination and Educational Assistance Act (Public Law 93-638) as evidenced by this partial list of programs administered and operated by CSKT on the Flathead Indian Reservation pursuant to compacts and contracts with the U.S. Government:

- Mission Valley Power, a federally owned, electrical-distribution utility on the Flathead Indian Reservation;
- Bureau of Indian Affairs' (BIA) federal trust land-management functions, including the Flathead Reservation Title and Records Office;
- BIA's Safety of Dams (SOD) program;
- BIA's forest management activities, including administration of fire pre---suppression and suppression activities through other tiered agreements (e.g. agreement with the U.S. Fish & Wildlife Service for fire protection at the National Bison Range, a unit within the National Wildlife Refuge System that is located on the Flathead Indian Reservation); and
- Individual Indian Monies (IIM) program.

In addition to the above-listed areas, CSKT compacts for all other available BIA programs, including law enforcement, Tribal courts, education programs, etc. Our Tribal government infrastructure and staff is well equipped to administer these programs, and we are very experienced in federal contracting requirements. Our Natural Resources Department alone has well over 100 employees, including biologists, botanists, hydrologists, wildlife technicians, etc.

At present, the Tribal government administers approximately \$25 to \$30 million in self-governance funds, \$85 to \$150 million in contracts and grants, and \$25 million in Tribal revenue. Our government has 1,000 full-time employees (approximately 900 of which are Tribal members), and up to 500 temporary employees, making the Tribes the largest employer on the Reservation and one of the largest in western Montana. We contribute over \$30 million in payroll and over \$50 million in purchasing to the local economy. A recent report funded by the State of Montana showed that the CSKT and their ancillary entities contribute \$317 million to the Montana economy annually.



Community & Fitness Center in St. Ignace, MT

Impact:

The project helped identify a specific path for the Tribes to substantially reduce energy expenditures for Tribal buildings, savings that could then be used for Tribal economic development or to fund deferred maintenance projects, capital projects, or additional energy efficiency measures. In addition, the feasibility study enabled the Tribes to pursue measures that could lead to:

- Reductions in greenhouse gas emissions, reducing potential damages occurring from climate change.
- Decreased air pollution. When fossil fuels are burned to produce energy, various gases and fine particles are released into the air. Energy efficiency measures will reduce those emissions and thereby help the Tribes maintain the Flathead Reservation's Class 1 Airshed status. Maintaining air quality on the Reservation has long been one of the Tribes' highest priorities.
- Greater consistency with core Tribal values (living in harmony with the land; respecting the land; taking only what one needs);
- Setting an example for Tribal members and others by showing that conservation pays and that Tribal government values conservation and the implementation of energy efficiency measures.

Objectives:

The objectives of this proposed project were to:

- (1) Identify and develop modifications and measures that will reduce the energy use and/or cost of operating approximately 40 Tribal buildings, and
- (2) Present the results in sufficient detail and in a format and order of priority that will allow the Tribes to judge the technical and economic feasibility of the recommended energy efficiency measures and to decide if any, some, or all of the recommended modifications should be implemented.

The project involved:

- Conducting a comprehensive (Level III ASHRAE†) audit of Tribal buildings in which energy use (based on preliminary projections) could be reduced by at least a 30% through the implementation of energy efficiency measures (a comprehensive audit will evaluate all cost-effective energy efficiency opportunities, including lighting, HVAC, controls, domestic hot water, building envelope (incl. insulation and infiltration and health and safety measures), and maintenance/operation opportunities);
- Identifying the measures that are both technically and economically feasible;
- Evaluating those feasible energy efficiency improvements and establishing an order or hierarchy for implementation to: (a) ensure that interactive effects among projects are considered so that savings are not double counted, and (b) ensure that basic energy efficiency measures are considered before implementing more complex and expensive measures;
- Identifying financing options for implementation of identified energy efficiency measures;
- Developing a plan for implementation.

This project, aimed at providing the information necessary for the Tribes to undertake significant energy---efficiency improvements in Tribal buildings, helped CSKT meet a major objective of its *Flathead Reservation Comprehensive Resources Plan*: to pursue energy conservation measures for all future construction projects and existing Tribal facilities.

The Tribes reaffirmed that objective in May of 2010, when it created a Tribal Department of Energy (TDOE), which has, as part of its mission, the goal of promoting energy conservation measures for all Tribal departments and agencies. To assure a comprehensive and coordinated Tribal governmental approach for this and other energy goals of the TDOE, the Tribal Council established by resolution (Number 11-05) an Energy Team consisting of the Tribal Council and key staff across the Tribal government. These measures were designed to help the Tribes achieve their vision of providing energy security through reliable, clean, and affordable energy while protecting traditional cultural resources. This in turn will help the Tribes meet the broader vision of building a more sustainable society and restoring a sustainable environment.

The specific tasks under the agreement, included:

Tasks:

Task 1: RFP and Scope of Work Prepared and Circulated.

Task 2: Conduct technical evaluation of the proposals received.

Task3: Conduct interviews with prospective contractors

Task 4: Select and hire the subcontractor.

Milestone 1: Subcontractor Hired.

Task 5: Initiate a comprehensive energy audit.

Milestone 2: Feasibility Study begins.

Subtask 5a: Conduct analysis of utility consumption and cost for approximately 40 buildings, review building plans, and conduct a walk-through of buildings.

Milestone 3: Walk-through analysis completed for all buildings.

Subtask 5b: Describe and analyze the energy-using systems of each of the approximately 40 buildings based on on-site observations, measurements, and engineering calculations.

Milestone 4: Analysis of energy-using systems completed for all buildings.

Subtask 5c: For each building develop a breakdown of the components of annual energy use and the associated costs and list of recommended energy efficiency measures, including predicted savings and the cost of implementation, description and cost estimate of repairs needed if energy efficiency measures are to be effective, and description and cost estimate of measurement and verification methods needed to determine the actual effectiveness of measures once implemented.

Subtask 5d: Produce a detailed draft energy audit report that includes for each building: present energy use and cost, ultimate target for energy use and cost, preliminary engineering and economic analysis of potential modifications that includes materials lists, predicted savings from recommended measures, and a comparison of current recommendations to ultimate target.

Milestone 5: Draft Energy Audit Completed and Circulated.

Subtask 5e: Work with subcontractor to ensure the Tribal staff fully-comprehend the technical analysis.

Subtask 5f: Tribal staff review and comment on draft audit report.

Subtask 5g: Subcontractor produces final audit report based on comments received on draft.

Milestone 6: Final Energy Audit Completed.

Task 6: Co-present the analysis to the Tribes' Energy Team and Tribal Council, a presentation that will include a summary of:

- Annual energy cost and savings (total annual energy costs and how much cost can be reduced by installing the recommended projects).
- Energy Sources (the major sources of energy used by the facilities and their primary end uses).
- Project Summary Table (individual data tables for each building and a combined table summarizing all recommended projects).
- Total project cost, energy savings and energy cost savings (total project cost and estimated annual energy and cost savings).

Milestone 7: Results of Energy Audit Presented to Energy Team and Tribal Council.

Task 7: With the assistance of the subcontractor, CSKT Administrative Director, TDOE Director and others assess financing options and funding sources (both within and outside of the Tribes) for implementation.

Milestone 8: Financing Options and Potential Funding Sources Identified. Draft Feasibility Study Completed and Circulated.

Task 8: Develop a plan for implementation, append to feasibility study, and present draft package to Tribal Council.

Milestone 9: Draft Implementation Plan and Draft Feasibility Study Presented to Tribal Council.

Task 9: Complete the Final Feasibility Study report with implementation plan based on comments received and present to Tribal Council.

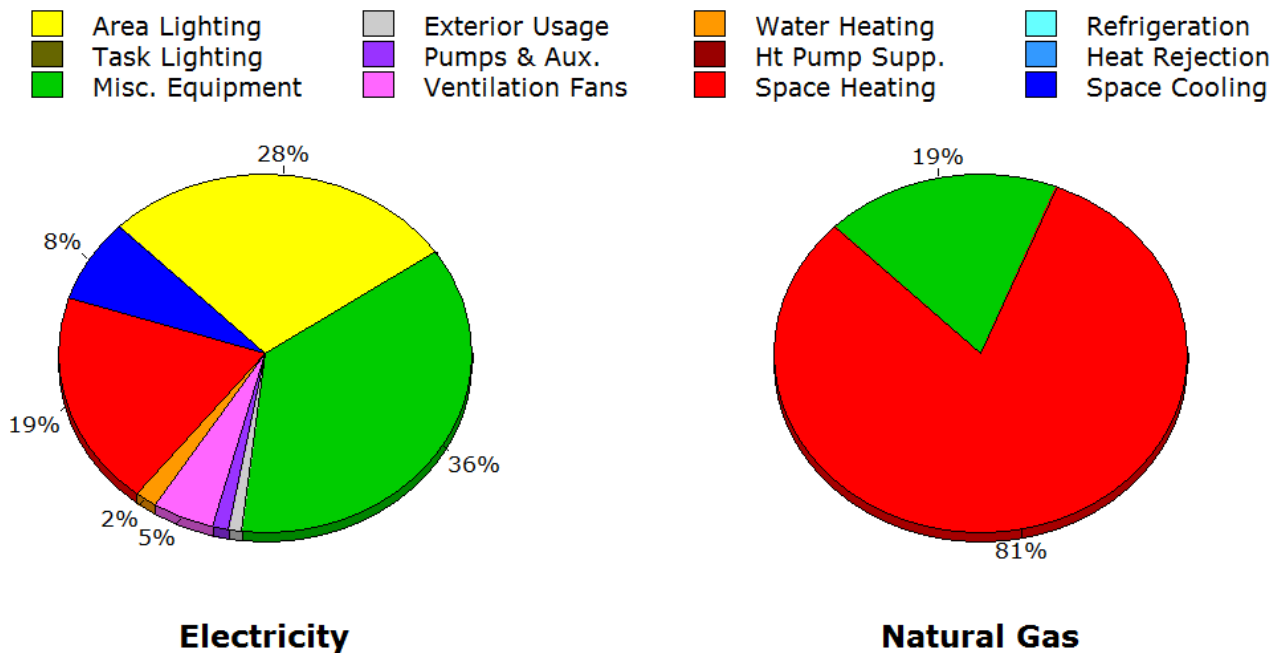
Milestone 10: Final Feasibility Study and Implementation Plan Completed.

Description of Activities Performed:

Initially 40 Tribal buildings were surveyed allowing for Baseline Energy Models and audit reports for all of the buildings. Subsequently, there was a modification to the award to incorporate a 12-month No Cost Time Extension (NCTE) to change the end-date from 12/31/2013 to 12/31/2014 in order to complete four additional audits on: Polson Senior Center, Polson-NRD Wild Land Rec./Fish and Game, St. Ignatius – Commodity Building Office, and the Ronan Safety of Dams Main Office. The additional audits were within the original scope of the approved Statement of Project Objectives (SOPO).

The initial 40 buildings to be evaluated, used an average of 3,506,3000 kWh of electricity, 59,844 gallons of propane, and 2,112 gallons of fuel oil per year. This costs the Tribes \$342,816 annually.

The projected savings and reductions, based on the energy efficiency measures identified in the feasibility study would result in a minimum 30% reduction in energy use in these buildings which would save 1,054,890 kWh of electricity, 17,953 gallons of propane, and 633 gallons of fuel oil. This would result in a monetary savings of \$97,445 each year.



The full list of the final 44 Tribal buildings that were audited:

Building Number	Location	Building Name	Year Built	Square Footage	Monthly Electric Use (in kWh)	Monthly Electric Energy Cost	Monthly Propane* and Fuel Oil Use (in gal.)	Monthly Fuel Cost
830	Arlee	Arlee Clinic	1979	3200	1796	\$112	83*	\$151
840	Arlee	Community Cntr	2002	19500	1066	\$596	578*	\$1,046
860a	Arlee	NkwSum School	1977	7800	5543	\$362	0	\$0
350	Blue Bay	Lake Front Bldg	1960	4000	222	\$21	48*	\$87
351	Blue Bay	Main Lodge	1950	1800	1111	\$64	0	\$0
870	Dixon Old Agn	Blue Bldg	1971	1280	2079	\$111	86	\$269
140	Elmo	Kootenai Culture Bldg	1993	12180	6754	\$435	296*	\$536
142	Elmo	Koostahstah Hall	1960	4584	854	\$60	48*	\$87
910	Hot Springs	Senior Center	1960	2952	1847	\$117	95*	\$171
460	Pablo	New Complex West	2004	37000	48567	\$2,630	1194*	\$2,161
440	Pablo	Complex - 1 Story	1978	10000	728	\$50	0	\$0
441	Pablo	Law & Order	1978	9216	35066	\$1,913	0	\$0
444	Pablo	Property & Supply	1994	7000	10789	\$632	0	\$0
445	Pablo	Probation	1985	4800	4409	\$313	0	\$0
420	Pablo	Headstart/College Dr	1997	3390	3877	\$276	17	\$59
443	Pablo	Sylvia's Store	1994	1600	3113	\$188	0	\$0
446	Pablo	ECS/Daycare	1991	3000	1531	\$96	73*	\$132
448	Pablo	Evenstart/Fatherhood	1965	1056	1291	\$82	15	\$53
451	Pablo	Main/P&S Surplus	1970	2400	3868	\$240	0	\$0
450	Pablo	CPS/Social Services	1972	4500	8332	\$477	0	\$0
454	Pablo	People Center	1993	5000	6024	\$365	128*	\$232
240	Polson	NRD Admin	1967	7000	9519	\$538	0	\$0
241	Polson	NRD Fish & Wildlife E.		4800	1832	\$113	0	\$0
250	Polson	GSA Airport/Water Lab	1980	1400	280	\$27	19	\$65
220	Polson	Headstart	1999?	3390	2596	\$203	0	\$0
510	Ronan	Senior Cntr/Gaming	1974	3400	4644	\$333	0	\$0
520	Ronan	Headstart	1975	3332	3394	\$267	0	\$0
541	Ronan	Secons Circle Lodge	1971	3840	2994	\$167	39	\$127
550	Ronan	Forestry Main Bldg	1976	6875	8044	\$470	173*	\$314
560	Ronan Airport	Fire Control Main Bldg	1973	9920	10602	\$568	368*	\$667
640	St. Ignatius	Community Cntr	1968	12790	9740	\$594	464*	\$841
620	St. Ignatius	Headstart	1999?	3390	4682	\$279	0	\$0
622	St. Ignatius	ECS/Early Start	1960	2380	744	\$50	ntly reopened, no data	
650	St. Ignatius	Longhouse	1980	8600	5897	\$419	280*	\$506
630	St. Ignatius	THHS Clinic	1988	30120	23011	\$1,242	0	\$0
631	St. Ignatius	THHS Neil Charlo Bldg	1972	10800	7579	\$450	994*	\$1,800
930	Polson	Headstart	1977	4680	2596	\$203	63*	\$113
810	Arlee	Senior Center	1979	2480	3855	\$349	102*	\$186
852	Arlee	Fmr Daycare	2002	2000	82	\$17	0	\$0
440	Pablo	Old Complex	1979	20000	41067	\$2,036	0	\$0

Mission Valley Power, the electrical energy supplier on the Reservation, is a federally owned electric utility, operated as a non-profit organization and maintained by the Confederated Salish and Kootenai Tribes pursuant to a contract under the auspices of the Indian Education and Self-Determination Act, Public Law 93-638. The utility currently serves more than 18,000 consumers with residential customers accounting for the lion's share at 15,536 meters. Small commercial businesses, with no demand, account for 2,867 meters. The rest of the metered demand comes from irrigation, streetlights, area lights, large commercial, and other forms of small commercial ventures.

Propane and fuel oil suppliers of Tribal buildings include AmeriGas (Missoula), Polson Propane (Polson), and Dumontier Oil in Arlee.

Recommendations from audits:

- Standardization of HVAC Equipment
 - Heat Pump
 - Controls
- Set Goals for Energy Reduction
 - For Example – 20% by 2016
 - Provide Incentive to Building Manager to reach Energy Reduction Goals
- Benchmark Buildings
 - Continually Monitor Energy Usage