Developing Your Energy Vision: What Do You Want Your Tribe's Energy Future To Be?

DOE Webinar Series

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Environmental Mission Statement

The traditional values of the Forest county Potawatomi Community teach us to respect all living things, to take only what we need from Mother Earth, and to preserve the air, water, and soil for our children. Reflecting on these values, we take leadership in creating a sustainable and healthy world. We resolve to reduce our own environmental impacts and to take steps to remedy the impacts of others. We encourage others to do the same. We also seek legislative and policy changes that protect the environment for all people, including generations to come. (November 20, 2008).

General Goals

- Solidify the Tribe's commitment to the environment for Tribal members and all others: Clean Air, Water, Sustainable land use and good citizenry.
- A continued commitment to the Tribe's mission of clean and renewable energy initiatives.
- Direct comments and consultations to Federal, State, and private institutions regarding environmental matters, Tribal interests and renewable energy solutions.
- Treatment as state for air and water on Tribal lands. Exercise Sovereignty.
- Pursue beneficial environmental programs, clean energy projects, energy efficiency and global climate change initiatives. TRACK EVERYTHING
- Allow your program to build off of decisions, good, bad and indifferent.

Vision and Implementation

- Know your facilities.
- Track changes-quarterly reports.
- Engage Tribal Membership.
- Keep a motion, resolution and key documents book.
- Be prepared.
- Refine your objectives.
- Encourage Funding through unique opportunities.

Planning

- Key Motions early 2000s
  - motion to direct the Attorney General's office to request RFPs for baseline energy/carbon analysis, energy/carbon reduction, feasibility analysis and/or green energy production analysis.
  - motion to direct the Attorney General's office to develop Mission Statement options for Executive Council approval regarding Environmental issues.

Planning

- Key Motions early 2000s
  - Motion to direct FCPC Legal to identify potential renewable energy projects for the Tribe to develop or invest in and report regularly on those opportunities to the Executive Council.
  - Motion to direct Legal and Tribal energy consultants to pursue site assessments for on-reservation and Milwaukee potential renewable energy projects.

Planning

- 2008-Key Motions
  - Motions to approve the FCPC Environmental Mission Statement.
  - Motion to direct FCPC Legal and Tribal EPA to have quarterly energy usage and carbon reports for the Tribe's operations and prepare and provide to executive Council two weeks prior to each quarterly General Council meeting.

Planning

- 2009-Key Motions
  - Motion to direct Legal to take the steps necessary to sign up FCPC under EPA's Green Power Partnership Program.
  - Motion to direct Legal to investigate USDA, DOE, BIA and other incentives for biomass fuel and biomass energy production.

Planning

- 2009-Key Motions
  - Motion to direct Legal and Core Planning to submit energy management plan and report back to Executive Council.

Key Motions Supporting Energy Efforts

- May 29, 2013. Motion to require that all newly purchased fleet cars be hybrids as recommended by the Energy Working Group.
- May 8, 2014. Motion to have the EPA Department create a Development of an Energy Strategic Plan. Motion Carried.
- May 8, 2014. Motion to develop a Climate Change Adaptation Plan. Motion Carried.

Key Motions Supporting Energy Efforts

- May 29, 2013. Motion to require that all new buildings on Tribal trust and fee lands be, at a minimum, constructed in accordance with Leadership in Energy and Environmental Design (LEED) Certified standards, as recommended by the Energy Working Group.

- June 28, 2017. Motion to require that planning for all new buildings to be constructed on Tribal trust and fee lands include consideration of green energy technologies, potential energy offset through green energy, installation costs, economic returns and feasibility.

Key Motions Supporting Energy Efforts

- June 28, 2017. Motion to require that green energy feasibility for new construction be discussed at the planning stage with the Tribe's Legal and Land and Natural Resources Departments.
- June 28, 2017. Motion to require that all new buildings constructed on Tribal trust and fee lands be engineered to support loads associated with the installation of solar photovoltaic panels.

Environmental Mission Statement

- The 2008 adoption of the Environmental Mission Statement has been the basis for several key initiatives and motions including:
  - Establishing a goal of Energy Independence through the use of only green, renewable energy sources.

Environmental Mission Statement

- Adoption of Resolution 045-2012-Due Diligence Policy for Energy Projects, July 2, 2012.

- Planning for Future Generations and Preserving the Tribe's Culture.

- The Tribe's fight for Clean air and Water.
  - Class I.
  - TAS.
- Assessing the Tribe's natural resources and understanding the impacts of climate change.
  - Climate Adaptation Plan. (2017)

Environmental Mission Statement

- Adoption of a Tribal Environmental Policy Act.

- MOUs with Federal Government Forest Service for use of U.S. Forest near reservation.

- Kabotie Community Development and Energy Planning. An effort to gather stakeholders, focus the Tribe's goals and shape the Tribe's future.

Project Greenfire

- Established goal of energy independence using only renewable carbon-neutral or carbon-free resources.
- Adopted “Environmental Mission Statement” to help implement and institutionalize goal.
- Comprehensive Energy Audit.
  - Established baseline of energy consumption/carbon footprint.
  - Identified “List of 100” facilities improvements.
- RECs purchased to completely offset electric use and serve as bridge to energy independence.
- Resource assessments for potential projects.

Project Greenfire

- The 2007 baseline energy use by the Tribe is 31,485,303 kwh. At that time, the Tribe was not producing its own energy.
- The Tribe saw significant increases in energy use between 2007-2009 using 53,075,420 kwh in 2009.
- Even with increases in Tribal business, buildings, and services the 2009 number has not significantly increased, largely due to energy efficiency measures. The Tribe's 2016 use was 54, 909, 590 with 796,005 kwh of solar produced.

Find your Base

- Baseline of energy use is as important as the Tribe's collective outlook and "moral" base. Develop that understanding with solid information to aid in future decisionmaking.
- Allow your base to inform objectives but remain flexible.
- Tribal governments are fluid.

Community Development & Energy Planning – Kabotie Report (2012) Strategies for 2013-2015

- Linking energy projects to cultural values by establishing communication that provides accurate information.
  - Provide Clear and Concise Handouts/Articles to Describe Projects/Objectives.
  - Communicate with Community Members on a One to One basis.
  - Develop Home Energy Audits with education component.
  - Build a small biomass plant and demonstrate it's success.
  - Develop Community Coordination Program for Community Input and Information Regular Meeting.

Kabotie Report: Strategies for 2013-2015

- Establishing Protocol to Implement Energy Mission Statement with Goals of Energy Efficiency and Independence in all Projects.
  - Require more stringent energy efficient/renewable energy sources in construction projects.
  - Implement action on standing Energy Mission Statement.
  - Mandatory minimal requirement standards regarding building efficiencies.
  - Develop Energy Independence Plan for Community approval.
  - Pursue the purchase of a new land base.

Kabotie Report: Strategies for 2013-2015

- Listening to Elders, nurturing youth, and preserving culture by engaging them in renewable projects that demonstrate respectful use of land and resources.
  - Create small pilot projects with education component.
  - Create pilot youth program to retrofit building with renewable technology.
  - Revive beliefs on the Elder's worldview.
  - Engage youth and elders in cultural activities that emphasize energy vision including agricultural resources.
  - Implement programs that teach cultural values, leadership, and environmental stewardship.
  - Expand knowledge about environment/conservation and build a sense of urgency.

Kabotie Report: Strategies for 2013-2015

- Delegating appropriate working group to champion energy, efficiency, and independence.
  - Create a Sustainable Energy Officer position.
  - Create a Sustainability Coordinator.
  - Establish ad hoc Energy Working Group from elders, youth, health, education, and housing.
  - Create an Energy Working Group of Division Managers.

Accountability

- While these initial efforts provide a starting point…
  - Each Tribe is unique. Tribal resources, objectives and interests are unique. Plan according to those needs and not someone else's blueprint.
  - Recognize when reassessments should be made.
  - Things change…any initial effort is a Starting Point…NOT a directive.

Ongoing Efforts

- Reduce energy usage annually on a square footage basis in FCPC government buildings/casinos.
- Reduce the number of RECs needed to offset FCPC's electric usage annually.
- Conduct carbon sequestration study of FCPC Forests. Draft Study Received 10/17.
- Establish a Home Energy Audit Program. Grant Received 9/17.
- Develop a cost share program for FCPC members to implement recommendations identified in the Home Energy Audit Program. Projected Result of Audit Program. 9/17.

Ongoing Efforts

- Energy Strategic Plan
  - The EWG has been developing a Strategic Plan for the Tribe's energy efforts.
  - Specific goals related to community engagement, energy efficiency, renewable energy, and energy sovereignty and long-term sustainability have been identified.
  - Within each goal, the EWG has identified specific tasks, for example submitting grant applications annually, studying the Tribe's forests for carbon sequestration, preparing articles for Tribal members.
  - The Strategic Plan will be presented to Council for approval and implementation.

Ongoing Efforts

- Biomass Projects
  - Although Biomass was a goal identified in the Kabotie Report, the Tribe has a history of exploring biomass, including grant applications in 2009.
  - Feasibility study conducted under the DOE Tribal Energy Office's START Technical Assistance Program.
    - Evergreen Engineering initially hired as consultant.
    - Rock Gap Engineering hired to conclude consulting on Carter Biomass Facility-2017.
    - Outcome: feasibility of a biomass facility-economics, availability of feedstock, environmental-for Tribal facilities in Carter, WI.

Ongoing Efforts

- Home Energy Audit Program.
- United States Department of Energy First Steps Toward Developing Renewable Energy on Tribal Lands Grant.
  - Audit and Energy Efficiency Program.
  - Key Motion: September 9, 2017. Motion to assist FCPC Tribal homeowners that reside on reservation land to implement identified energy saving options that are the result of a home energy audit by contributing up to $375 per home for weatherization measures such as caulking, weather stripping and blown in insulation.

Ongoing Efforts

- Tribal Utility Study-Tribal Energy Development Capacity Grant through Department of Interior Division of Energy and Mineral Development.
- Tribe was awarded $139,000 to study the feasibility and ultimate formation of a Tribal Utility.
- The Tribe contracted with Avant Energy for the feasibility study.

Ongoing Efforts

- Tribal Utilities help Tribes meet energy independence goals and provide an entity to own and operate owned generation.
- Many Tribal Utilities purchase power on the wholesale market, eliminating retail rates charged by utilities.
- Tribal Utilities may support economic development through cost savings and by attracting non-tribal businesses for more competitive energy rates.
- The Feasibility Study is currently being finalized with business formation and key assumptions currently being analyzed.

Do Not Write Anything Off

- Opportunity is created through analyses, understanding, planning and flexibility.
- Informed studies are important to support decisionmaking, grant writing and ultimately project implementation.
- Feasibility studies only get you so far. They cannot be shelved.

Key Facts-Energy Efforts

- To date, FCPC has received Fifteen energy grants totaling approximately $10 million. The combined energy grants and 1603 credit is approximately $14.7 million. FCPC is also a co-recipient of the Midwest Tribal Energy Resource Association Grant.
- Energy Efficiency efforts save the Tribe over $2 million annually.

Energy Efficiency: Milwaukee Casino

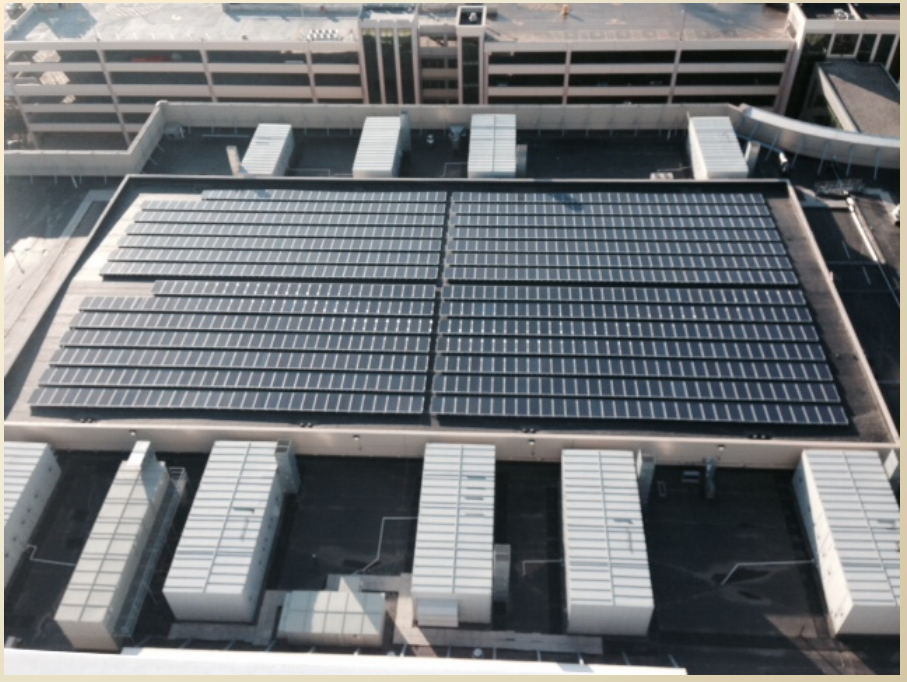
- Lighting upgrades in parking structure from metal halide to LED – 2,368,618 kWh/year reduction in use equal to a $213,175.62 savings.
- Cove lighting converted from incandescent to LED – 981,120 kWh/year reduction in use equal to a $88,300.80 savings.
- Ten similar projects throughout facility – total annual reduction in use of 4,367,237 kWh or savings of $393,051.33.
- Displacement ventilation.
- Fluorescent lights LED retrofit in back of house planned fiscal year 2018.
- Heat wheel technology on all major air handlers throughout the casino, UV cleaning systems, PCO filtrations.
- Direct Digital Control of air handling.

Energy Efficiency: Milwaukee Casino

- Boiler optimization program, Chiller optimization controls, boiler burner upgrades.
- Cooking oil from PBC kitchens is collected & recycled.
- Waste from the casino's grease traps are collected & feed to Biogas Digester.
- Formerly 28th largest electric user for WE Energies, now 55th.
- Formerly 13th largest user of natural gas, now 21st.
- Shaved $1 million annually off energy costs through energy efficiency.
- The Biodigester Heat Loop saves the casino between $1,200 and $3,000 monthly from costs associated with heating and hot water.

Renewable Energy

In total the tribe has invested in and installed the 3rd Largest Solar Array in the State of Wisconsin. The Tribe has over 2 MW installed with another 1.5 planned for 2020. In all, 18 Tribal buildings have solar.



FCPC Solar Systems Performance Data (January to March 2017)								
Location	Solar System Size (kW)	Average Energy Rate ($/kWh)	FCPC Solar System Cost ($)	Total Energy Production January to March 2017 (kWh)	Estimated Cost Savings (January-March 2017) ($)	Total Approximate savings earned so far	Amount Remaining to Achieve Payback ($)	Estimated Time Until Payback is Achieved (yrs)
Air Monitoring*	12.5	0.115	$ 6,947.83	2,312.47	$ 265.93	$ 1,788.68	$ 5,159.15	3.6
AODA*	12.4	0.115	$ 6,892.25	1,778.43	$ 204.52	$ 1,730.54	$ 5,161.70	3.5
Caring Place	86.5	0.095	$ 48,078.99	6,406.58	$ 608.62	$ 13,575.30	$ 34,503.69	5.1
Family Resources	23.56	0.123	$ 13,095.27	3,240.94	$ 398.64	$ 5,680.36	$ 7,414.91	2.6
Gte Ga Nes Preschoo	24.8	0.115	$ 13,784.50	3,845.11	$ 442.19	$ 3,491.75	$ 10,292.75	3.4
Milwaukee	447.64	0.09	$248,810.14	59,445.00	$ 5,350.05	$ 84,589.38	$ 164,220.76	3.7
Museum*	49.6	0.1	$ 27,568.99	6,802.84	$ 680.28	$ 3,434.26	$ 24,134.73	8.2
Natural Resources	22	0.128	$ 12,228.18	2,262.30	$ 289.57	$ 5,529.58	$ 6,698.60	2.4
Ordinance*	9	0.115	$ 5,002.44	1,631.68	$ 187.64	$ 835.25	$ 4,167.19	5.8
Property Managemer	24.8	0.115	$ 13,784.50	4,937.42	$ 567.80	$ 1,965.95	$ 11,818.54	7.0
Rec Center	62.25	0.124	$ 34,600.20	10,649.99	$ 1,320.60	$ 16,684.68	$ 17,915.52	1.9
Rising Sun Daycare*	24.8	0.115	$ 13,784.50	3,527.07	$ 405.61	$ 3,332.28	$ 10,452.22	3.7
Solid Waste	19.5	0.127	$ 10,838.62	157.23	$ 19.97	$ 5,301.63	$ 5,536.98	2.1
Stone Lake C-Store*	80.6	0.047	$ 44,799.61	10,332.83	$ 485.64	$ 4,450.21	$ 40,349.40	10.6
Utilities	23	0.126	$ 12,784.01	3,073.09	$ 387.21	$ 6,576.35	$ 6,207.66	1.9
*Phase II Sites		TOTAL	$513,000.00	120,402.96	$ 11,614.29	$158,966.19	$ 354,033.82	

Flexibility

- There is no Easy Street in Energy.
- Remaining Flexible while maintaining information flow is key.
- FCPC Renewable Generation Biodigester- Case Study.

Renewable Energy Projects
Milwaukee Biogas Generation Project

- 2.0 megawatt anaerobic biodigester and biogas cogeneration facility located near Potawatomi Bingo Casino in Milwaukee, WI.
- Operates on liquid (pumpable) food wastes.
- Generates revenue from a combination of tipping fees, heat sales, and electricity sold through a WE Energies Renewable Energy Tariff (local utility).

BIOGAS GENERATOR

TURNS LIQUID ORGANIC WASTE INTO ELECTRICITY AND HEAT ENERGY. 2,168,598 kWh potential electrical generation per year.

Waste heat recovery loop will supplement casino boiler system with an estimated 490,571 therms per year.

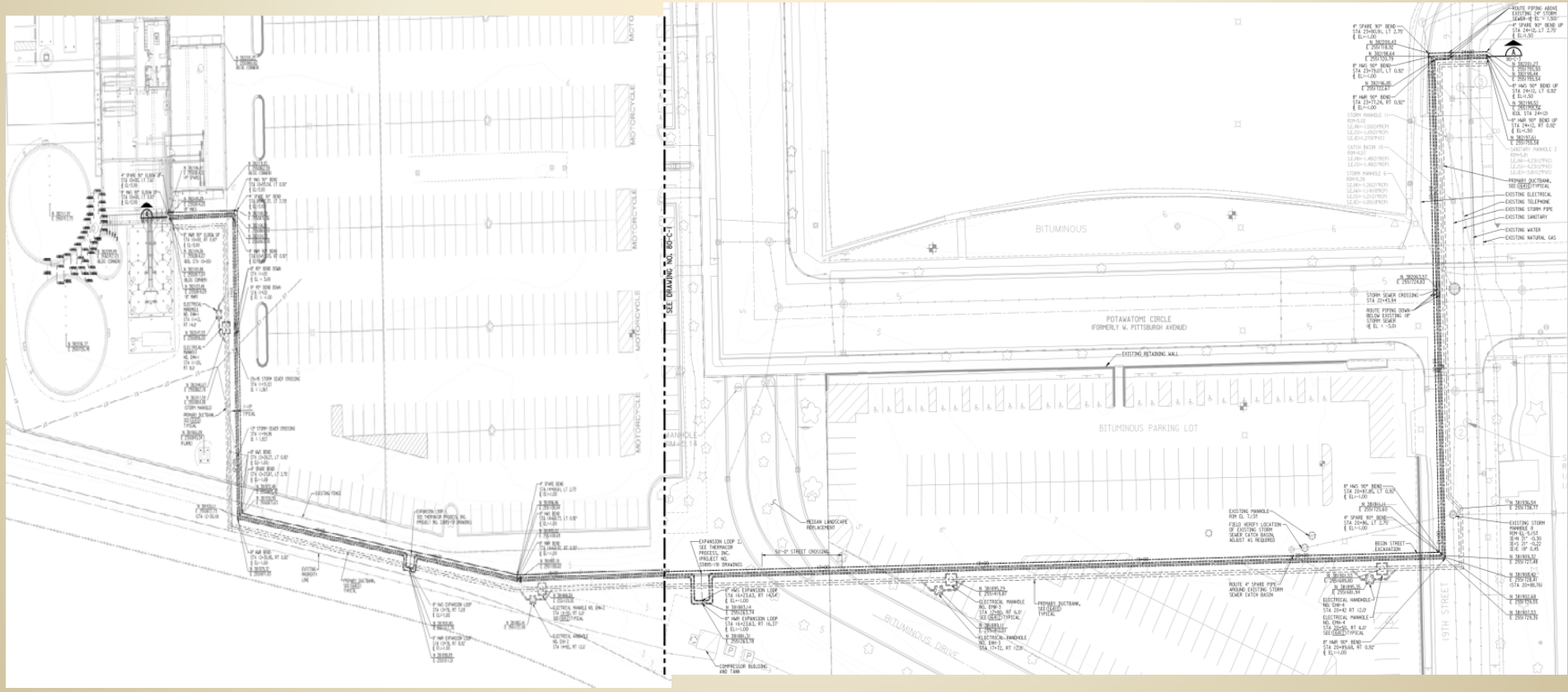
Diversion Statistics

- 54 tons diverted thru May for year to date from PBC
- 8,963 metric tons CO_2 abated by plant first 9 months of the FY17

BIOGAS GENERATOR – Heat Loop

Heat loop was added as separate project to take excess heat from the Bio-Digester Plant and delivers it to the Hotel and Casino.

Enough heat is available to offset natural gas requirements for domestic water usage of the Hotel



Biodigester Troubleshooting

- Design Revisions. The original design included a membrane to filter feedstock. The membrane frequently clogged due to the feedstock being different than was anticipated.
- Feedstock quality. The assumptions originally used for feedstock were aggressive. There was less dairy available for use. Finding the right mix has been challenging.

Choosing what to move forward with…where are the opportunities and needs?

- Look at Rates,
- Consider Community Planning,
- Consider regulatory barriers,
- Consider your offsets,
- Where is the need-do you have areas with frequent outages?
- Know what the limitations are.

Potential Renewable Energy Projects Wgema Campus Biomass

- Submitted under Energy and Mineral Development Grant offered by the Department of the Interior to determine feasibility of an urban biomass facility at Wgema Campus.
- Biomass from urban landscapes is an untapped resource- currently landfilled.
- Urban biomass CHP is a proven technology that utilizes urban green waste, manufacturing waste or other biomass source materials generated in an urban environment.
- A combined heat/energy project would provide cost savings on electric and heating costs, promote environmental efficiencies, and potentially generate income from non-tribal businesses that may lease space on the Wgema campus.

Potential Renewable Energy Projects Carter Microgrid Feasibility Study

- Submitted under Energy and Mineral Development Grant offered by the Department of the Interior to determine feasibility of installation of a microgrid energy system on Tribal lands in the Carter region of Forest County.

- An RFP will be used to hire a consultant to determine the project sites and existing energy resources, infrastructures, and current and projected energy use, loads, and demand profiles.

- If determined feasible an optimal microgrid system would be brought to Council.

- Once final analysis is completed and legal issues evaluated, development of viable business plans for commercial success will be prepared and presented in a comprehensive report to the Executive Council for consideration.

Funding

- Account through Energy Savings.
- Annual Facility Budgets.
- Tax Credit Partners.
- Tribal Partners.
- Grants, leverage multiple sources.

Thank you!

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