



STRATEGIC ENERGY PLAN

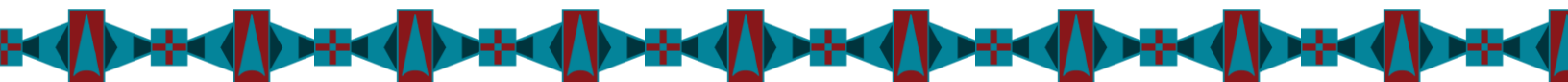
October 12, 2022

Version 1.0



Cayuse – Umatilla – Walla Walla
Confederated Tribes of the Umatilla Indian Reservation

To create an energy future where **independence** and **reliability** maximize **tribal sovereignty**, **affordability**, and **access** for the Umatilla Indian Reservation community in a manner that respects **Tamánwit**, protects and enhances **treaty-reserved resources**, and is consistent with the **Comprehensive Plan**



Confederated Tribes of the Umatilla Indian Reservation

Strategic Energy Plan

Final



Prepared by AECOM

May 5, 2022

Amended and Finalized by CTUIR EST for BOT Adoption

October 12, 2022

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Executive Summary

The Confederated Tribes of the Umatilla Indian Reservation (CTUIR) has a role in leading its community through a complex time in the energy landscape. It is a time of urgency but also a time full of opportunity. The need to mitigate and adapt to a changing climate, preserve and restore Treaty Reserved Rights, and advance the aims of economic development and self-determination is strong and urgent, but the opportunities presented by emerging technologies, innovative business models, and forward-thinking policies and funding streams mean that more solutions are available now than ever before. The 2020-2021 Board of Trustees of the CTUIR identified the urgency and opportunity and prioritized action by authorizing the formation of an Energy Strategy Team to be responsible for developing a CTUIR Strategic Energy Plan.

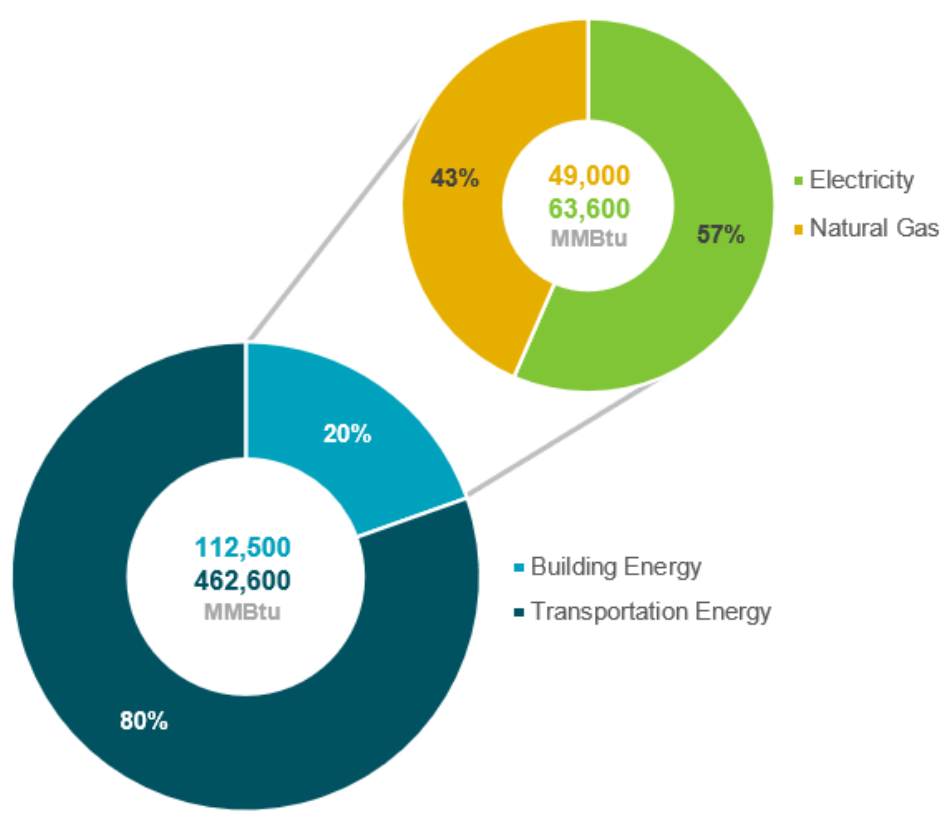
Major revisions to the CTUIR Strategic Energy Plan may occur at five-year intervals, and such major revisions will be provided to the Board of Trustees for their review and approval.

Through broad community engagement, extensive technical analysis, persistent tribal leadership, and iterative problem solving, the CTUIR Strategic Energy Plan achieves the following four objectives:

- ▶ Defines the existing energy landscape
- ▶ Develops a common energy vision for the community
- ▶ Identifies and assesses Energy Opportunities
- ▶ Charts an actionable roadmap to execute the Energy Vision

The CTUIR is a union of the Cayuse, Umatilla, and Walla Walla Tribes and has approximately 3,100 Tribal Members. About half of the Tribal Members live on or near the Umatilla Indian Reservation (UIR), which is also home to 300 Tribal Members from other tribes and 1,500 non-Tribal Members. The Umatilla Indian Reservation (UIR) covers approximately 273 square miles on the north side of the Blue Mountains in northeastern Oregon.

As illustrated in **Figure ES-1**, in 2019, the CTUIR consumed approximately 18,600 MWh (63,600 MMBtu) per year in electricity, 49,000 MMBtu per year in natural gas (Pacific Power, UEC, CNG, 2021), and 4,054,000 GGE (462,600 MMBtu) per year in transportation energy (CTUIR, 2020). Transportation energy consumption accounts for nearly four times more energy than the total building energy consumption (electricity and natural gas), which may be due to the high volume of vehicle miles driven for fleet vehicles relative to the size of the building portfolio. Six facilities are responsible for consuming approximately 73% of the total building energy consumption of 112,500 MMBtu per year across CTUIR accounts. Approximately 43% of total building energy consumption comes from natural gas used for heating, which has implications for reservation greenhouse gas emissions and energy sovereignty. Approximately 30% of residential homes use natural gas for heating, and 70% use heating fuel such as propane and wood.



Sources: CTUIR Fuel Purchases, Pacific Power Metered Utility Data, UEC Metered Utility Data, CNG Metered Utility Data

Figure ES-1: Total building and transportation energy consumption

The CTUIR purchases 94% of its electricity from Pacific Power and 6% from Umatilla Electric Cooperative (UEC). According to Oregon DOE (2020), over half of Pacific Power’s electricity resource mix comes from coal, whereas over half of UEC’s energy is supplied by hydropower. While Pacific Power and UEC are striving to transition to more sustainable energy generation alternatives, energy consumption for the UIR from the current energy resource mix currently yields a blended average rate of greenhouse gas (GHG) emissions of 0.661 MtCO₂e/MWh, surpassing Oregon’s emission rate of 0.363 MtCO₂e/MWh and the national average of 0.401 MtCO₂e/MWh (Oregon DEQ, 2019).

The consumption of electricity derived from coal, which produces GHG emissions, and hydropower, which impacts salmon fishery health and Treaty Reserved Rights to first foods access, drives the need for CTUIR to take ownership of energy supplies serving the UIR by pursuing alternative energy generation sources.

The Energy Vision for the CTUIR community reflects the existing energy landscape, the results of a community-wide survey that was conducted to capture Tribal Member values and priorities, and previous efforts to establish goals and priorities for energy systems for the CTUIR, including the *Comprehensive Plan: The Confederated Tribes of the Umatilla Indian Reservation* (CTUIR, 2018) and the *2009 Energy Policy* (CTUIR, 2009).



CTUIR Energy Vision

To create an energy future where **independence** and **reliability** maximize **tribal sovereignty**, **affordability**, and **access** for the Umatilla Indian Reservation community in a manner that respects **Tamánwit**, protects and enhances **treaty-reserved resources**, and is consistent with the **Comprehensive Plan**.

The Energy Vision is divided into 10 Energy Objectives, summarized in **Table ES-1**, each with an Energy Goal. Summarized in **Table ES-1**, each Energy Goal has an associated Energy Target and Key Performance Indicator (KPI). The Energy Goals and Energy Targets are intended to be considered when planning to implement an Energy Opportunity.

Table ES-1: Energy Objectives and Energy Goals

Energy Objective	Energy Goal
1. Improves affordability of Energy	Mitigate against the rising cost of energy
2. Maintains reliability or Electricity Supply	Minimize power outages
3. Reduces carbon emissions	Reduce GHG emissions
4. Supports self-determination	Contribute to community members' ability to steer their lives
5. Enhances tribal sovereignty	Increase capacity for self-governance through reduced tribal interference from outside authorities
6. Protects natural resources	Mitigate negative impacts to (or contribute positively to) tribal land, water, and air resources
7. Preserves cultural resources	Mitigate negative impacts to (or contribute positively to) treaty rights access, viewsheds, historical landmarks, and other cultural resources
8. Encourages economic sustainability	Achieve lifecycle financial viability (positive return on investment)
9. Promotes equitable access	Help all community members have an equally effective chance of receiving energy-related services
10. Aligns with <i>Comprehensive Plan</i>	Align with the goals and vision in the <i>Comprehensive Plan</i>



Table ES-2: Energy Targets and Key Performance Indicators

Energy Target	Key Performance Indicator (KPI)
1. Prevent energy rates from increasing faster than benchmark inflation.	Track community-wide energy rates in units of \$ per kWh .
2. Maintain power reliability at current System Average Interruption Duration Index / System Average Interruption Frequency Index (SAIDI / SAIFI) performance or better.	Track SAIDI / SAIFI values as projects are implemented and ensure that values are equal to or better than baseline.
3. Reduce all electricity-related GHG emissions within the UIR to zero by 2050.	Track reduction of emissions in units of mtCO₂e . ^[1]
4. Increase energy independence through local production of energy resources.	Track the percentage of energy produced locally compared to energy consumed within the UIR. ^[1]
5. Pursue programs that generate greater legal autonomy over UIR energy resources.	Track whether a program generates greater legal autonomy with a YES or NO .
6. Align all projects and programs with the First Foods Policy (CTUIR, in progress).	Track whether a project or program aligns with the <i>First Foods Policy</i> with a YES or NO .
7. Align all projects and programs with the <i>Historic Preservation Code</i> (CTUIR, 2016)	Track whether a project or program aligns with the <i>Historic Preservation Code</i> with a YES or NO .
8. Pursue energy investments that have a positive Return on Investment (ROI).	Track whether an energy investment has a positive ROI with a YES or NO .
9. Design energy programs so that all community members have equal access to participation.	Track whether an energy program offers equal access to enrollment with a YES or NO .
10. Align all projects and programs with the <i>Comprehensive Plan</i> .	Track whether an energy project or program aligns with the <i>Comprehensive Plan</i> with a YES or NO .

Using the Energy Objectives, over 40 potential Energy Opportunities were evaluated, listed in **Table ES-3** for Technological Energy Opportunities and **Table ES-4** for Programmatic Energy Opportunities. The opportunities span a range of clean energy technology solutions and governmental policies and programs. The Energy Opportunities selected for further action in the Implementation Roadmap enable rapid and meaningful progress toward the Energy Goals.



Table ES-3: List of Technical Energy Opportunities

1.	Alternative Fuel Sales: A Alternative Liquid Fuels Sales at ATP	11.	Building Electrification: B Residential Building Electrification	20.	Smart Meters
2.	Alternative Fuel Sales: B EV Charging	12.	Geothermal: A Geothermal Electricity Generation	21.	Solar PV: A Community-scale Ground-mounted Solar PV
3.	Alternative Fuel Sales: C Hydrogen gas	13.	Geothermal: B Geothermal District Heating System	22.	Solar PV: B Solar PV on Commercial Rooftops and Parking Area
4.	Battery Energy Storage System (BESS): A Community-scale Lithium Ion (Li-ion)	14.	Hydropower: A Small-scale Hydroelectric Power at McKay Reservoir	23.	Solar PV: C Solar PV on Residential Rooftops
5.	BESS: B Other Community-scale Battery Technologies	15.	Hydropower: B Microscale Hydroelectric Power at Umatilla River Fisheries	24.	Solar Thermal Water Heating (STWH): A Residential STWH
6.	BESS: C EV to Grid	16.	Hydropower: C In-line Hydroelectric Power at Pressure-Reducing Valves with the Water Distribution System	25.	STWH: B STWH at WRC
7.	Biomass: A Biomass Combined Heat and Power (CHP) for WRC	17.	Infrastructure Hardening: A Underground Power Distribution Lines	26.	Vehicle Electrification: A Fleet Vehicle Electrification
8.	Biomass: B Residential Wood Stoves	18.	Infrastructure Hardening: B Protected Energy Assets	27.	Vehicle Electrification: B Specialty Vehicle Electrification
9.	Biomass: C Commercial Biomass Boilers	19.	Microgrid Controls	28.	Wind Turbines Community-scale Wind Turbine
10.	Building Electrification: A Electric Heat Pumps for Commercial Buildings				



Photo of Umatilla Indian Reservation



Table ES-4: List of Programmatic Energy Opportunities

1.	Commercial Energy Auditing: A ASHRAE Level 1 Audits	6.	Energy Skills Training Program: A Energy Auditing Skills Training	11.	Net Zero Energy Building Design
2.	Commercial Energy Auditing: B ASHRAE Level 2 Energy Audits	7.	Energy Skills Training Program: B Energy Plant Operations Skills Training	12.	Nixyáawii Community Financial Services (NCFS) Loans for Energy-Related Investments
3.	Energy Efficiency and Renewable Energy (EERE) Seed Fund	8.	Energy Skills Training Program: C Electrical Infrastructure Maintenance	13.	Tribal Energy Development Organization (TEDO): A
4.	Energy Management Program: A Energy Usage and GHG Emission Tracking	9.	Home Energy Auditing: A Home Energy Conservation Assessment	14.	TEDO: B Tribal Energy Resources Agreement (TERA)
5.	Energy Management Program: B Environmental Social Governance Tracking	10.	Home Energy Auditing: B Home Energy Generation Assessment	15.	Tribal Utility Authority (TUA)

The Energy Opportunities that are recommended for further consideration, based on their progress toward achieving the Energy Vision, are assembled into an Action Plan. To reduce the complexity, the Energy Opportunities identified for further consideration are divided into two core tracks, Centralized Actions and Distributed Actions. **Table ES-5** and **Table ES-6**, respectively, summarize the Energy Opportunities that are recommended for further consideration. The Action Plan serves as a kind of recipe book for the CTUIR to take decisive next steps to build early momentum in priority areas (such as community solar PV feasibility studies), while keeping in mind the longer term actions that will become higher priority after initial groundwork has been completed (such as considering hydrogen fuel sales).

Funding and financing mechanisms that could be used to support the implementation of the recommended Energy Opportunities include grant funding for energy projects that are supported by federal, state, and local initiatives; financing strategies such as loans and bonds specially constructed for energy projects and tribal communities, and incentive programs for consumers and private entities.



Table ES-5: List of Energy Opportunities with Centralized Actions

1	Alternative Fuel Sales: B EV Charging	8	Energy Skills Training: B Energy Plant Operations	15	Microgrid
2	Alternative Fuel Sales: C Hydrogen	9	Energy Skills Training: C Electrical Infrastructure	16	Solar PV: A Ground-mounted
3	BESS: A Lithium Ion	10	Geothermal: A Geothermal Electricity	17	TEDO: A or B TEDO or TERA
4	Biomass: A CHP	11	Geothermal: B Geothermal Heating	18	TUA
5	EERE Seed Fund	12	Hydro: A Small-hydro at McKay Reservoir	19	Vehicle Electrification: A Fleet Vehicle Electrification
6	Energy Management: A Energy Usage and Carbon Emission	13	Hydro: B Microhydro at Umatilla River Fisheries	20	Wind Turbines
7	Energy Management: B ESG Tracking	14	Infrastructure Hardening: B Protected Assets		

Table ES-6: List of Energy Opportunities with Distributed Actions

1	Biomass: B Residential Wood Stoves	11	Home Energy Auditing: A and B Weatherization, Lighting, and Appliances (A) and Home Energy Generation (B)	20	Smart Meters
2	Building Electrification: A and B Commercial Electric Heat Pumps (A) and Residential Building Electrification (B)	12	Infrastructure Hardening: A Underground Distribution Lines	21	Solar PV: B Commercial Rooftop / Parking
3	Commercial Energy Auditing: A and B ASHRAE Level 1 Audit (A) ASHRAE Level 2 Audit (B)	13	NCFS Loans / Investments	22	Solar PV: C Residential Rooftop
4	Energy Skills Training: A Energy Auditing	14	Net Zero Energy Building Design		

The combination of all Actions working together in the Action Plan results in multiple pathways to achieve substantial local and renewable energy generation, significant CO₂ emission reductions, and progress toward greater tribal sovereignty and self-determination, all while addressing energy affordability and resilience and preserving natural and cultural resources.

With the Strategic Energy Plan as a guide, the CTUIR is equipped to take on the urgent, complex, and multifaceted challenges related to energy systems that face the community now and into the future.



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