

Tribal Resilient Energy Infrastructure

Hosted by the WRP Energy Committee

December 8, 2020

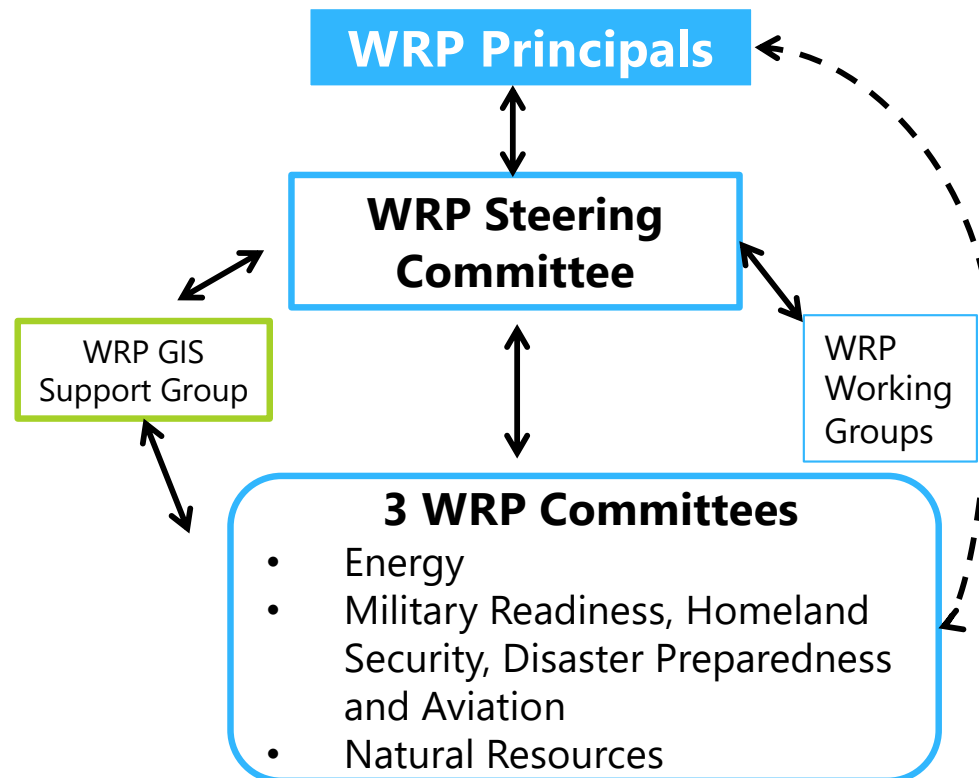
WRP Mission

WRP provides a proactive and collaborative framework for **senior-policy level Federal, State and Tribal leadership** to identify common goals and emerging issues in the states of **Arizona, California, Colorado, Nevada, New Mexico and Utah** and to develop solutions that support WRP Partners and protect natural and cultural resources, while promoting sustainability, homeland security and military readiness.

WRP Structure

WRP Co-Chairs:

- **Honorable Gary Herbert**, Governor of Utah
- **Honorable W. Jordan Gillis**, Assistant Secretary of Defense for Sustainment
- **TBD**, Assistant Secretary for Land and Minerals Management, DOI



WRP ENERGY COMMITTEE CO-CHAIRS

- **Steven Arenson**, Deputy Director, Strategic Plans and Programs, Office of the Deputy Assistant Secretary of the Air Force for Installations
- **Jim Bartridge**, Senior Transmission Program Specialist, Siting, Transmission and Environmental Protection Division, California Energy Commission
- **David Bobzien**, Director, Nevada Governor's Office of Energy
- **Shelly Lynch**, Branch Chief, Lands Recreation and Planning, California State Office, Interior Regions 8 and 10
- **Leroy Shingoitewa**, Hopi Tribe

WRP Energy Committee GIS Liaison: Jim O-Sullivan, Industry Economist,
Office of Petroleum, Natural Gas & Biofuels Analysis, U.S. Energy
Information Administration

Brief Background on WRP Resilient Energy Infrastructure Deep-Dive

- Current WRP Priority:
 - *Building Resilience in the West for America's Defense, Energy, Environment and Infrastructure through Enhanced Collaboration among Federal, State and Tribal Entities.*
 - **Explore** tools and resources needed to build resilience to support the diverse missions of Federal, State and Tribal entities in the WRP Region
- Phase one: Survey of WRP Leadership identified four deep-dives
 - Resiliency of Airspace in the WRP Region
 - Water Security
 - Disaster Mitigation
 - **Resilient Energy Infrastructure**

WRP Building Resilience Terminology

The term “building resilience” is widely used but has a variety of definitions. For purposes of this strategic priority, “building resilience” will focus on:

- The natural and built infrastructure systems needed by Federal, State and Tribal Entities to perform essential functions;
- Current or anticipated impacts on these natural and built infrastructure systems from natural processes or human activities; and
- Resources to maintain, improve or rapidly reestablish essential functions in the event of such impacts or to avoid, prepare for, minimize the effect of, adapt to or recover from such impacts on these infrastructure systems.

Tribal Resilient Energy Infrastructure Webinar

Tribal lands' energy resources

- Conventional (oil, natural gas, and coal)
- Renewable (wind, solar, geothermal and biomass)
- Generate power
- Provide revenue
- Create jobs

This webinar will:

- Share information on relevant state energy policies
- Highlight Blue Lake Rancheria's efforts towards energy resiliency
- Highlight Department of Energy programs supporting energy development on Tribal lands
- Discuss recommendations and opportunities to enhance and strengthen Indian tribal energy development

Ms. Pilar M. Thomas

Partner, Quarles & Brady LLP



- Partner in the firm's Energy, Environment & Natural Resources Practice Group, focusing on tribal renewable energy project development and finance, tribal economic development, federal Indian Law, and natural resource development
- Provides strategic legal advice on tribal energy policy and planning; clean energy and infrastructure project development and finance; federal and state energy regulatory, programs, and policy efforts; and federal requirements for tribal lands development
- Previously
 - Deputy Director for the Office of Indian Energy Policy and Programs at the US Department of Energy, responsible for developing and implementing policy and program efforts within the department and federal government related to the promotion of energy development, electrification, and infrastructure improvement on tribal lands.
 - Deputy Solicitor of Indian Affairs for the US Department of the Interior.
 - Interim Attorney General and Chief of Staff to Chairwoman Herminia Frias of the Pascua Yaqui Tribe.
 - Trial attorney in the US Department of Justice, Environmental and Natural Resources Division, Indian Resources Section.

WRP Tribal Resilient Energy Infrastructure Workshop: State Regulatory Actions

Pilar M. Thomas

Partner

Energy, Environment and Natural Resources

Pilar.Thomas@quarles.com

December 8, 2020



Agenda

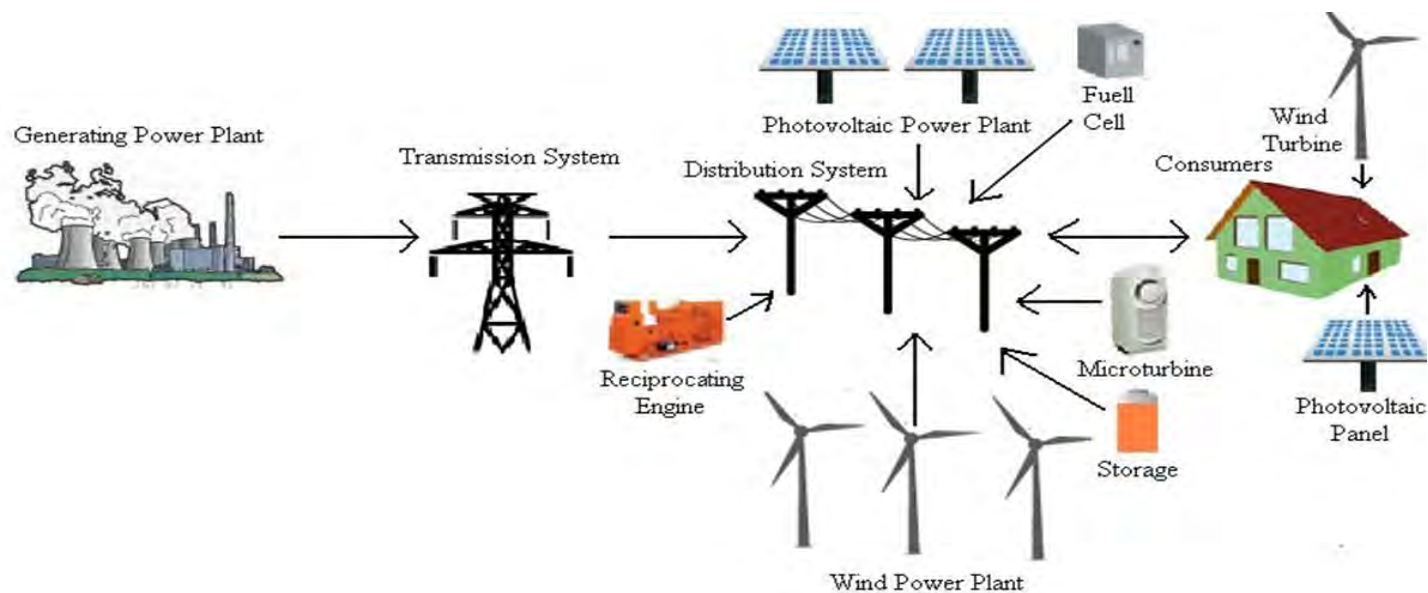
- Tribal Energy Resiliency Projects
- Project Models
- Market/Technologies Trends
- Legal/Regulatory Considerations
- Southwestern States' Current Actions

Tribal Energy Resiliency – What Is It, Why Do It

- Resiliency
 - Increased reliability
 - System adequacy
 - Diversity of energy supply
 - Control of energy supply
 - Reduced risk exposure to “centralized power” and transmission
 - Climate Change Adaptation
- Benefits
 - Energy Sovereignty
 - Control of electricity costs (lower, stabilize)
 - Economic Development
 - Jobs
 - Sustainable business development / competitive advantage

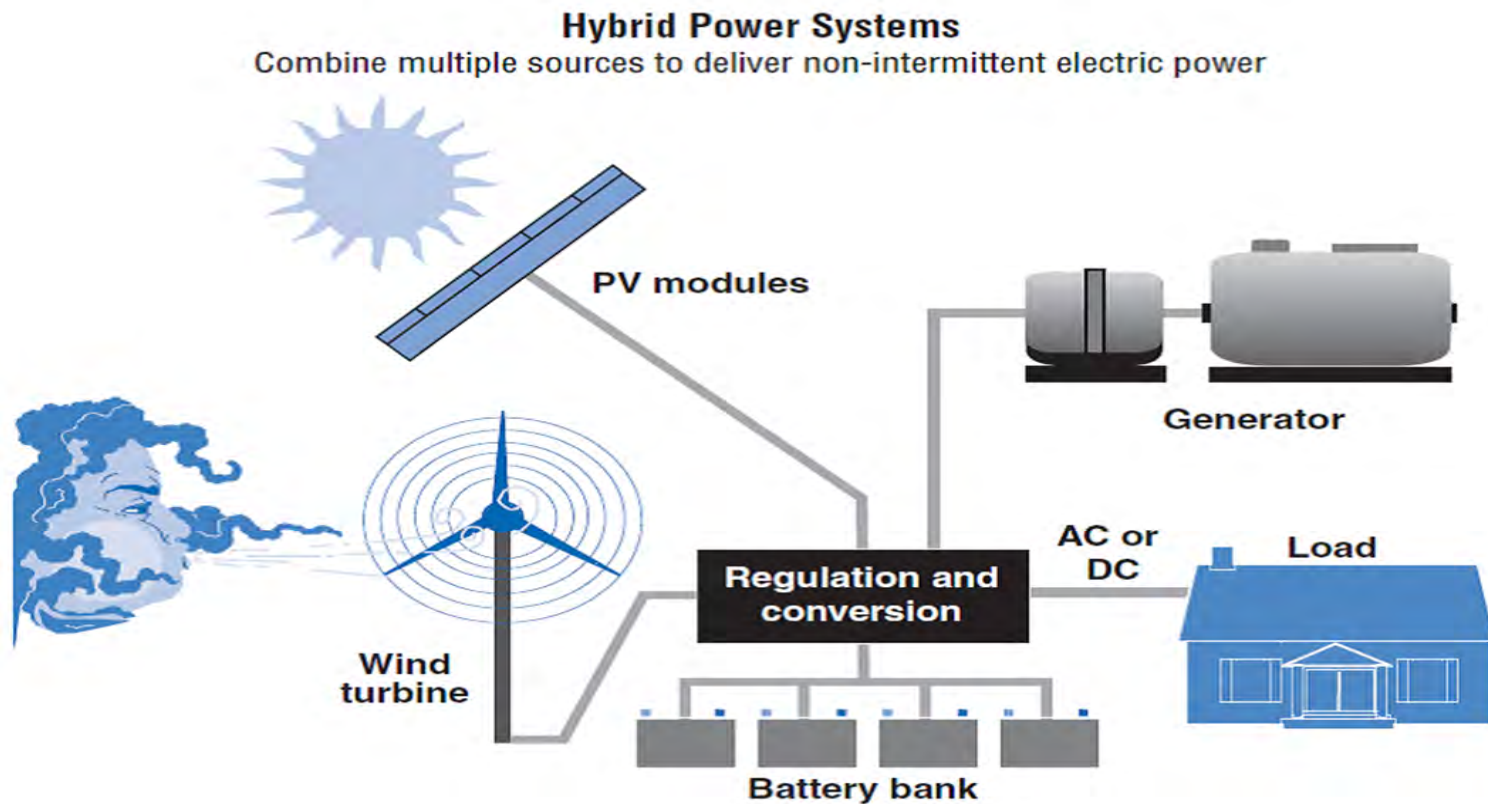
Distributed Energy Resources

- Defined: generation located in distribution grid, customer or third-party-owned generation, storage
- Technologies: rooftop solar, small wind, community solar or wind (such as solar gardens), energy storage, diesel / natural gas generators, microgrids (multiple generation technologies)
- Can be “behind the meter” (net metering) or “in front of the meter” (PURPA, CCA)



Community Microgrids

“Localized load and generation resources which normally operate connected to and synchronous with the traditional grid but can disconnect and function autonomously as an island within the grid”



Market / Technology Trends

- Climate change impacts – adaptation and resiliency driving micro-grid adoption, locating generation closer to load
- Falling costs – cheaper to build new solar/wind than natural gas, coal; storage falling fastest
- Local government sustainability – “Ready for 100” (50 cities); low income community solar models
- Financing – Citi Group (\$100B commitment); JP Morgan (\$200B commitment); green bonds; federal financing (DOE, DOI, USDA, Commerce, SBA)
- Utility Business Models – undergoing examinations; utility pressure to satisfy customer renewable energy demands; beginning to invest in distribution systems upgrades to accommodate DER
- State regulatory rate design – shifting to “time of use” and “demand” charges; incentives for DER/Microgrids; CCA adoption; focus on incorporating low-income, vulnerable, tribal communities
- Federal incentives ending – creating level playing field for tribes; but short term opportunities to lock in tax credits

Legal / Regulatory / Energy Policy Considerations

- Federal Policy and Jurisdiction
 - FPA/PURPA - Jurisdictional utilities required to interconnect and buy power from qualified facilities - < 80 MW alternative energy
 - Energy Programs – mostly focused on financial and technical assistance
 - Tax Code – tax benefits for renewable energy projects, Indian Country investment
- State jurisdiction – regulated retail environments
 - DER rate-setting, tariffs
 - Net metering – behind the meter; virtual/aggregate net metering
 - PURPA rules "avoided cost" tariffs/contract terms
 - Community choice aggregation
 - Interconnection standards
- Tribal Jurisdiction – control over own development, use
 - Self-determination development authorities – HEARTH Act, TERAs, TAS
 - Unresolved authorities – state vs. tribal regulation of state regulated utilities

State Regulatory Policies

- Community choice aggregation – 5 states, including CA
 - Allows for a local community to aggregate ratepayers, create new power purchasing authority for whole community, utility must still transmit and distribute power
 - CA experience – reduction of electricity costs by 5-10%, opportunities to do DER within CCA area
- Virtual / Aggregate Net Metering
 - Virtual Net Metering – a tariff arrangement that allows for off-site renewable energy systems energy credits/production to be shared across, or allocated to, one or more meters
 - Aggregate Net Metering – a tariff arrangement that allows one or more ratepayers with multiple meters to be aggregated then energy offset with an on or off-site renewable energy system
- PURPA
 - State specific rules for interconnection, contract terms, avoided cost rates

Southwest States – CA

- Calif Public Utilities Commission (CPUC)
 - Microgrid/resiliency rulemaking – explicitly includes tribal governments
 - Solar Generation Incentive Program (SGIP) – tribal project set-aside
- California Energy Commission (CEC)
 - Microgrid funding – tribal government set aside
 - Strategic tribal energy needs funding
 - Disadvantaged communities work group – explicitly includes Indian lands

Southwest States – NV

- RPS of 50% by 2030
 - Recently amended the state constitution to require 50% renewable energy
 - No DER set aside (but energy efficiency can be 10%)
- Climate change adaptation plan
- Net Metering Rules
 - Tiered net metering, with stepdown from 95 – 75% of retail rate, based on amount of net-metered installed capacity (now in the 75% tier)
 - Keep rate for 20 years
 - Up to 25kW size projects
- Qualifying Facilities (PURPA)
 - Up to 80MW
 - Avoided cost rate – firm, non-firm power
- Additional renewable energy projects incentive programs
 - Available to public entities, non-profits/low income, residential/small business
 - 25 kW – 500 kW size systems

Southwest States – AZ

- AZ Corp Commission (ACC)
 - New net metering rules in 2017 – decreases economic benefit of rooftop solar, behind the meter projects
 - Paid "Net Export Rate" for excess power produced
 - Utility specific rate
 - Recently approved 50% renewable, 100% clean energy by 2050
 - No set aside for DER
 - Allows rural electric coops to effectively opt-out
 - Recently authorized PURPA contracts for up to 18 years

Southwest States – NM

- Energy Transition Act (2019)
 - Requires 100% carbon-free energy by 2045 (2050 for coops)
 - Requires 50% renewable energy by 2030
 - Includes rural electric coops, but does allow them to import renewable power or buy RECs
 - No DER set-aside, but incentive to support DER for public entities and schools
- Net Metering
 - For systems < 10kW, excess credits or avoided cost payment
 - For systems > 10kW, avoided cost payment

Southwest States – UT

- Net Metering
 - Similar to AZ – receive an export credit at a set price for excess power produced (currently set at 5.8 ¢/kWh)
 - 25 kW for residential, 2 MW for commercial/industrial
 - Allows aggregate net metering
- RPS – voluntary goal of 25% by 2025
- Incentives – utility, tax credits
- PURPA - contracts up to 15 years

Ms. Jana Ganion

Sustainability and Government Affairs Director Blue Lake Rancheria

- Creates and deploys community strategies for zero-carbon resilience and sustainability.
- Works on policy at the tribal, state, and federal government interfaces, develops and maintains strategic partnerships, and designs and manages energy, water, food, transportation, and telecommunications projects.
- Development experience includes low-carbon electric microgrids, electrified transportation infrastructure, and strategic planning in sustainability, climate mitigation and adaptation, emergency preparedness, and economic development.
- Co-chair of the U.S. Department of Energy's Indian Country Energy and Infrastructure Working Group
- Appointee to the U.S. Bureau of Ocean Energy Management California Task Force, California's Integrated Climate Adaptation and Resilience Technical Advisory Committee, California AB 617 Community Air Protection Program Consultation Group, and the California SB 350 Disadvantaged Communities Advisory Group for the California Public Utilities Commission and California Energy Commission.



Climate-smart, resilient infrastructure

Western Regional Partnership (WRP) webinar

12.8.2020

Jana Ganion, Sustainability and Government Affairs Director

jganion@bluelakerancheria-nsn.gov

BLUE LAKE RANCHERIA

A Federally Recognized Tribal Government





- 🌐 **Blue Lake Rancheria Tribe**
 - 🇺🇸 Federally recognized tribal government; nation; community
 - 🌐 Federally recognized 1908; terminated 1958; restored 1983
 - 🌐 Governed by elected, five-member Council
 - 🌐 ~100 acres of trust land spanning the Mad River
 - 🌐 Top 10 employers in rural Humboldt County (~400 employees)
 - 🌐 Formed Tribal Utility Authority (2013)



Policy and Outreach



- 2020 - Pacific Gas and Electric Co. (PG&E) Sustainability Advisory Council
- 2019 - National Congress of American Indians (NCAI) Climate Action Task Force Technical Committee
- 2018 - Tribal Rep, CA SB 350 CPUC/CEC Disadvantaged Communities Advisory Group
- 2018 - U.S. BOEM CA Intergovernmental Renewable Energy Task Force
- 2018 - AB 617 CA Air Resources Board Community Air Protection Program Consultation Group
- 2015 - CA Integrated Climate Adaptation & Resiliency Program Technical Adv. Council
- 2013 - U.S. Dept. of Energy, Indian Country Energy & Infrastructure Working Group
 - Elected Co-chair in 2020



Resilience Rationale - Global

- ❁ For resilience planning, we rely on NOAA and NASA climate data
 - ❁ Maintain and expand
- ❁ 2019: highest ocean temps ever recorded (NOAA)
- ❁ 2010-2019: warmest decade ever recorded (NOAA)
- ❁ Antarctic & Greenland ice sheets contain ~220 feet of sea level rise (SLR)
 - ❁ Melt is early and accelerating (NASA)
- ❁ CO2 concentrations are highest in human history (>415 ppm), and increase is accelerating (NOAA)
- ❁ Species die-offs (e.g., pollinators)
- ❁ Feedback loops are accelerating
 - ❁ Methane hydrates
 - ❁ Arctic permafrost melt could release ~1,600 gigatons of CO2; Remaining global budget is ~360 gigatons (NatGeo)



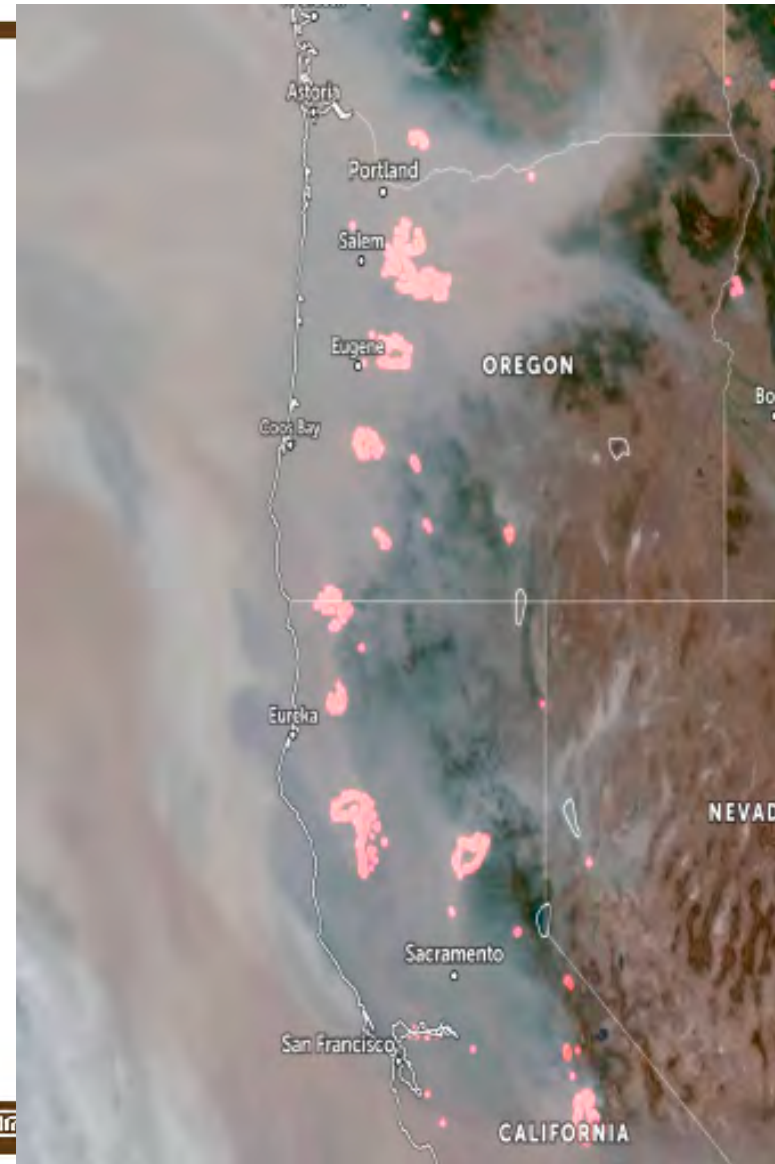
Photo Credit: H. Patton, Flickr Creative Commons



Resilience Rationale - Local

- 🌐 Global climate change *amplifies* local conditions
- 🌐 Extended “severe” drought
- 🌐 Unpredictable, volatile weather, extreme storms
 - 🔴 Arcata, CA ‘rain bomb’ 9/2019: ~2” in 30 minutes
- 🌐 Nuisance power outages are common, but worsening
 - 🔴 One in November 2019, One in January 2020 (entire county)
 - 🔴 Rolling outages in Aug/Sept 2020
 - 🌐 Due to grid stress and historic heat waves across the western US.
- 🌐 “Public Safety Power Shutoffs” (PSPS)
 - 🔴 Planned outages to prevent wildfires from electrical grid
 - 🔴 Projected to last 2-10 days; two PSPS events in Oct. 2019, one in Sept. 2020
- 🌐 Increased wildfires and air pollution

Image credit: zoom.earth
9/11/2020



Resilience Rationale - Local

- ❖ Landslides
- ❖ Floods
- ❖ Disruption of local supply chains
 - ❖ Food
 - ❖ Diesel / gas / propane
 - ❖ Can't rely solely on liquid fuels
- ❖ Sea Level Rise (SLR)
 - ❖ Humboldt County has fastest SLR on the Pacific Coast
 - ❖ Impacts to local power plants and other infrastructure
 - ❖ Threatens local nuclear radioactive waste repository



Simultaneous landslides across two (of three) main highways to the region. Photo credit: CalTrans



Resilience Rationale - Local

- ❁ Cascadia Subduction Zone, Mendocino Fault, and Gorda/Pacific/North American plates converge at 'triple junction' offshore
- ❁ Serious earthquake / tsunami risk
 - ❁ Can achieve >9.0 earthquake
- ❁ Entire Pacific Coast can be simultaneously impacted
 - ❁ Due to relatively low population, our region may be lower priority for emergency response

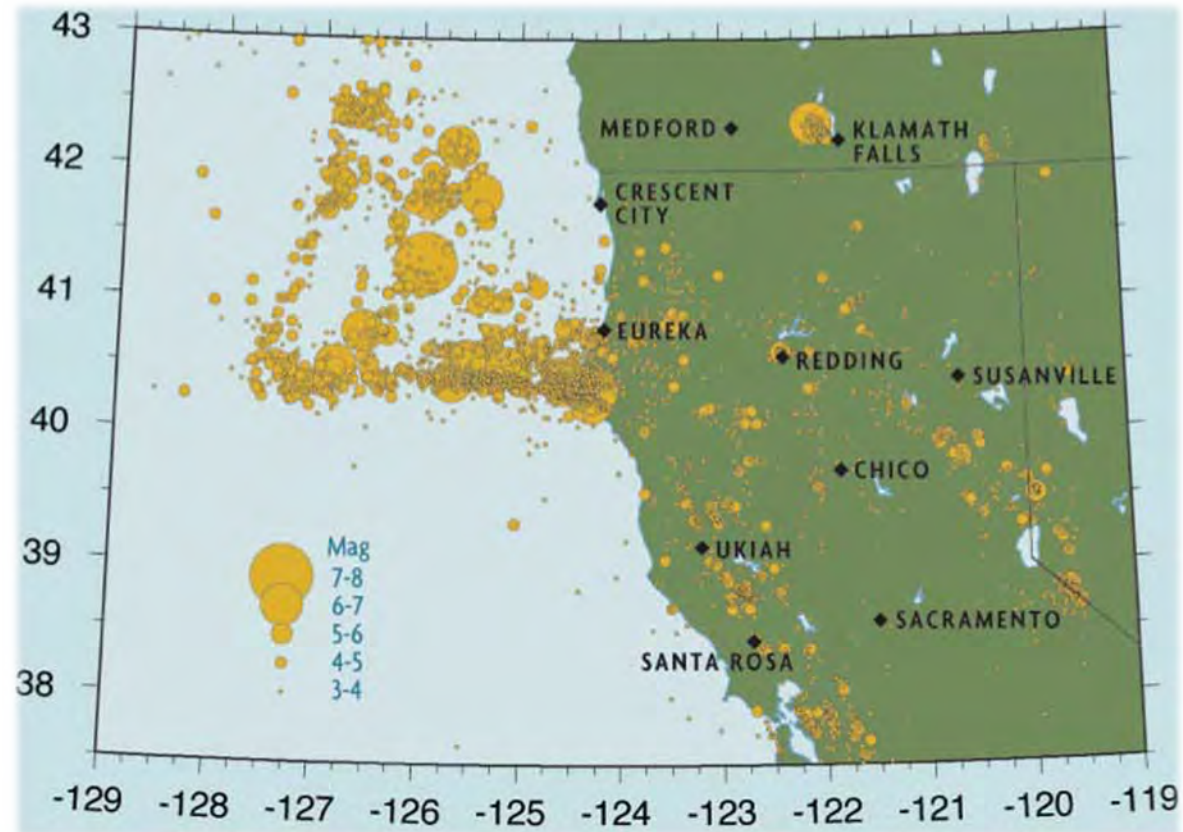


Image credit: Humboldt State University



Climate-smart Resilience Strategy

- Pairing climate mitigation + adaptation
 - Avoid making underlying causes of disasters worse
 - Transition to climate-smart infrastructure ASAP
- “Lifeline Sector” Priorities
 - **Energy:** efficiency + microgrids; energy supports all lifelines
 - **Water:** smart water grid (super efficient, monitoring tech, emergency water supplies)
 - **Transportation:** electric fleets; charging stations; biodiesel manuf.
 - **Communications/IT:** broadband, emergency communications
 - **Food:** increase nutrition; onsite production
- When these are done well, social, economic, environmental benefits result.



Microgrids at Blue Lake Rancheria



- ❁ Began decarbonized resilience solutions w/ energy
- ❁ Mini electrical grids; can operate connected to the larger grid or “islanded”/ disconnected from the grid to generate and use their own power.
- ❁ In business as usual, microgrids:
 - ❁ Reduce and levelize the operational costs of energy
 - ❁ Lower carbon and pollutant emissions
 - ❁ Depends on generation type(s)
 - ❁ Ride through nuisance power outages
- ❁ In emergencies microgrids support lifeline sectors



Community-scale Microgrid

- Public/private partnership
 - Blue Lake Rancheria, Schatz Energy Research Center, Humboldt State Univ., California Energy Commission, PG&E, Siemens, Tesla, CPUC, Idaho National Laboratory, many others
 - Funded by the Tribe and a CEC EPIC R&D grant
- Powers a central campus
 - Tribal government offices
 - Economic enterprises
 - Emergency operations center(s)
 - American Red Cross shelter
 - Critical infrastructure, lifeline sectors, EV charging
 - Can seamlessly island from and reconnect to grid
- Low-carbon power: solar + storage
 - 420kW (AC) solar PV
 - 1MW / 2MWh battery storage
 - Legacy diesel generators (only used in emergencies)



Facility-scale Microgrid “Solar+”



Photo:
Theindychannel.com

- ❁ Public/private partnership
 - ❁ Blue Lake Rancheria, Schatz Energy Research Center, Humboldt St. Univ., PG&E, SunPower, Tesla, CEC, Lawrence Berkeley National Lab, others
 - ❁ Funded by the Tribe and a CEC EPIC R&D grant
- ❁ Powers fuel station / convenience store complex and EV charging
- ❁ Creates a replicable, low-carbon ‘resilience package’
- ❁ Solar PV (60kW) + battery storage (106kw/169kwh) – clean energy
- ❁ Can island from, and reconnect to, the larger grid
- ❁ Advanced building controls – efficiency, demand response, balance
- ❁ In emergencies:
 - ❁ Supply lifeline sectors to public; emergency responders
 - ❁ Important where these types of facilities are the only community resource (e.g., in rural areas)



Climate-smart infrastructure is working

- Public Safety Power Shutoff (PSPS) - 10/9/19
- Served over 10,000 people (~10% of the county)
- Supplied general public & response agencies
 - Power
 - Provided critical medical housing in hotel
 - Communication device charging
 - Electric Vehicle (EV) charging
 - Fuels (electricity, gas, diesel, propane)
 - Supplies (ice, water, food)
 - Internet access, cellular connection, ATMs
 - Fuel for local clinic to keep medicines cold
 - Community Support Center | Business Center
 - Times-Standard* regional paper of record published onsite
- The PSPS apparently did its job – no wildfires
- The microgrids did their job – regional support



Wildfire Outage Reflections

- Outages were relatively short in Humboldt County – but still caused damage
 - Utilities/agencies worked to limit scope, appreciated given severe, fast-changing weather
 - If outages would have lasted longer, there would have been other issues
 - Cellular / internet communications outages (started to fail at the 24 hour mark)
 - Impacts emergency communication, and electrical grid controls that require internet connectivity
 - Water/wastewater systems
 - Further economic and social disruption
- Tribe's resilience worked; was well-received
 - Increased interest in microgrids
 - Focus on overlap of telecom/energy
 - Focus on overlap of transportation/energy
- PSPSs predicted for the next decade or longer



Microgrids as Solutions

- Microgrids' stacked benefits
 - Resilience, jobs, GHG and pollution reduction
- How are microgrids valued; how do we fund them?
 - Business as usual and emergencies; local and regional resilience benefit
 - Value of zero carbon energy and electrified transportation
 - Value of resilience and resource adequacy
- Microgrid knowledge transfer
 - Avoid inappropriate tech, increase standardization; lower capital/O&M costs
 - Continued R&D; new projects - equity investment, critical sites (e.g. airports)
- How to best manage microgrids?
 - Ensure safety and broad grid ecosystem benefits
 - 24/7 emergency response and O&M (electricians, IT)
 - Inter-jurisdictional issues, interconnection policy lag
 - Increase regional expertise/capacity; regional utility owned and operated?
- Microgrids vs. sectioning/segmenting the grid
 - Enable more cost effective generation/storage; centralize grid balancing



Other Solutions



- Energy efficiency
 - New tech, codes and standards, product knowledge, workforce dev.
- Fuel switching
 - Natural gas to electricity; Gas/diesel to electricity
- Wind energy offshore <http://schatzcenter.org/wind/>
- Redesign existing infrastructure
 - Repurpose aging/unsafe plants' electrical connections
 - Decommissioned natural gas pipelines used for ?
- Carbon sequestration; food sovereignty
- New climate-smart economy
 - Toma Resilience Campus (at BLR)
- New financial strategies
 - De-silo hazard mitigation and core infrastructure investments
 - Apply climate factor
- New partnerships
 - Tribes, states, DOD, DHS, aligning missions, goals, outcomes





Blue Lake Rancheria and Grid Alternatives partner on solar workforce training at Navajo Nation.

Nov. 5, 2020.

Photo credit: Grid Alternatives



Final Thoughts

- Tribe seemed to arrive “just in time” with appropriate resilience for disasters
- Due to effective governance, planning, partnerships, investment, and deployment
- Tribe’s strategy centering climate crisis, pairing mitigation + adaptation has worked
 - Climate science, data, and models are proving correct, and *conservative*
 - Working within a decarbonization strategy achieves stacked benefits immediately and over the long term
- Tribe is creating a manageable, just transition to a climate-smart community



Select Resilience Recognition

- 2019 “Green Power Leadership Award (Direct Project Engagement)” U.S. EPA
- 2019 “Microgrids for Greater Good Award (Grid-Connected)” Microgrid Knowledge
- 2018 “Project of the Year (DER Integration)” POWERGRID International, DistribuTECH
- 2017 “Whole Community Preparedness Award” FEMA
- 2015-2016 “Climate Action Champion” White House and U.S. Department of Energy



Further Reading

- *Washington Post* article on microgrid and resilience: <https://www.washingtonpost.com/climate-solutions/2020/01/01/amid-shut-off-woes-beacon-energy/?arc404=true>
- Technical reports on microgrids: <https://ww2.energy.ca.gov/2019publications/CEC-500-2019-011/CEC-500-2019-011.pdf> and <https://ww2.energy.ca.gov/2018publications/CEC-500-2018-022/CEC-500-2018-022.pdf>
- *T&D World* article on microgrid: <https://www.tdworld.com/grid-innovations/smart-grid/article/20971186/microgrid-serves-multiple-purposes>
- *Reasons to be Cheerful* article on Blue Lake Rancheria resilience: <https://reasonstobecheerful.world/power-struggle/>
- NOAA Climate Website: <https://www.noaa.gov/climate>
- National Security Implications of a Changing Climate: https://obamawhitehouse.archives.gov/sites/default/files/docs/National_Security_Implications_of_Changing_Climate_Final_051915.pdf
- Intergovernmental Panel on Climate Change Special Report: <https://www.ipcc.ch/sr15/>
- United Nations Environment Programme *Emissions Gap Report (2019)*: <https://wedocs.unep.org/bitstream/handle/20.500.11822/30798/EGR19ESEN.pdf?sequence=13>
- Rhodium Group Climate Risk Data: <https://rhg.com/impact/climate-risk/>



Lizana Pierce

Senior Engineer, Project Officer, and Deployment Supervisor
U.S. Department of Energy (DOE) Office of Indian Energy
Policy and Programs



- Serves as the principal engineering expert for the Director and Deputy Director, responsible for implementing the Office's Deployment Programs: Technical Assistance; Financial Assistance; and Education and Capacity Building.
- Previously, project manager for the Tribal Energy Program under DOE's Office of Energy Efficiency and Renewable Energy and worked in several of the research and development programs at DOE, including the solar, wind, and biomass programs.
- More than 25 years' experience in energy technologies, project development, and management, 20 of those years assisting Indian tribes in developing energy resources and building human capacity
- Before joining DOE, held a number of engineering positions in the defense and aerospace industries and involved in the integrated science payload flown on the Tethered Satellite Shuttle Mission (STS-46).
- B.S., Mechanical Engineering, Colorado State University; pursued M.B.A. through the University of Northern Colorado.

DOE OFFICE OF INDIAN ENERGY

DOE Indian Energy Program Overview

Lizana Pierce, Senior Engineer, Project Officer and Deployment Supervisor



U.S. DEPARTMENT OF
ENERGY

Office of
Indian Energy

December 8, 2020

Department of Energy

Mission

Ensure America's security and prosperity by addressing its energy, environmental and nuclear challenges through transformative science and technology solutions.



Energy

Catalyze the timely, material, and efficient transformation of the nation's energy system and secure U.S. leadership in energy technologies.

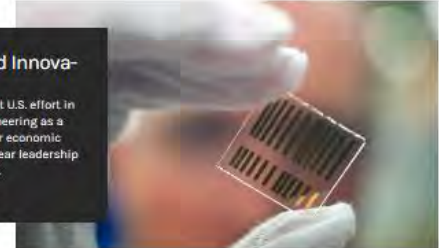
[VIEW MORE](#)



Science and Innovation

Maintain a vibrant U.S. effort in science and engineering as a cornerstone of our economic prosperity with clear leadership in strategic areas.

[VIEW MORE](#)



Nuclear Safety and Security

Enhance nuclear security through defense, nonproliferation, and environmental efforts.

[VIEW MORE](#)



Management and Operational Excellence

Establish an operational and adaptable framework that combines the best wisdom of all Department stakeholders to maximize mission success.

[VIEW MORE](#)



Office of Indian Energy

Office of Indian Energy Policy and Programs

Funds and implements activities that assist American Indian Tribes and Alaska Native villages with energy development, capacity building, energy cost reduction, and electrification of Indian lands and homes.

[VIEW MORE](#)



Authorized under the Energy Policy Act (EPAct) of 2005 and charged by Congress to:

- (1) **promote Indian tribal energy development, efficiency, and use;**
- (2) **reduce or stabilize energy costs;**
- (3) **enhance and strengthen Indian tribal energy and economic infrastructure** relating to natural resource development and electrification; and
- (4) **bring electrical power and service to Indian land and the homes** of tribal members located on Indian lands or acquired, constructed, or improved (in whole or in part) with Federal funds.”



Program Mission

To maximize the development and deployment of strategic energy solutions that benefit tribal communities by providing American Indians and Alaska Natives with the knowledge, skills, and resources needed to implement successful strategic energy solutions.



Clockwise from top right: **Seneca Nation's** (NY) 1.5 MW wind turbine, **Fort Yukon's** (AK) combined heat and powerhouse, **Coeur d'Alene Tribe's** (ID) Benewah Market energy efficiency project, **Sokaogon Chippewa Community** (WI) Housing Project, and **Chippewa Cree Tribe's** (MT) Residential Solar.

The **Indian Country Energy and Infrastructure Working Group (ICEIWG)** works collaboratively with the DOE Office of Indian Energy to assist in surveys, analysis, and recommendations related to program and policy initiatives that fulfill DOE's statutory authorizations and requirements.



May 2018 ICEIWG meeting at Sandia National Laboratories

Meet the Team

Office of Indian Energy

- Consists of **9 Federal employees** and **8 contractors**
- The **Director, Senior Advisor, Budget Officer and Management Analyst** and **2 contractors** located in **Washington, DC**
- The **Deployment Supervisor, Deployment Specialist, Project Officer, 6 contractors,** and **financial assistance support** through the **DOE Golden Field Office.**
- **AK Senior Policy Advisor** and **engineer** duty-stationed in **Alaska.**



Deployment Program



Financial Assistance

We facilitate access energy project development through financial assistance (competitively awarded grants).



Technical Assistance

We provide federally recognized Indian tribes, including Alaska Native villages, regional and village corporations, tribal energy resource development organizations, and other tribal groups and communities, with technical assistance to advance tribal energy and infrastructure projects.



Education and Capacity Building

Thorough regional workshops, webinars, and college student internships, we support tribal efforts to build internal capacity to develop energy projects and navigate energy markets.

Invested nearly \$85 million in more than 180 tribal energy projects valued at over \$180 million (2010-2019)



Tribal Energy Investment Transparency

Online Tribal Energy Projects Database

- Project Map (Interactive Map)
- Project Database (Sortable)
- Project Successes
- Project Summaries
 - Annual Presentations
 - Final Reports

Show 10 entries

Project	Tribes	State	Year
Agua Caliente Band of Cahuilla Indians - 2010 Project	Agua Caliente Band of Cahuilla Indians	California	2010
Agua Caliente Band of Cahuilla Indians - 2012 Project	Agua Caliente Band of Cahuilla Indians	California	2012
Agua Caliente Band of Cahuilla Indians-2015 Project	Agua Caliente Band of Cahuilla Indians	California	2015
Ahtna Intertribal Resource Commission – 2016 Project	Ahtna Intertribal Resource Commission	Alaska	2016
Akiachak Native Community – 2017 Project	Akiachak Native Community	Alaska	2017
Akwesasne Housing Authority on behalf of St. Regis Mohawk Tribe – 2016 Project	Akwesasne Housing Authority	New York	2016
Alaska Native Tribal Health Consortium (ANTHC) –	Alaska Native Tribal Health Consortium (ANTHC)	Alaska	2016

Akwesasne Housing Authority on behalf of St. Regis Mohawk Tribe – 2016 Project

Office of Indian Energy Policy and Programs

Summary

Initiative 1: Go Solar

Under the Community-Scale Akwesasne Housing Authority (AHA) Go Solar Initiative, the St. Regis Mohawk AHA will install approximately 614.74 kilowatts (kW) of solar photovoltaic (PV) systems in Franklin County, New York, to serve 159 housing-related buildings on the Tribe's reservation. The ground-mounted PV systems will be installed on a 25-acre parcel owned by the Tribe, and the generated electrical power will be utilized under National Grid's net metering programs to offset energy use and costs for AHA's buildings and tribal members' residences.

This project will serve 5% of the total tribal community's residential energy load and 4% of the total electrical energy usage including governmental and commercial buildings. When considering all fuels used on the reservation, the project provides a 3.35% reduction of total energy load on the reservation.

Initiative 2: Net Zero

The Akwesasne Housing Authority will create three "net-zero" buildings by installing energy efficiency measures and 101.5 kW of solar PV, reducing annual energy costs by about \$36,200. Two of the buildings are part of the Sunrise Green Development project, a tribal affordable housing development that will provide on-site services to tribal veterans, elders, and their families; the third is an existing building that houses the Akwesasne Boys & Girls Club.

Project Description

Background

Saint Regis Mohawk Tribe is a sovereign, federally acknowledged Indian tribe. The Tribal Council created the AHA by ordinance in July 1984 and has designated the AHA as its agency for purposes of administering the Tribe's Indian Housing Block Grant under the Native American Housing and Self-Determination Act of 1996. The St. Regis Mohawk Reservation is also known by its Mohawk name Akwesasne. U.S. census data indicate that the total population is 2,919, and U.S. Post Office data confirm that there are 1,277 households on the reservation.

St. Regis Mohawk Tribe and AHA have worked together to develop a 10-Year Tribal Strategic Energy

Project Overview

Tribe/Awardee
Akwesasne Housing Authority

Location
Hogansburg, NY

Project Title
Community-Scale AHA Go Solar Initiative and Net Zero Initiative

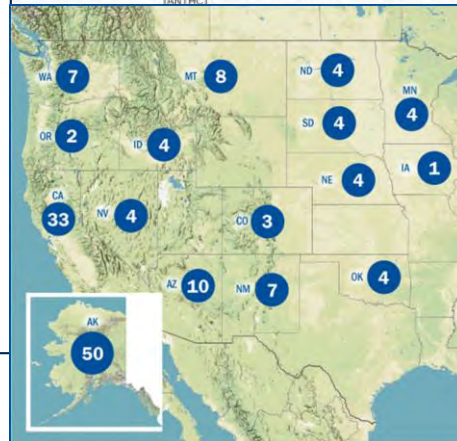
Type of Application
Deployment

DOE Grant Number
DE-EE0000038

Project Amounts
DOE: \$1,500,000
Awardee: \$1,837,831
Total: \$3,337,831

Project Status
See project status

Project Period of Performance
Start: July 2016
End: June 2018



PROJECT SUCCESSES

Can Solar Work in Alaska? Hughes Village Says Yes.
The Native Village of Hughes just installed the bones of a 120-kilowatt solar photovoltaic system that will cut diesel use and costs.
FEBRUARY 6, 2019

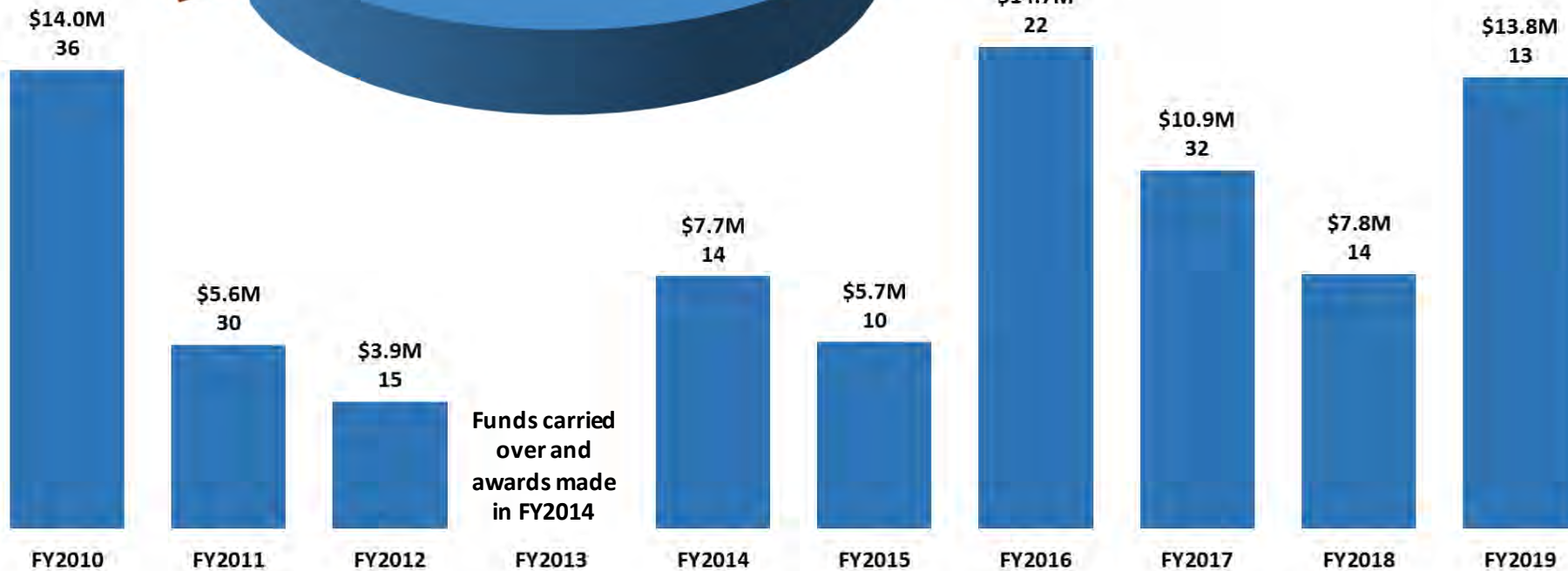
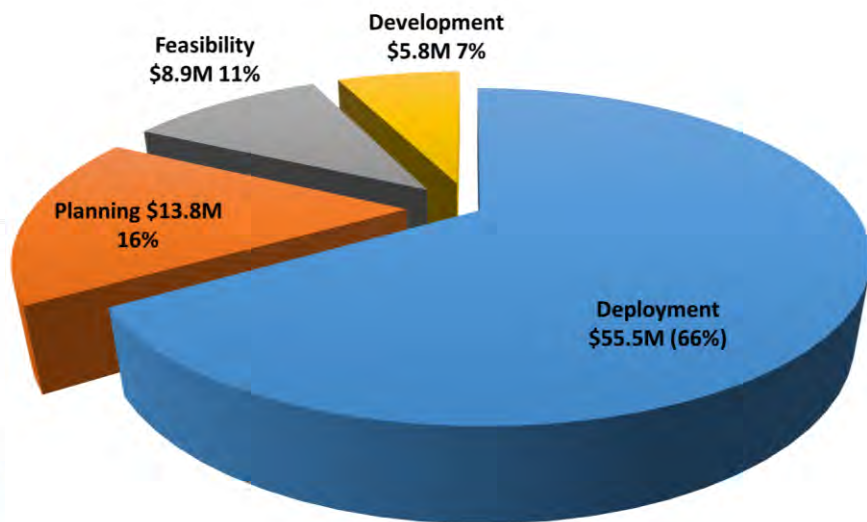
Pala Band of Mission Indians Sees Savings from Solar-Powered Fire Station, Looks Ahead to Continued Energy Development
The Tribe has turned to renewable energy as a means of lowering energy costs and gaining independence from the grid.
JUNE 9, 2018

The Confederated Tribes of the Umatilla Indian Reservation Trap the Sun to Offset Energy Costs
The Tribe turned a strip of its land in Oregon into nearly \$12,000 in annual energy cost savings.
AUGUST 27, 2018

Community Solar to Meet 100% of Energy Costs for New Mexico Tribe
A DOE co-funded 1-megawatt community solar array will offset the cost of the entire energy load of Picuris Pueblo.
JANUARY 11, 2018

Financial Assistance Investments (All States, 2010-2019)

Nearly \$85 million in more than 180 tribal energy projects (average of ~\$8.4M per year)



* FY2018 selections awarded and started in FY2019

Tribal Energy Successes



Clockwise from top right: Seneca Nation's 1.5 MW turbine (2017) (NY); Rosebud Sioux (SD) solar system on low-income home (2016); Chaninik Wind Group (AK) thermal stove install (2013); Southern Ute (CO) 1.3 MW Oxford Solar Project (2017).; Huslia Tribal Council's (AK) Biomass Project (2018); and Nunamiut people of Anaktuvuk Pass (AK) energy efficiency measures (2013).

Financial Assistance

Competitive Process (2010-2019)

- **16 Funding Opportunity Announcements (FOAs) issued**
(Includes FOA's issued in 2009 for award in 2010)
- **Accepted a total of 610 applications, valued at \$625 million**
- **Funded 95% of all meritorious applications** (Total of 186 out of 196)
- **Funded ~30% of all applications received** (186 out of 610)
DOE average is ~5 to 10%

All Funds Awarded through a Competitive Process

The Office of Indian Energy has primarily fulfilled the requirements under 42 U.S.C. § 7144e by providing cost shared federal funding to Indian tribes and tribal entities through competitive financial assistance awards.

2020 Funding Opportunity – Topic Areas

Energy Technology Deployment on Tribal Lands – 2020

Funding opportunity Announcement (FOA) Number: DE-FOA-0002317

- 1) Install energy generating system(s) and energy efficiency measure(s) for Tribal Building(s) (Topic Area 1); or,
- 2) Deploy community-scale energy generating system(s) or energy storage on Tribal Lands (Topic Area 2); or,
- 3) Install integrated energy system(s) for autonomous operation (independent of the traditional centralized electric power grid) to power a single or multiple essential tribal facilities during emergency situations or for tribal community resilience (Topic Area 3); or,
- 4) Deploy energy infrastructure and integrated energy system(s) to electrify Tribal Buildings (Topic Area 4).

Applications Due February 11, 2021

Funding Resources

- ## Energy Development Assistance Tool

Information for Tribes about federal grant, loan, and technical assistance programs available from more than 10 federal agencies to support energy development and deployment in Indian Country and Alaska Native villages

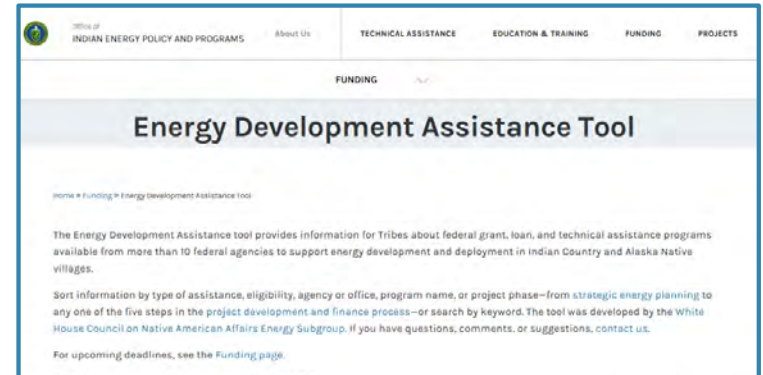
- ## Current Funding Opportunities

List of open tribal energy related funding opportunities from federal agencies and other sources

- ## Ongoing Opportunities

Links to ongoing technical assistance, grant, loan and loan guarantee programs

<http://energy.gov/indianenergy>



Home » Funding » Current Funding Opportunities

Federal agencies, including the U.S. Department of Energy (DOE) Office of Indian Energy, provide grant, loan, and technical assistance programs to support tribal energy projects. Find information about the Office of Indian Energy's past funding opportunities.

Current Funding Opportunities

CLOSE DATE	ORGANIZATION	OPPORTUNITY
12/31/2018	USDA	<p>Solid Waste Management Grant Program</p> <p>The Solid Waste Management (SWM) Grant Program has been established to assist communities through free technical assistance and/or training provided by the grant recipients. Qualified organizations will receive SWM grant funds to reduce or eliminate pollution of water resources in rural areas, and improve planning and management of solid waste sites in rural areas.</p> <p>Funds may be used to:</p> <ul style="list-style-type: none"> Evaluate current landfill conditions to determine threats to water resources in rural areas Provide technical assistance and/or training to enhance operator skills in the maintenance and operation of active landfills in rural areas Provide technical assistance and/or training to help associations reduce the solid waste stream Provide technical assistance and/or training for operators of landfills in rural areas which are closed or will be closed in the near future with the development/implementation of closure plans, future land use plans, safety and maintenance planning, and closure scheduling within permit requirements. <p>Eligible entities include state and local governments, and federally recognized tribes.</p>
1/7/2019	HUD	<p>Community Development Block Grant Program for Indian Tribes and Alaska Native Villages</p> <p>The U.S. Department of Housing and Urban Development's (HUD) Community Development Block Grant (CDBG) Program provides annual grants on a formula basis to states, cities, and counties to develop viable urban communities by providing decent housing and a suitable living environment, and by expanding economic opportunities, principally for low- and moderate-income persons.</p> <p>Eligible entities include Native American tribal organizations (other than Federally recognized tribal governments) and Native American tribal governments (Federally recognized).</p>
1/23/2019	USDA	<p>2019 Wood Innovations Program Request for Proposals</p> <p>USDA's U.S. Forest Service requests proposals to substantially expand and accelerate wood energy and wood products markets throughout the United States to support forest management needs on National Forest System and other forest lands.</p> <p>This request for proposals focuses on the following priorities to:</p> <ul style="list-style-type: none"> Reduce hazardous fuels and improve forest health on National Forest System and other forest lands. Reduce costs of forest management on all land types. Promote economic and environmental health of communities.

Showing 1 to 10 of 63 entries

ABILITY	PHASE
fully funded tribes that	Project Development, Project Implementation
rements, Native and corporations, Native All: Tribal	
projects, and other	Project Implementation
ized tribal to: State	
ized only to: Tribal	Project Implementation
Native, and other	
and other	Project Implementation
and other	
and other	Project Implementation
and other	

Technical Assistance

The goal of technical assistance is to **address a specific challenge or fulfill a need that is essential** to a current project's successful implementation.

The intended result of this technical assistance is a **tangible product or specific deliverable** designed to help move a project forward.

<http://energy.gov/indianenergy>

“This is government money well spent. This assistance is **helping our people afford to live in the village**. Thank you!”

Types of Technical Assistance



Technical Analysis



Financial Analysis



Strategic Energy Planning



Resources

Information Resources

– Energy Resource Library

Provides links to helpful resources for tribes on energy project development and financing on tribal lands. The library includes links to topically relevant publications, websites, videos, and more.

– Curriculum Foundational and Advanced Courses

Educational webinars on strategic energy planning, project development, resources technologies, and advance concepts such as business structures and financing

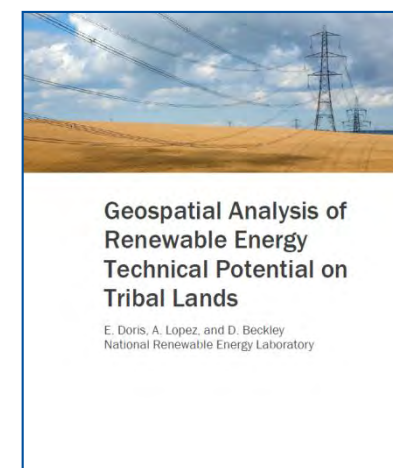
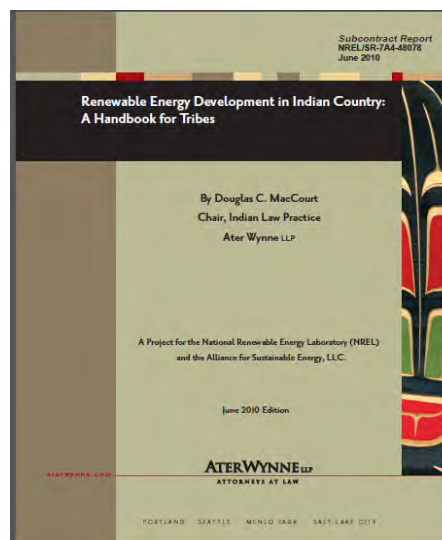
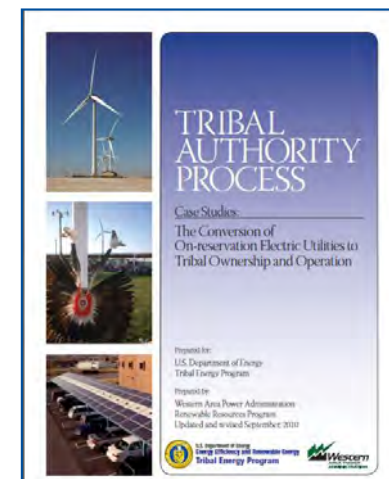
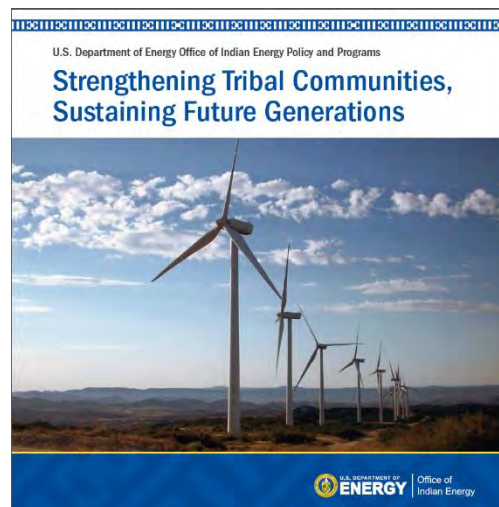
Workshops & Webinars

– Monthly Webinars

Monthly webinars provide foundational information, resources and case studies

– Periodic Workshops

Workshop on specific topics



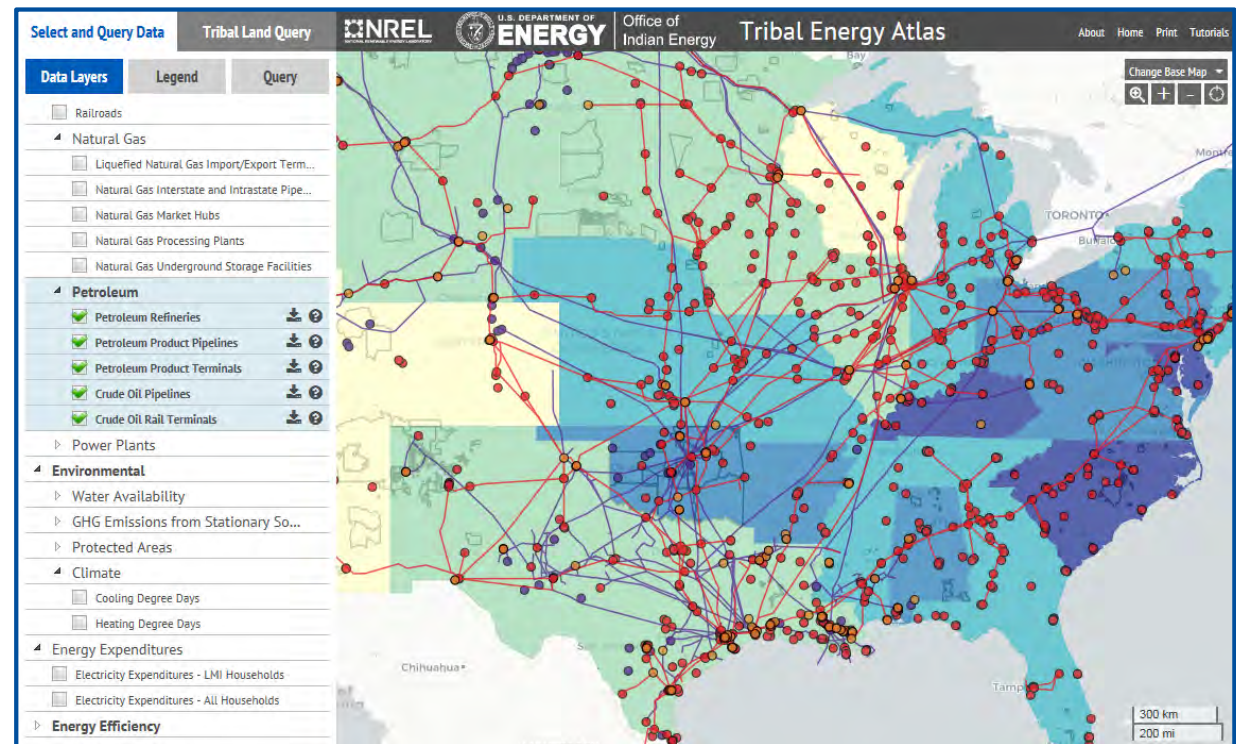
<http://energy.gov/indianenergy>

Tribal Energy Atlas

Includes the most current technical and economic tribal energy potential estimates

Includes:

- Energy resource data
- Infrastructure information
- Environmental information
- Energy efficiency
- Electricity and natural gas prices



To access, see the Indian Energy website at www.energy.gov/indianenergy

Tribal Energy Successes



Clockwise from top right: **Oneida Nation (WI)** installed 800 kilowatts of solar photovoltaic for 6 buildings (November 2017), in the lower right, **Alaska Village Electric Cooperative, Inc. (AVEC)** and **Bethel Native Corporation's (BNC)**'s "Bethel Wind Energy Construction Project" to benefit the communities of Bethel and Oscarville, AK (September 2018), in the center at the bottom, **Fort Yukon's (AK)** combined heat and powerhouse as compared to their old powerhouse above, On the left top, **Alaska Native Tribal Health Consortium (AK)** upgraded sanitation facilities in Selawik reducing expenses by 32% (2016), and in the middle on top, **NANA Regional Corp. (AK)** working with the villages of Buckland, Deering, and Kotzebue to install solar (2018)

Assisting Tribes Achieve Their Energy Vision



Clockwise from top right: **Nunamiut people** of Anaktuvuk Pass (AK); **Assiniboine & Sioux Tribes** (MT); **Picuris Pueblo** (NM); **Tonto Apache Tribe** (AZ); **Chaninik Wind Group** (AK); **Assiniboine & Sioux Tribes** (MT); and in the center, **Pueblo of Laguna** (NM).

**Lizana Pierce, Deployment
Supervisor**

U. S. Department of Energy
Office of Indian Energy

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<http://energy.gov/indianenergy>

Mr. John Lushetsky

Senior Advisor

DOE Loan Programs Office



- Responsible for leading and advising on outreach initiatives to leverage the program's \$40 billion in lending capacity for energy projects
- More than 30 years' executive experience in commercial, government and military programs for the development and financing of energy and other advanced technologies.
- Member of the U.S. Government's Senior Executive Service
- Number of leadership positions within the Department of Energy and the Department of Defense.
- MBA, International Business, George Washington University, M.S. and B.S., Engineering Science, University of Florida



DOE LOAN PROGRAMS

Supporting Tribal Energy Innovation and
Self-Determination

Tribal Resilient Energy
Infrastructure Webinar

John Lushetsky
Senior Advisor

December 8, 2020

Financing American Energy Infrastructure

The Department of Energy's Loan Programs Office (LPO)

was established for borrowers seeking access to debt financing for energy infrastructure projects.

With over \$40 billion in available debt capital

, LPO programs finance high-impact projects and first-time commercializations, partnering with borrowers to customize deal structures.



Access to Debt Capital

that private lenders cannot or will not provide.



Flexible Financing

customized for the specific needs of individual borrowers.



A Committed Partner

offering expertise to borrowers for the lifetime of the project.

\$40 Billion in Available Debt Capital

LPO offers project financing across energy sectors through three distinct loan programs.

TELGP
Partial Loan Guarantees



Tribal Energy Projects
Up to \$2 Billion Available



TITLE 17
Innovative Energy
Loan Guarantees



Advanced Fossil Energy
\$8.5 Billion Available



Advanced Nuclear Energy
\$10.9 Billion Available



Renewable Energy & Efficient Energy
Up to \$4.5 Billion Available



ATVM
Direct Loans

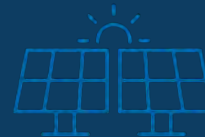


**Advanced Technology
Vehicle Manufacturing**
\$17.7 Billion Available





Tribal Energy Projects



Up to \$2 Billion in Partial Loan Guarantees Available

LPO supports all-of-the-above energy development projects and activities through its Tribal Energy Loan Guarantee Program (TELGP)

Financing

LPO provides access to debt capital for tribal ownership of energy projects and activities that support economic development and tribal sovereignty.

Eligibility

LPO can consider tribal energy projects that:

1. Are owned by a tribe or entity that is majority tribally owned and controlled.
2. Are located in the U.S. (project may be single site or distributed portfolio and on non-tribal land).
3. Are financially viable – borrower will be required to invest equity in the project.
4. No innovation requirement, though projects employing commercial technology are preferred.

Technologies

Technology areas of interest include, but are not limited to:

- Fossil Energy
- Renewable Energy
- Transmission Infrastructure & Energy Storage
- Transportation of Fuels

Offering Flexible Financing Solutions

LPO can provide affordable, custom financing to meet the specific needs of individual borrowers.

- ✓ **Loan Type** | Partial guarantee of up to 90% of commercial debt.
- ✓ **Competitive Pricing** | Pricing negotiated by lender and borrower; partial guarantee includes a risk-based fee.
- ✓ **Long Tenor** | Tenor of up to 30 years or 90% of projected useful life of assets financed.
- ✓ **Flexible Deal Structures** | Structures may include project finance, structured corporate, corporate or warehousing lines.
- ✓ **Debt Amount Determination** | Debt amount based on credit profile, business plan, technology, cash flows, project risk allocation and other relevant factors.
- ✓ **Acquisition Financing** | May be eligible if the substantial improvement or modification of existing facilities is involved.
- ✓ **Viability Standard** | Emphasis placed on certainty of cash flow to the project during initial financial viability review and during subsequent due diligence.



Renewable Energy & Efficient Energy



Up to \$4.5 Billion in Loan Guarantees Available

LPO helps bring renewable & efficient energy projects to commercial scale through its Title 17 Innovative Energy Loan Guarantee Program.

Financing

LPO provides access to **debt capital** for energy projects using innovative technology when commercial lenders cannot or will not provide financing.

Eligibility

LPO can consider renewable & efficient energy projects that:

1. Use innovative technology.
2. Reduce, avoid, or sequester greenhouse gas emissions.
3. Are located in the U.S.
4. Provide reasonable prospect of repayment.

Technologies

Technology areas of interest include, but are not limited to:

- Advanced Grid Integration & Storage
- Advanced Hydro and Pumped Hydro Storage
- Alternative Fuel Vehicle Infrastructure
- Distributed Energy Projects
- Efficiency Improvements
- Offshore Wind & Related Infrastructure
- Waste-To-Energy

Offering Flexible Financing Solutions

LPO can provide affordable, custom financing to meet the specific needs of individual borrowers.

- ✓ **Loan Type** | Direct loan from U.S. Treasury's Federal Financing Bank (FFB) backed by 100% DOE guarantee or DOE partial guarantee of commercial loans.
- ✓ **Affordable Debt** | Senior secured, fixed or floating rate debt.
- ✓ **Competitive Pricing** | Equal to U.S. Treasury-equivalent yield curve plus a credit risk premium, typically ranging from 37.5 to 200 basis points.
- ✓ **Long Tenor** | Tenor of up to 30 years or 90% of projected useful life of assets financed.
- ✓ **Flexible Deal Structures** | Structures may include project finance, structured corporate, corporate or warehousing lines.
- ✓ **DOE Role** | Can serve as sole lender or as a co-lender.
- ✓ **Debt Amount Determination** | Debt amount based on credit profile, business plan, market risk, technology, cash flows, project risk allocation and other relevant factors, up to 80% of total project costs.
- ✓ **Viability Standard** | Emphasis placed on certainty of cash flow to the project during initial financial viability review and during subsequent due diligence.



LPO

Loan Programs Office

Let's Talk About Your Project

Contact LPO to see what financing options may be available for your project:



Call or write to schedule a no-fee, pre-application consultation: **202-586-8336** | **lpo@hq.doe.gov**



Learn more about LPO and all of its lending programs at: **energy.gov/LPO**

John Lushetsky

Senior Advisor

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202-586-2678



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