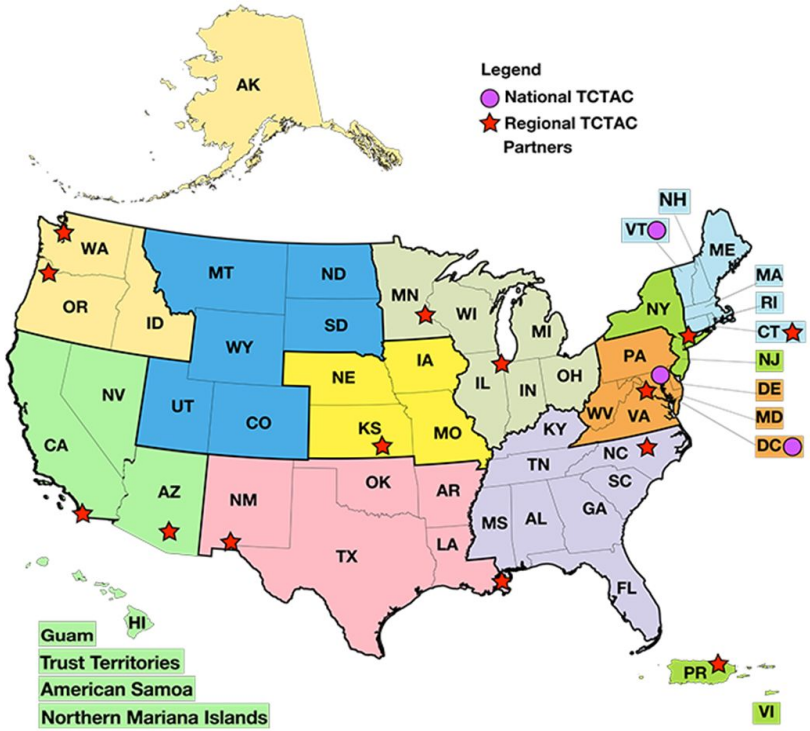
ENERGY IMPROVEMENTS IN RURAL OR REMOTE AREAS

Catherine Kemp, Great Plains Institute + Great Lakes TCTAC

Energy Transition Advisory Committee Meeting

December 4, 2024

Thriving Community Technical Assistance Centers (TCTACs)

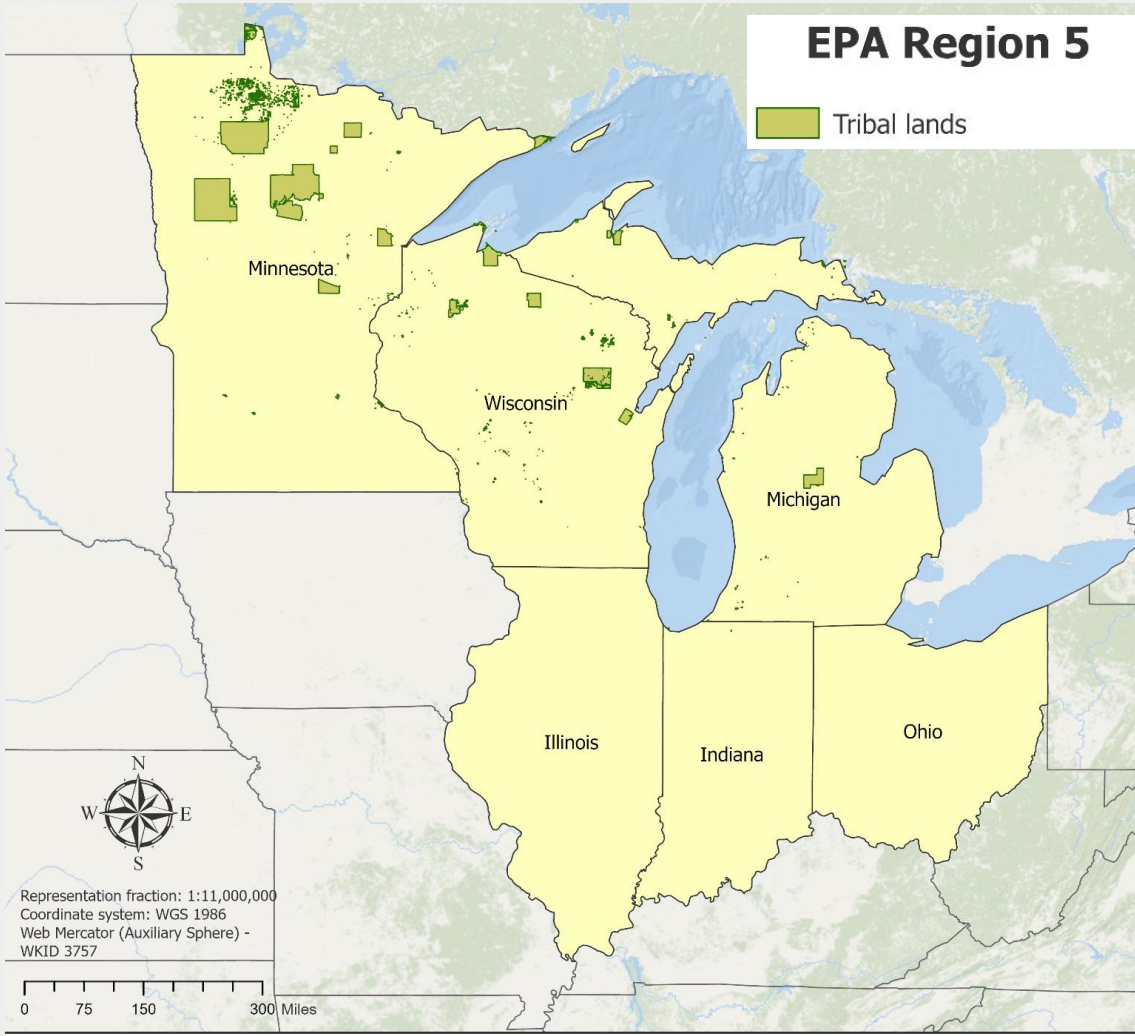


EPA United States Environmental Protection Agency

U.S. DEPARTMENT OF ENERGY

Great Lakes TCTAC

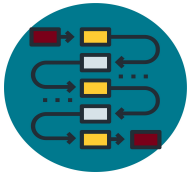
Mission: Help underserved and overburdened communities build capacity to successfully apply for and manage the immense federal funding currently available to support their defining, shaping, and driving solutions from concept to implementation.



Great Lakes TCTAC Partners

We can help with:

Information, Tools, & Trainings



Grant Identification & Navigation

Project Scoping & Design

Engineering Consultation & Analysis

GIS Mapping

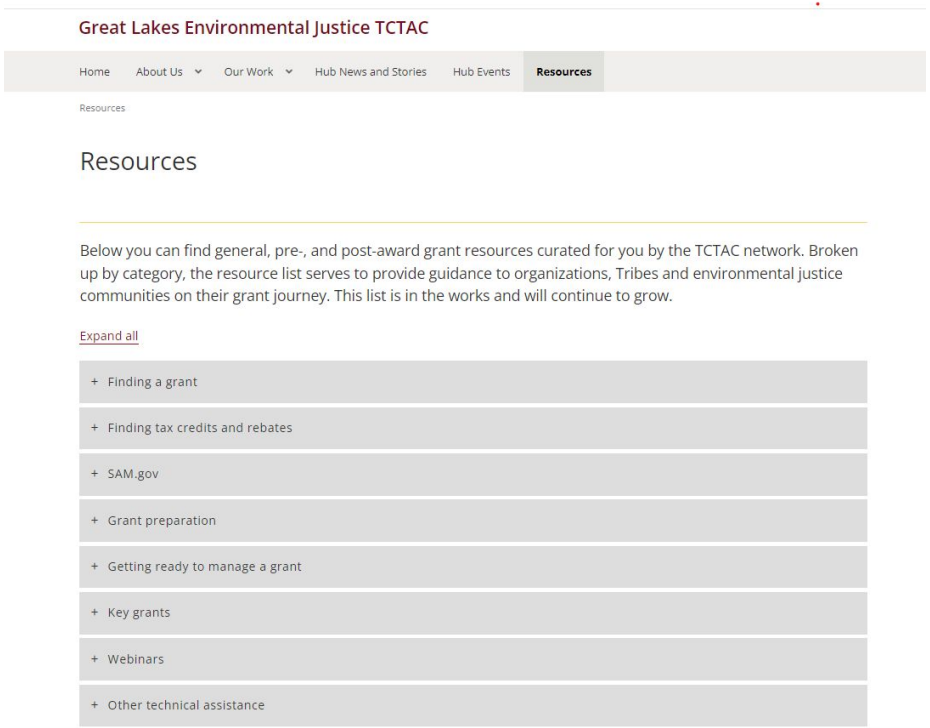
Budget & Evaluation Planning

Post-Award Support

How We Can Work Together

	What	How
Education	• Grant-specific updates and announcements • Toolkits, templates, guides • Training videos	• Newsletter • Website • Email connections
Navigation	• Grants navigation • Grants review	• Workshops and Webinars • Office Hours
Development	• Scope concepts, & planning • Proposal development • Engineering analysis • GIS/mapping, and data visualization • Budget development • Post-grant support	• 1:1 partnership • Cohorts

Tools & Resources



Great Lakes Environmental Justice TCTAC

Home | About Us | Our Work | Hub News and Stories | Hub Events | **Resources**

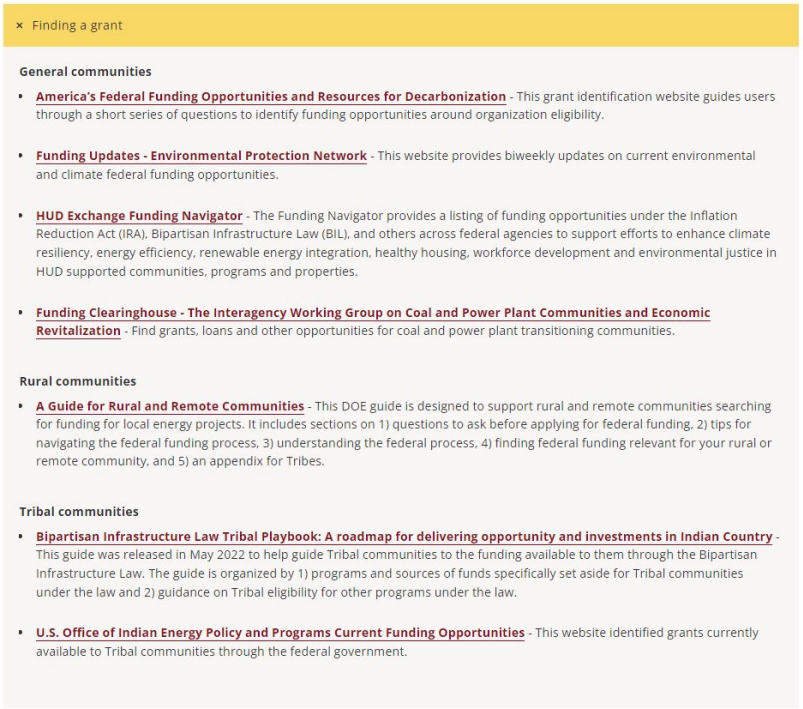
Resources

Resources

Below you can find general, pre-, and post-award grant resources curated for you by the TCTAC network. Broken up by category, the resource list serves to provide guidance to organizations, Tribes and environmental justice communities on their grant journey. This list is in the works and will continue to grow.

Expand all

+ Finding a grant
+ Finding tax credits and rebates
+ SAM.gov
+ Grant preparation
+ Getting ready to manage a grant
+ Key grants
+ Webinars
+ Other technical assistance



× Finding a grant

General communities

- **America's Federal Funding Opportunities and Resources for Decarbonization** - This grant identification website guides users through a short series of questions to identify funding opportunities around organization eligibility.
- **Funding Updates - Environmental Protection Network** - This website provides biweekly updates on current environmental and climate federal funding opportunities.
- **HUD Exchange Funding Navigator** - The Funding Navigator provides a listing of funding opportunities under the Inflation Reduction Act (IRA), Bipartisan Infrastructure Law (BIL), and others across federal agencies to support efforts to enhance climate resiliency, energy efficiency, renewable energy integration, healthy housing, workforce development and environmental justice in HUD supported communities, programs and properties.
- **Funding Clearinghouse - The Interagency Working Group on Coal and Power Plant Communities and Economic Revitalization** - Find grants, loans and other opportunities for coal and power plant transitioning communities.

Rural communities

- **A Guide for Rural and Remote Communities** - This DOE guide is designed to support rural and remote communities searching for funding for local energy projects. It includes sections on 1) questions to ask before applying for federal funding, 2) tips for navigating the federal funding process, 3) understanding the federal process, 4) finding federal funding relevant for your rural or remote community, and 5) an appendix for Tribes.

Tribal communities

- **Bipartisan Infrastructure Law Tribal Playbook: A roadmap for delivering opportunity and investments in Indian Country** - This guide was released in May 2022 to help guide Tribal communities to the funding available to them through the Bipartisan Infrastructure Law. The guide is organized by 1) programs and sources of funds specifically set aside for Tribal communities under the law and 2) guidance on Tribal eligibility for other programs under the law.
- **U.S. Office of Indian Energy Policy and Programs Current Funding Opportunities** - This website identified grants currently available to Tribal communities through the federal government.

Contact Us

Visit https://greatlakestctac.umn.edu

Reach out to TCTAC@umn.edu

Sign up for newsletters and emails (z.umn.edu/TCTACNews).

ENERGY IMPROVEMENTS IN RURAL OR REMOTE AREAS

Region 5 Great Lakes Thriving Communities Technical Assistance Center

Updated November 18, 2024

Department of Energy Links and Resources

1. Main DOE grant website: Energy Improvements in Rural or Remote Areas
2. DOE Office of Clean Energy Demonstrations Funding Notice
3. Notice of Funding Opportunity: Energy Improvements in Rural or Remote Areas
4. Up-to-date FAQs can be found under “Documents” Q&A Log on the NOFO page
5. Informational webinar (10/8/2024)
6. National Renewable Energy Laboratory (NREL) Technical Assistance
    a. Apply for up to 8 hours of free technical assistance by Feb. 13, 2025
    b. Additional TA will be available in 2025 to support the development of applications.
7. Contact DOE: ERA2024@hq.doe.gov

Goals of the Energy Improvements in Rural or Remote Areas program

Deliver measurable and sustained benefits to people who live in rural or remote areas by funding replicable clean energy projects that lower energy costs, improve energy access and resilience, increase economic opportunity, and/or reduce environmental harm.

Demonstrate effective rural or remote energy system approaches using climate-resilient technologies, business structures that promote economic resilience, accessible and appropriate financing mechanisms, and/or best practices in community leadership and engagement, and workforce development.

Build clean energy knowledge, experience, capacity, and self-reliance in rural and remote parts of America

Key NOFO Dates + Information

- **Application deadline:**
  - Required concept papers: February 27, 2025 at 5:00 p.m. ET
  - Full applications: August 28, 2025 at 5:00 p.m. ET
- **Determination:** Upon concept paper review, DOE will encourage/discourage a full application submission
- **Anticipated selection announcement:** Spring 2026
- **Grant duration:** Up to seven years
- **Expected total available funding:** $400 million
- **Number and type of awards:** 20–50 awards as Cooperative Agreements
- **NOFO number:** DE-FOA-0003428

Eligible Activities

Projects must include at least one eligible activity and serve communities of 10,000 people or fewer. Eligible activities include:

A. Improving overall cost-effectiveness of energy generation, transmission, or distribution systems
B. Siting or upgrading transmission and distribution lines
C. Reducing greenhouse gas emissions from energy generation in rural or remote areas
D. Providing or modernizing electric generation facilities
E. Developing microgrids
F. Increasing energy efficiency

Topic Area Summary

Topic area	Award per project	Total for topic area	Cost share	Cost share for Tribes, state and local governments, nonprofits, higher ed
Open category	$10-50 M	$150 M	50%	20%
Dual use and co-location	$10-50 M	$ 175 M	50%	20%
Smaller-scale community-centered	$2-10 M	$ 50 M	20%	5%
Isolated microgrids & unelectrified buildings	$2-10 M	$ 25 M	20%	5%

Cost share may be provided in the form of cash or cash equivalents, or in-kind contributions. The cost share must come from non-Federal sources unless otherwise allowed by law. Cost share may come from project recipients, subrecipients, state or local governments, or other third-party financing. Generally, realized tax credits may be used as cost share.

ERA Topic Areas

1. Open category

Purpose: offer a path to funding rural or remote clean energy infrastructure for many different project types, demonstrating approaches to addressing one or more relevant adoption barriers.

Priority technologies and project types: Solar, battery energy storage systems, wind, water power (marine energy and hydropower), geothermal, biomass/biofuels, microgrids, distribution, converting fossil fuel–powered equipment to electric, and repowering existing renewable energy systems.

2. Dual use and co-location

Purpose: provide co-benefits to communities beyond supplying energy and reducing pollution, e.g., reducing land use conflicts, conserving water, diversifying incomes, and/or enhancing partnerships.

For agrivoltaics projects, dual use is defined as agricultural production, such as crop or livestock production, underneath or adjacent to solar panels (i.e., not solar on barn rooftops).

ERA Topic Areas

3. Smaller-scale community-centered

Purpose: fund smaller-scale clean energy projects that are initiated, driven, and/or broadly supported by residents of the host community(ies).

- Increase long-term local capacity for future clean energy projects in the community and/or in nearby or peer communities. This could include increasing the availability of technical expertise to plan and develop projects or improving community perception.
- Encourage collaboration with relevant partners, particularly tribal governments and community-based organizations that are familiar with the local community, and/or entities (e.g., nonprofits or extension schools) that have experience developing renewable energy projects in similar areas.

4. Isolated microgrids and unelectrified buildings

Purpose: build clean energy projects for

- Isolated microgrids (often located in ultra-remote areas and served primarily by diesel generators).
- Unelectrified homes or community buildings not currently served by an electrical grid.

Eligible Applicants

- Indian Tribes
- State and local governmental entities
- Non-profit organizations
- Tribal organizations
- Rural electric cooperatives
- Farming associations and cooperatives
- Labor unions
- Institutions of higher education
- Incorporated consortia
- Unincorporated consortia
- For-profit organizations

An applicant **may submit more than one concept paper**. Each concept paper must be limited to a single concept and topic area.

For all topic areas, DOE welcomes **project aggregators**, i.e., entities that identify and propose several projects together in one application to:

- reduce overall project costs
- include communities that may not have capacity to apply for this funding on their own.

Applications specifically NOT of interest

- Large transmission projects (i.e., projects >69kV, or proposals of lines >30 miles)
- Single-campus projects that serve only the regular operation of that facility (e.g., solar on individual hospitals or schools). For topic areas 3 and 4, applicants may propose single-campus projects that include emission-free backup power for critical community-serving buildings during emergencies like power outages or extreme heat
- Electric vehicles (EVs). See bullet below about EV charging
- Projects solely focused on EV charging. EV charging infrastructure may be a component of a broader, otherwise eligible project
- Projects including only weatherization

Funding Priorities

Communities and populations with at least one of these characteristics (page 13- 14 of NOFO):

- Disadvantaged communities as defined by the Justice40 Initiative and identified in CEJST
- Energy communities or those likely to become energy communities soon (see detailed definition from the IRA and map here)
    - Brownfield sites, as defined in CERCLA
    - Census tracts or adjacent tracts in which a coal mine has closed after 1999; or in which a coal-fired electric generating unit has been retired after 2009
    - A community where a certain percentage of employment or local tax revenues are related to coal, oil, or natural gas; and has an above-average unemployment rate
- Low-income communities and populations
- Communities or populations, including workers, that have been underrepresented (e.g., have faced barriers, underinvestment, lack of opportunity)
- High energy burden communities and populations
- Frontline communities and populations, i.e., those hit first and worst by climate change

Funding Priorities (cont.)

Teams that include members who are:

- Highly familiar with local community priorities and dynamics
- Members of (or who represent) priority communities or populations
- Part of labor unions or other local workforce development organizations
- Credible with and trusted by community members
- Residents of proposed host community(ies)
- Experienced in project development with proposed technologies in similar geographic and cultural contexts
- Capable of efficiently and effectively administering government funding
- Projects that demonstrate learnings which are applicable to other rural or remote communities across the United States and territories

Non-technical Barriers

DOE is seeking projects that address at least one of these items:

- **Community perception**: Working with community members to choose appropriate technologies, locations, and ownership structures of clean energy projects in order to reduce land and water use conflict, grow economic opportunities, and mitigate changes to community character.

- **Permitting & siting**: Rural and remote communities face challenges for deploying clean energy infrastructure because of policies that limit where new projects can go. Applicants can build local experience on these topics with communities, and plan for ecosystem-wide impacts.

- **Downstream value chain**: Provide direct benefits such as reduced energy costs, increased clean energy reliability and access, improved environmental quality, or increased economic opportunities to the people who pay the financial, environmental, and social costs of that project.

Community Benefits

Applicants will need to develop a Community Benefits Plan for their full application, including

Application Requirements

Concept Paper (7 pages max)

- Cover Page
- Concept Paper Questions + Scoring:
  - Technical Solution (25%)
  - Business Case (20%)
  - Team (20%)
  - Project Plan (15%)
  - Community and Workers (20%)

Full Application

- Technical Volume Content (20 pages)
  - Cover Page
  - Project Overview
  - Technical Approach
  - Financial and Market Viability
  - Management and Organization
  - Workplan
- Community Benefits Plan (5 pages)
- Community Partnership Documentation
- Resumes (2 pages)
- Letters of Commitment (2 pages per)
- Budget
- Compliance Documents

TCTAC Resources + Technical Assistance

Great Lakes TCTAC Resources

- Factsheet
- Guide and Checklist: Detailed overview and concept paper guidelines

National Renewable Energy Laboratory (NREL) Technical Assistance

a. Apply for up to 8 hours of free technical assistance by Feb. 13, 2025
b. Additional TA will be available 2025 to support the development of applications

Project examples

1. From the Notice of Funding Opportunity
2. Real world examples

1. Open category

Example projects in the Open category:

- Installing microgrids to provide power regulation or backup electricity to the grid.
- Siting or upgrading less than 30 miles of transmission lines (<69kV) to support grid stability and resilience to hardware or software.
- Using biogas from agricultural waste through anaerobic digestion, to fuel onsite equipment, and/or for pipeline injection.
- Replacing non-clean backup energy, e.g. a diesel generator, with a clean energy generation backup/ storage at a water treatment plant or pump station, or other critical facility.
- Replacing of fossil fuel–powered heating with residential or community heat pumps.
- Upgrades to distribution systems to reduce outages and improve resilience.
- Networked, community-scale geothermal heating and cooling.

2. Dual use and co-location

Example projects in the Dual use and co-location category:

- Innovative siting of solar panels, such as on agricultural land (agrivoltaics) or over canals, to reduce local siting constraints, preserve undisturbed land where possible, and enable new ownership structures.
- Distributed wind for farmers or farm groups.
- Conduit hydro in irrigation systems.
- Community geothermal heating and cooling systems.
- Business structures that promote economic and electric system resilience, accessible and appropriate financing mechanisms, and/or best practices in community leadership, community ownership, capacity building, and engagement with rural and remote farmers, small businesses, communities, and electric utilities.

3. Smaller-scale community-centered

Example projects in Smaller-scale and community-centered category:

- Installation of a community-owned solar and battery project to reduce electricity cost and increase energy resilience.
- Installation of a distributed wind, solar, and battery storage microgrid system to reduce electricity costs and increase energy resilience.
- Installation of standalone microgrids in community-serving locations to ensure continuation of services during natural disasters.

4. Isolated microgrids & unelectrified buildings

Example projects in the Isolated microgrids & unelectrified buildings:

- Installation of a distributed wind plus battery storage and/or solar plus battery storage microgrid to reduce electricity cost and increase energy resilience through reducing demand on diesel in a remote community.

- Connecting homes to the grid previously not served by local power lines.

Prior awardee: Mashkiiziibii Mini-grid

Mashkiiziibii (The Bad River Band of Lake Superior Tribe of Chippewa Indians)

- 5 MW solar photovoltaic (solar PV) array
- 8 MWh battery energy storage system to connect with existing diesel and natural gas generation
- Hybrid mini-grid powering the reservation's Odanah, Aspen Acres, Franks Field, and Birch Hill communities

Fact Sheet

Community Benefits Commitments Summary

Project at a Glance

» **Total OCED Cost Share:** Up to $14.1 million

» **Phase 1 Total Project Amount:** $794,862*

» **Phase 1 OCED Award Amount:** $635,881**

» **Phase 1 Scope of Work:** Planning, development, and design activities

» **Phase 1 Timeline:** 7-8 months

» **Recipient:** Bad River Band of Lake Superior Tribe of Chippewa Indians is a federally recognized tribe

» **Project Locations:** Bad River Reservation, WI

» **Start Date:** August 2024

*Represents the total project cost for Phase 1.

**Represents OCED's cost share for Phase 1. Additional funding for this project is subject to future award negotiations at the end of each project phase.

Dual Use: Solar + Agriculture

Solar can be paired with crops, livestock, and pollinator and native habitats. It can provide many co-benefits:

- Protects from extreme heat and drought
- Increases farm income
- Lowers energy costs
- Reduces land use conflicts by pairing agriculture and solar

Three systems

- Elevated: solar panels are directly above vegetation
- Inter-row: vegetation placed between solar panel rows
- Combination of elevated and inter-row systems

Livestock grazing is supported in elevated and inter-row systems

Sheep grazing beneath solar panels.
Retrieved from: NREL.gov (photo by Lexie Hain)

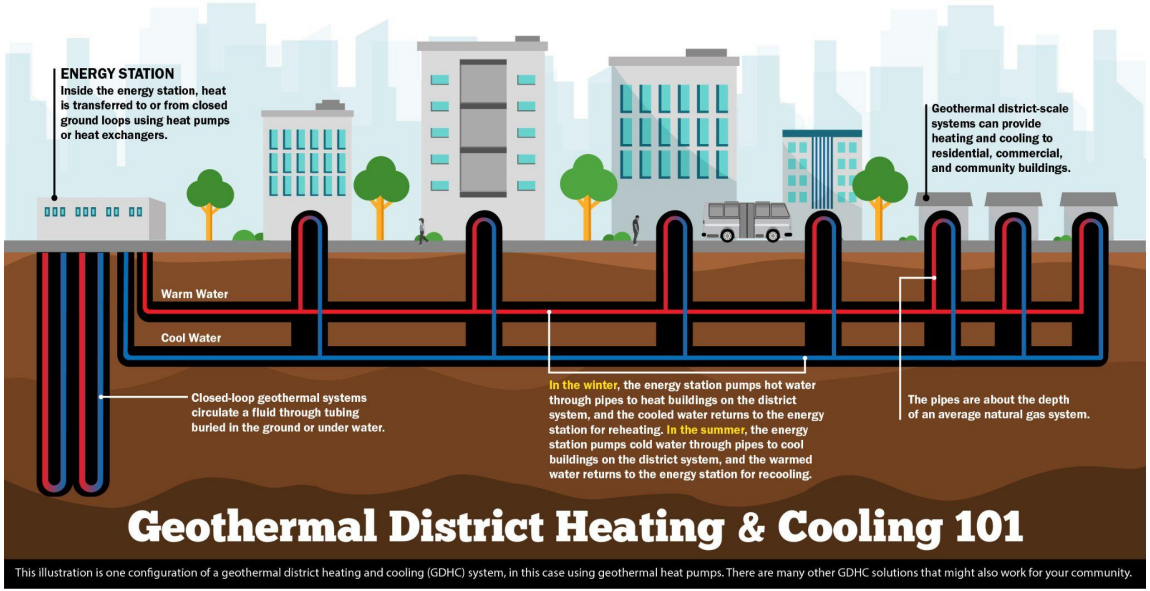
Community-Scale Geothermal System

Geothermal heats and cools buildings by using a piping system, referred to as a “loop”

- Water circulates in the loop and exchanges heat between the building, the ground source heat pump, and the earth
- Systems can now provide geothermal energy on a community scale
- Can power public buildings, homes, businesses and essential services

Benefits

- Reduce energy costs
- Suitable for remote or rural environments
- Highly energy efficient
- Reliable source of energy



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Microgrids

Microgrids can operate connected or disconnected from the main grid

Key components

- Electricity generation sources: solar, wind turbines, diesel generators, etc.
- Battery energy storage
- Microgrid control system: central controller coordinates generation sources, balances electrical loads, and manages the disconnection and reconnection of the microgrid to the main grid

Uses

- Microgrid can provide backup electricity to the grid
- Standalone microgrids in community-serving locations can enhance resilience during natural disasters
- Isolated microgrids in ultra-remote areas provide reliable power source

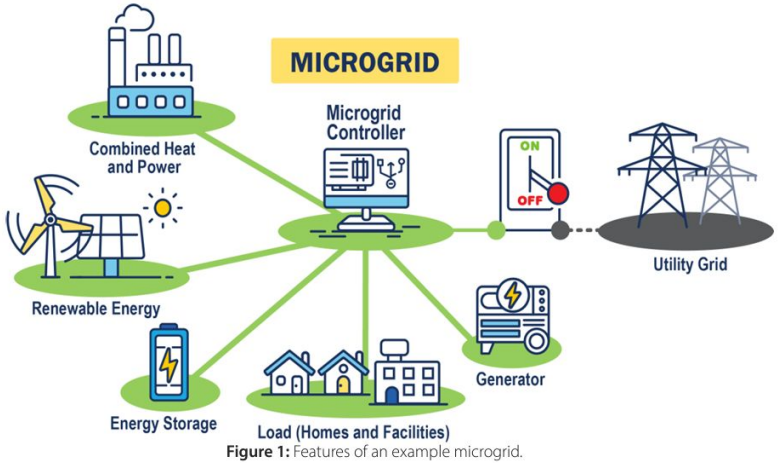

Figure 1: Features of an example microgrid.

Retrieved from Energy.gov

Contact

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