NASEO
National Association of State Energy Officials

NARUC
National Association of Regulatory Utility Commissioners

NASEO-NARUC Microgrids State Working Group
NASEO Rural Working Group

Improving Energy Resilience with Rural and Remote Microgrids

May 7, 2024

Thank you to the U.S. Department of Energy Office of Electricity for their support of this webinar.

Welcome and Logistics

NASEO-NARUC Microgrids State Working Group and NASEO Rural Working Group Updates

Moderator: Hon. Davante Lewis, Louisiana Public Service Commission

Speakers:

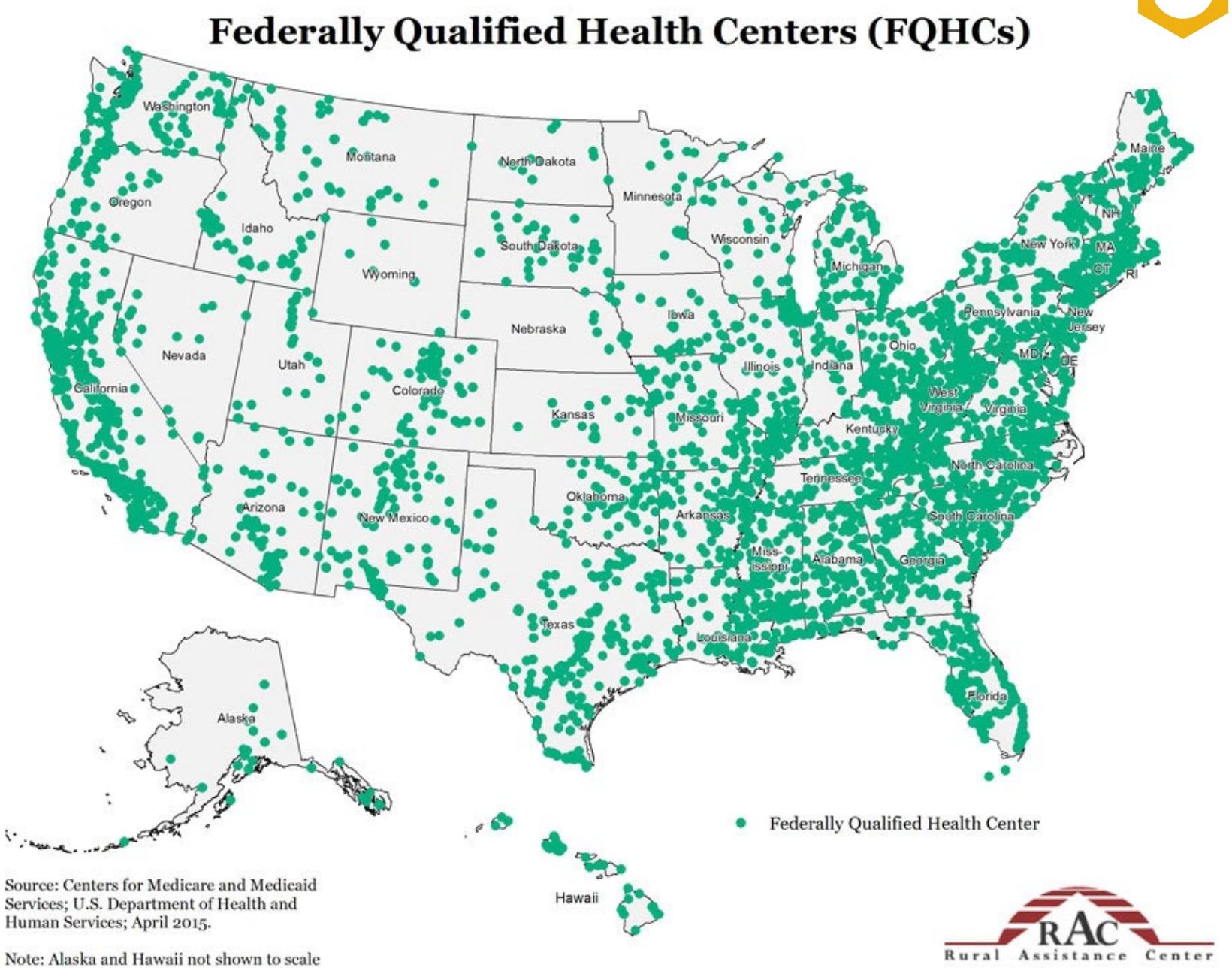
- Andrew MacCalla, MPP, Co-Founder and CEO, Collective Energy Co. LLC
- Maria Redmond, Director, Wisconsin Office of Sustainability and Clean Energy
- Tolu Omotoso, Director of Energy Solutions, National Rural Electric Cooperative Association

BIG IDEA:

CLEAN & RELIABLE POWER FOR COMMUNITY HEALTHCARE

FQHCs:

Aggregated, Federally Qualified Health Centers are the largest medical service provider in the country, serving nearly 1 in 10 Americans. They serve the most medically vulnerable populations. They are required by law to provide care to anyone, regardless of ability to pay.



What is a Health Center?

1961

Federally Qualified Health Centers (FQHCs) were established by Lyndon Johnson as part of the War on Poverty to guarantee quality health care in underserved areas. They're independent 501c3 non-profits, are governed by their patients, and active in their communities. They recieve funding from HHS and Medicare/Medicaid.

Today

There are 15,000+ FQHCs across the US. FQHCs serve 1 in 10 Americans (30M+ patients), 91% of whom are low income. 63% are racial or ethnic minorities. 82% are either uninsured or publicly insured. They serve 1 in 8 children and 1 in 5 rural residents.

Future

FQHCs are growing rapidly and have become particularly imporant in rural communities with the closing of rural hospitals. Unlike hospitals, however, most FQHCs do not have backup power, exposing them to financial losses and devastating impacts on the health of their patients.

FQHC Overview:

16,939 Total

Nationwide number of
Federally Qualified Health Centers

11,591 Permanent

Nationwide total excluding mobile units and temporary facilities, which are not suitable for solar + storage

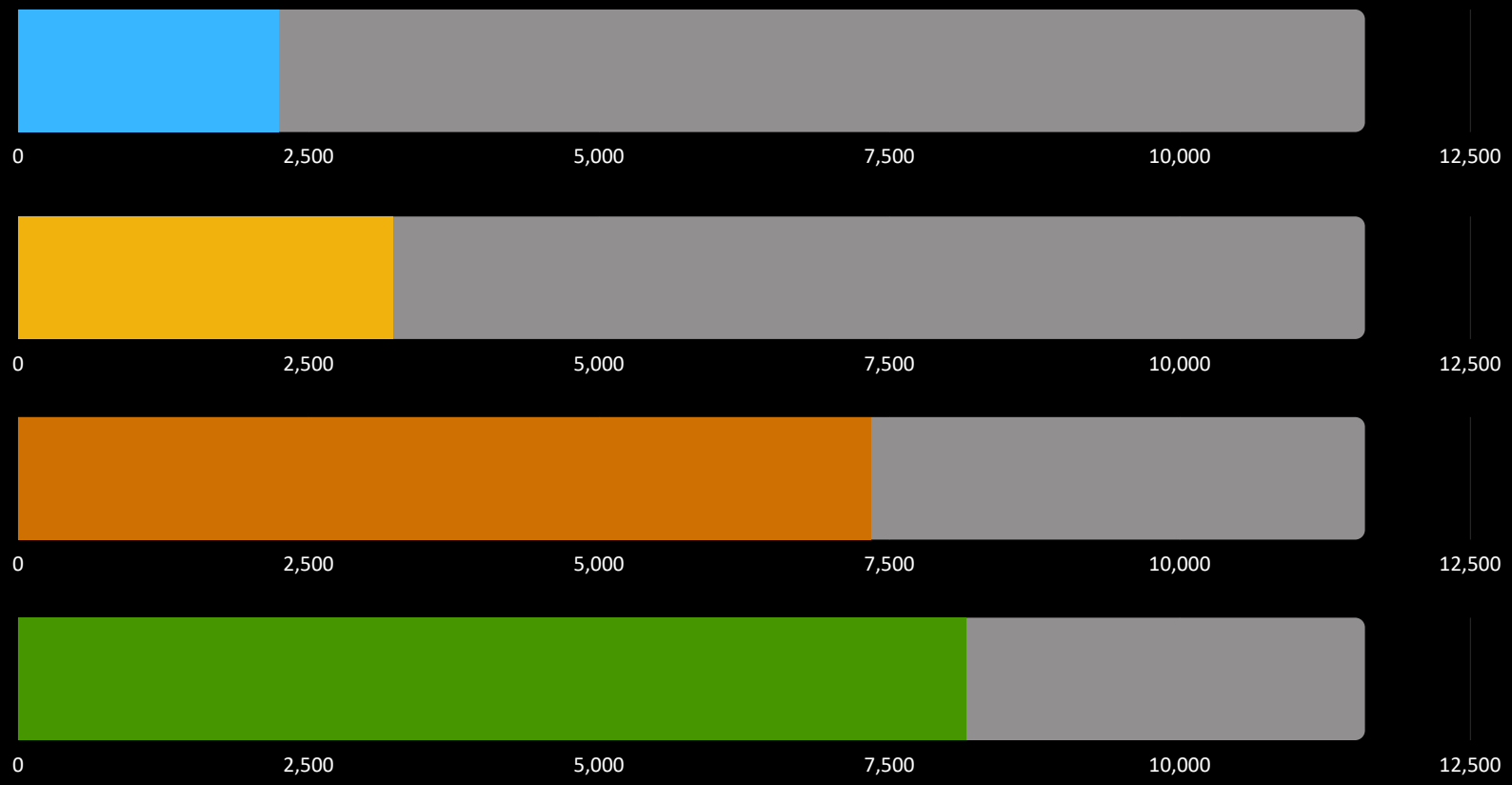
FQHCs by Category: (n=11,591)

2,246
Both Low Income + Energy Community

3,224
Energy Community

7,341
Justice 40 Community

8,156
Low Income



Origin:

Andrew MacCalla, Founder + CEO

After 16 years of responding to disasters and supporting health centers as VP of Emergency Response for Direct Relief, Andrew has witnessed firsthand what happens to community health centers when the power goes out and has dedicated himself to preventing this foreseeable problem. Andrew has overseen the installation of more solar and/or storage projects on health centers than anyone in the country, making him the go-to resource for health centers as well as for the national and state associations overseeing them.

"The largest loss of life is often not in the initial natural disaster, but in the power loss that follows."

Puerto Rico

CALIFORNIA

Southern California Edison to pay $80 million over deadly 2017 Thomas fire

The Thomas fire, which scorched more than 280,000 acres and destroyed more than 1,000 structures, ignited on Dec. 4, 2017, after high winds caused two Southern California Edison power lines to slap together, fire officials found.

The New York Times

PG&E Outage Darkens Northern California Amid Wildfire Threat

A deliberate power outage by the state's largest utility sent residents scrambling — and debating whether it was worth it.

By Wednesday afternoon, at least 500,000 customers — each customer can represent numerous family members or apartment dwellers — were without power. The company's second phase of electricity shut offs, affecting an additional 250,000 customers, began late Wednesday evening. By one estimate around 2.5 million people were without power early Thursday morning.

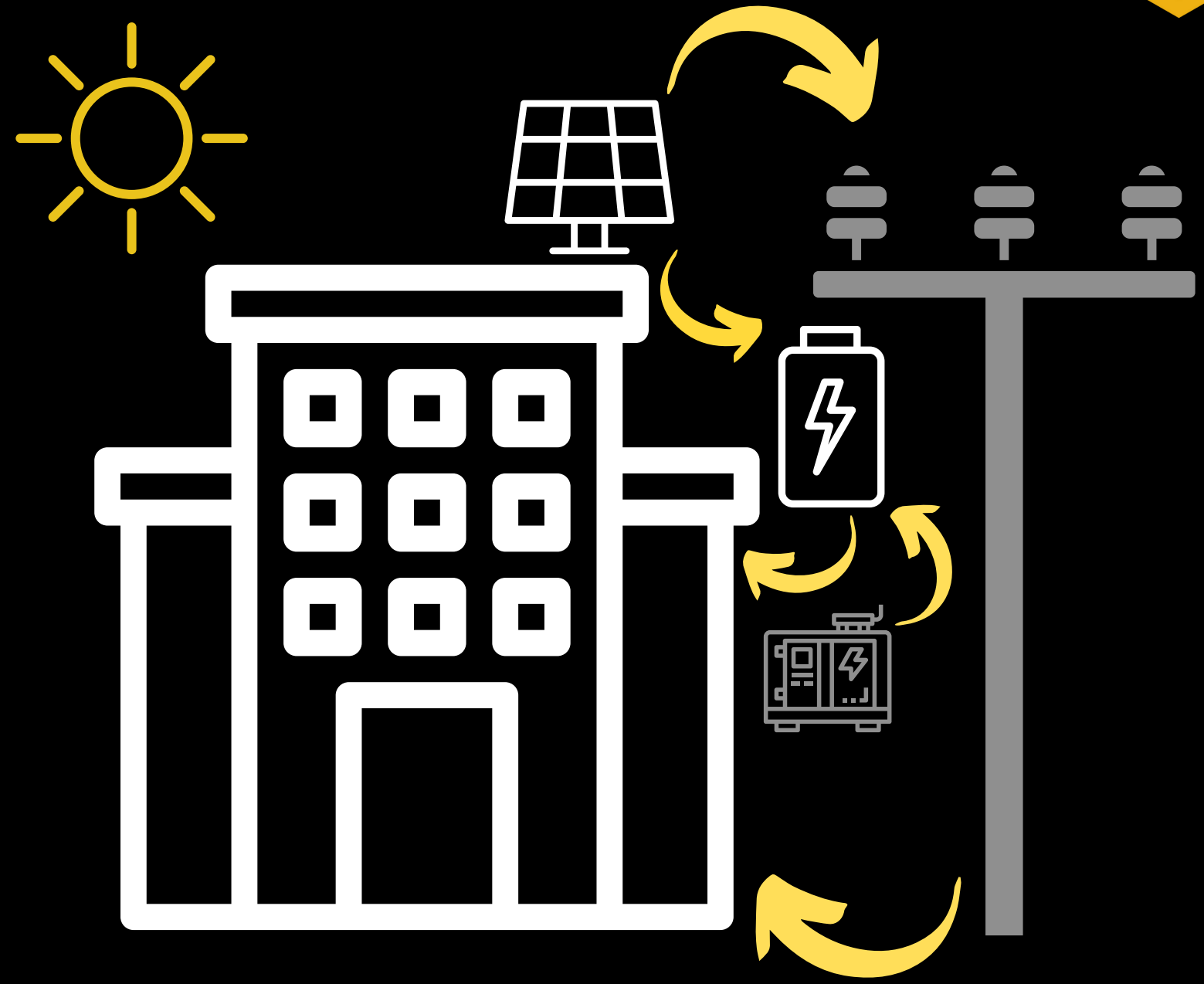
PG&E Public Safety Power Shut-Offs in California

Solution:

Clean, Reliable, Affordable Power for Health

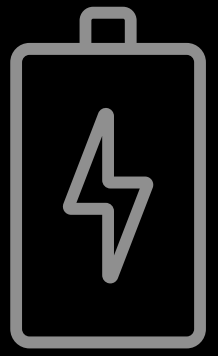
By educating health centers about their energy options, designing innovative power solutions based on site-specific needs, offering low-cost funding only available to non-profits, and installing solar + storage systems with trusted partners at scale to reduce costs, Collective Energy can ensure critical facilities have the power to operate during grid outages, reduce their impact on the planet, and save money year after year.

How Does it Work?

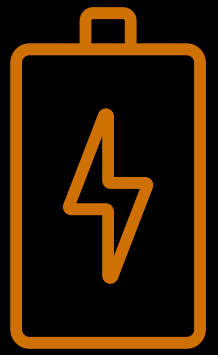


How Valuable is a Battery?

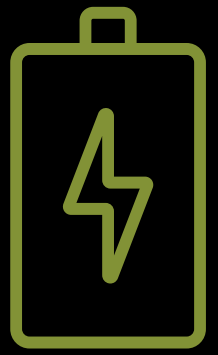
In surveys of health centers...



Respondents reported experiencing three outages a year on average.



$41,000 was the average potential daily loss during an outage, with some respondents reporting up to $300,000 in losses per day.



60% reported without a battery, they would have to transport vaccines within their own network of facilities to limit loss.

Why it Matters:

- Health
- Heat
- Water
- Avoiding ER Visits
- Refrigerated RX
- Lost Revenue
- Electronic Health Records
- Electricity Dependent Medical Devices
- Continuity of Care
- Resiliency Hubs
- Communications
- Death

Goals:

- Prevent patients from dying because of health center closures due to power outages.
- Enable quality, equitable health care services for the medically underserved and the most vulnerable in our communities by ensuring energy reliability and resiliency.
- Avoid lost health center revenue from closures and spoiled medicines.
- Provide long-term savings on electricity costs that critical facilities can put towards other services.
- Assemble and aggregate projects across distinct geographies to reduce costs for all projects
- Offset thousands of tons of carbon emissions by moving from fossil fuel and generator power to clean power.

Social Benefit Business Model:

Partner

Team up with foundations, companies, and non-profits that support health, clean energy, and disadvantaged communities.

Educate

Offer resources to health centers interested in solar + storage and train a diverse clean energy workforce.

Develop

Evaluate site(s) and health center needs, then design, install, commission, and maintain solar + storage.

Finance

Stack non-traditional, affordable funding from foundations, impact investors, and more.

Turn Over

Transfer ownership of the system(s) as soon as possible to pass maximum savings to the health center(s).

Why Do This?

- Financial savings from locked in power costs for 25yrs and avoided financial losses from closures
- Ensure continuity of health care for your patients and communities
- Become part of the solution to climate change and carbon emissions, instead of contributing to the problem
- Create clean jobs in low-income areas
- Become a community resilience hub
- Retain and recruit staff and patients who have reported feeling better about working at a clean resilient health center
- Be able to take advantage of funding opportunities from HRSA, EPA, Department of Energy, USDA, and more
- Show your communities that they should not be last in line for cleaner energy

CHARGE

Community Health Access to Resilient **Green** Energy

CHARGE is a partnership between three mission-oriented organizations committed to helping FQHCs transition to clean, resilient, and affordable energy. Together, the National Association of Community Health Centers (NACHC), Capital Link, and Collective Energy educate FQHCs on solar + storage and financing options. CHARGE then helps install cleaner, more reliable, more affordable power, allowing FQHCs to focus on providing quality care for their patients without the fear of power outages.

NATIONAL ASSOCIATION OF Community Health Centers

The National Association of Community Health Centers (NACHC) was founded in 1971 to promote efficient, high quality, comprehensive health care that is accessible, culturally and linguistically competent, community directed, and patient centered for all.

CAPITAL LINK

Capital Link is a national, nonprofit organization that helps community health centers and Primary Care Associations plan for sustainability and growth, access capital, improve and optimize operations and financial management, and articulate value. Capital Link has helped community health centers leverage over $1.5B in public and private capital for capital projects.

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collective ENERGY

Collective Energy works with critical community health facilities to identify energy goals, design power solutions based on site-specific needs, and install solar + storage systems with trusted partners to save health centers money and ensure they can continue to operate during grid outages and reduce CO2 emissions. The Collective Energy team has installed more microgrids on FQHCs than any organization in the country.

Community Health Access to Resilient Green Energy

Case Study:

Crescent Care
New Orleans, LA

FEATURED STORY, NEWS

CommuniCare+OLE Goes Solar in North Napa

December 14, 2023

Newly Installed Solar Array Funded by Unique Blend of Community Support and Novel Use of Federal Funding

The panels were installed in partnership with Collective Energy Co, LLC, which supports health centers in the education, design, installation, and financing of solar, batteries, and/or microgrids. Collective Energy has partnered with the National Association of Community Health Centers (NACHC) and Capital Link to form the CHARGE Partnership to support any health center in the country through the process.

"After working with health centers for almost two decades, I've come to care deeply about health centers and know the critical role they serve in their communities. I also understand how busy their staff is, and while there is often a desire to add a microgrid for all the benefits they provide, we know time is limited and as much of it as possible should remain dedicated to patients," says Andrew MacCalla, Co-Founder and CEO of Collective Energy. "We removed that barrier and worked with OLE to identify their goals, design a bespoke system, support them in navigating Federal Funding opportunities, and install a microgrid in a way that suits them and benefits their patients and our planet. The first step can be hard to prioritize. We applaud OLE for making it a priority and setting an example to other health centers of making the transition to a just clean energy future."

Commerce awards $35.4 million for solar power with battery back-up systems to bolster community resilience

Washington State Department of Commerce sent this bulletin at 09/27/2023 09:00 AM PDT

Washington State Department of Commerce

News Release

SEPT. 27, 2023

Commerce awards $35.4 million for solar power with battery back-up systems to bolster community resilience

Grants will support 52 planning and 39 installation projects that will provide back-up power for community buildings to serve emergency and other critical needs statewide

OLYMPIA, WA --- The Washington State Department of Commerce today announced $35.4 million in grants to local, state, and tribal governments and non-profits to plan and install solar and battery back-up power systems at community buildings. The projects will provide clean back-up power for critical community needs during power outages, including supporting emergency services, healthcare, and shelters. Outside of power outages, the systems will produce clean electricity that will save energy costs for the facility operators, and the systems may also reduce strain on the grid when usage is high.

Omak Family Health Centers
1003 Koala Dr,
Omak, WA 98841

The First Net-Zero Energy Health Center in the U.S. is Here

JUN 27, 2023 | By: Alexandra Walker

COLORADO
Department of Local Affairs
Division of Local Government

Local Government Home › Funding › Training

ome › Recovery, Rebuilding, & Resiliency › Microgrids for Community Resilie

Microgrids for Community Resilience Program

Annual Impact: (If all FQHCs have Microgrids)

Annual estimated carbon offsets (tons)

870K+

Annual estimated avoided financial losses

$20M+

Annual estimated energy savings

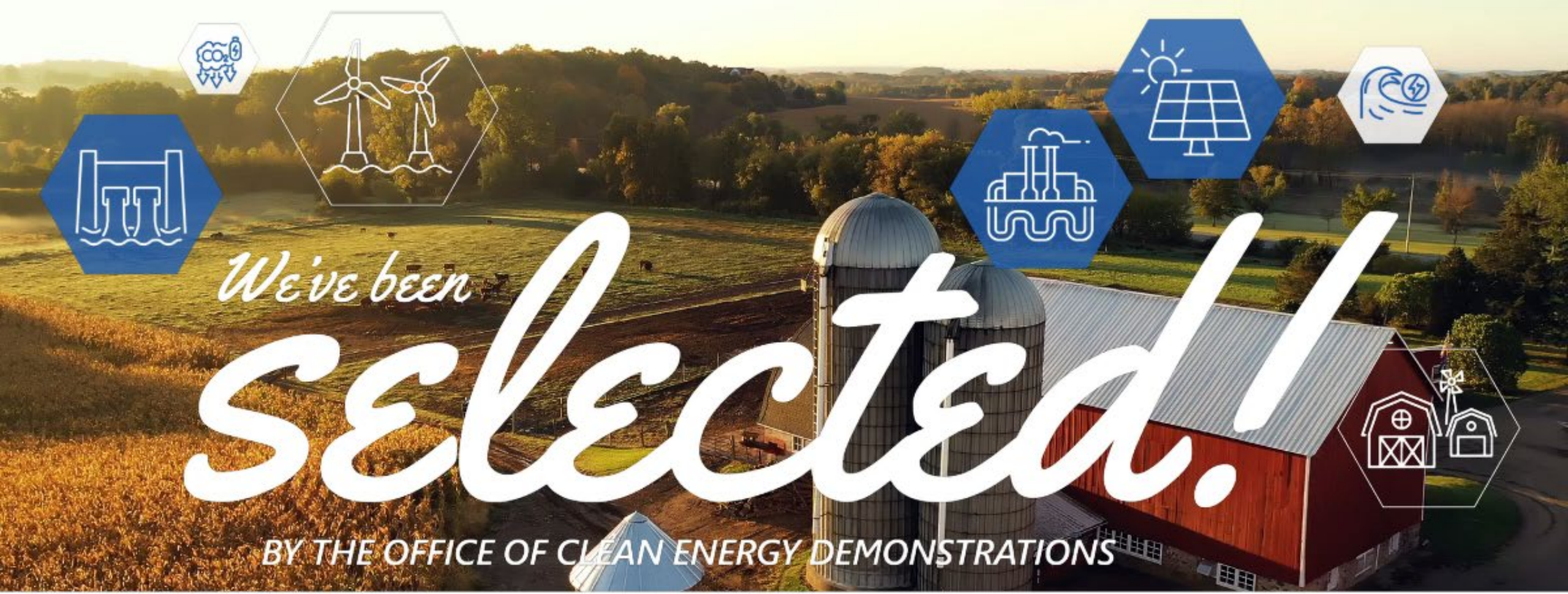
$115M+

Estimated number of communities benefiting

11K+

Annual estimated patients that benefit from FQHCs with microgrids

21M+



17 SELECTED PROJECTS

SOLAR | BATTERY ENERGY STORAGE SYSTEMS | MICROGRIDS | HYDROPOWER | HEAT PUMPS | BIOMASS | ELECTRIC VEHICLE CHARGING

OCED
Office of Clean Energy Demonstrations

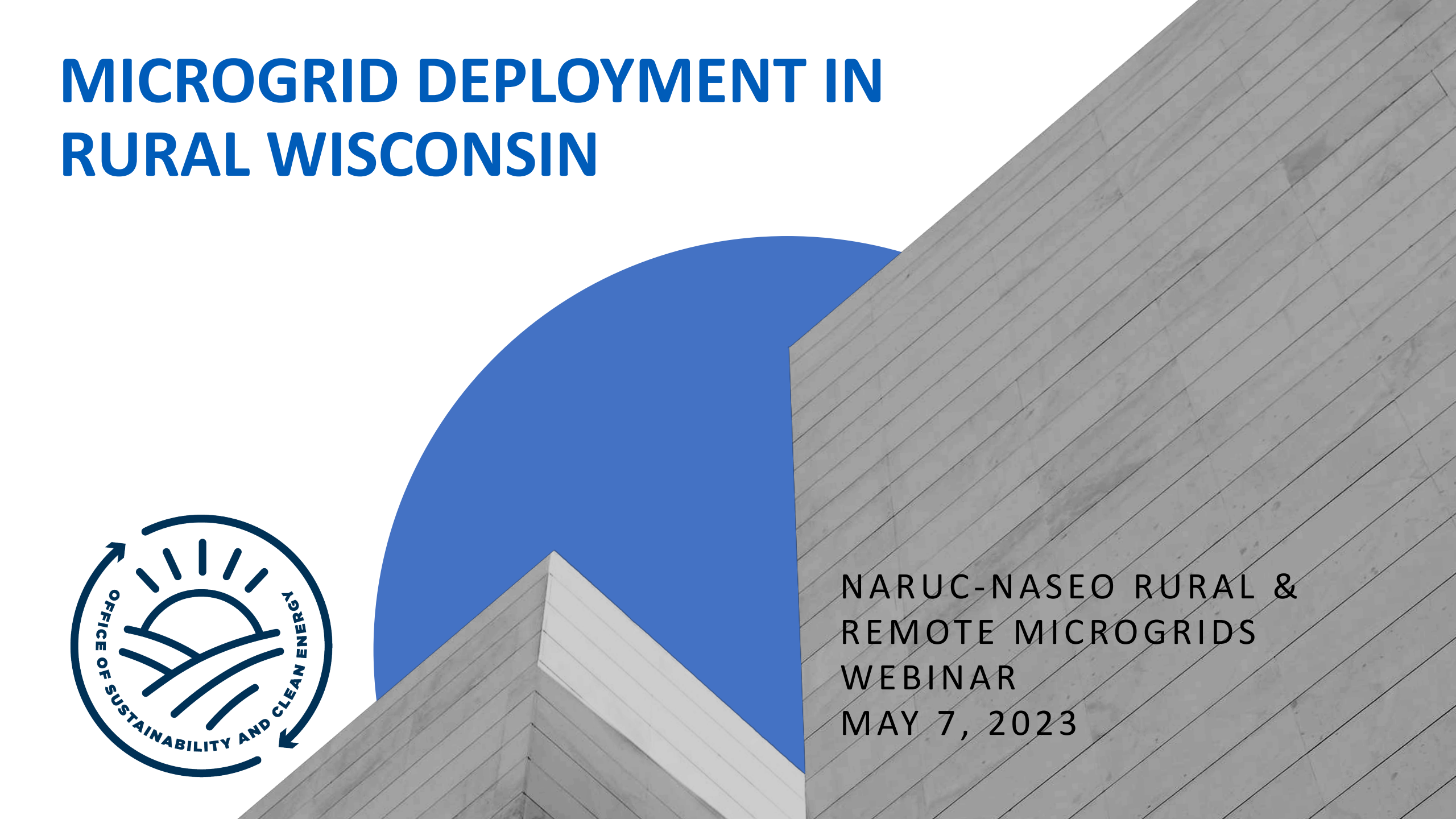
Let’s Connect!

maccalla@collectiveenergyco.com

www.CollectiveEnergyCo.com

collective ENERGY

MICROGRID DEPLOYMENT IN RURAL WISCONSIN



NARUC-NASEO RURAL & REMOTE MICROGRIDS WEBINAR
MAY 7, 2023

WI Office of Sustainability & Clean Energy

- Executive Order #38
- Goal of ensuring all electricity consumed within Wisconsin is 100% carbon-free by 2050
- Central to energy programs and policies in Wisconsin
- Climate and Clean Energy Outreach
- Cross Agency coordination and stakeholder funding and technical support - Infrastructure Law and Inflation Reduction Act
- Lead on EPA's Climate Pollution Reduction Grant Program

Wisconsin Microgrid Development Support

Wisconsin Office of Energy Innovation

Critical Infrastructure Microgrid and Community Resilience Center Pilot Grant Program - awarded nearly $1 million in grants in 2021 to support microgrid feasibility studies for 15 applicants. **Interactive CIMCRC Story Map**

focus on energy®
Partnering with Wisconsin utilities

Starting in 2023, Focus doubled the annual budget for EERD to increase its support for further research and development on emerging technologies and other opportunities to enhance program impacts.

WISCONSIN OFFICE OF Sustainability & Clean Energy

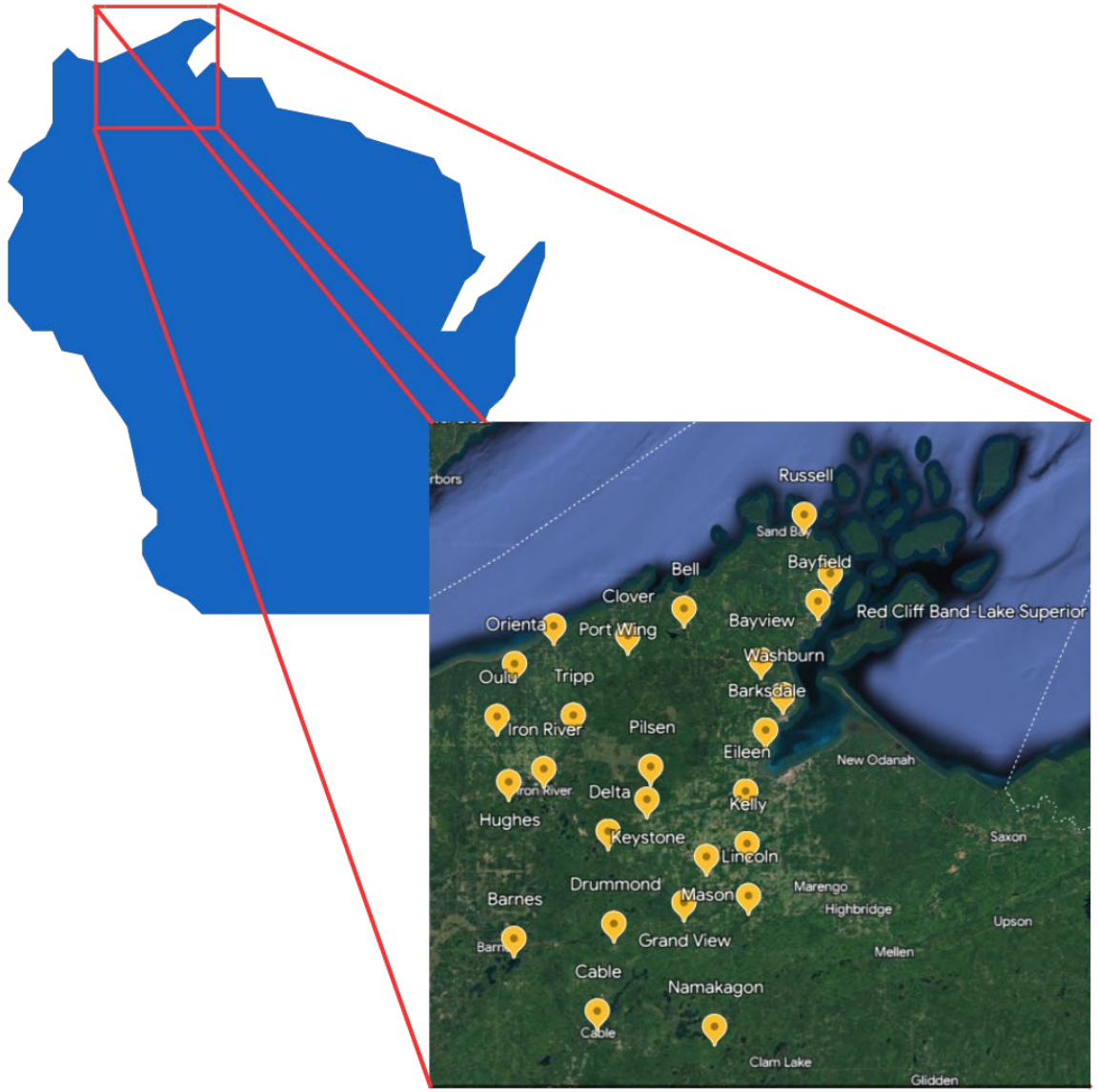
Resilience and Prosperity in Rural Northern Wisconsin

muGrid Analytics

“We are Stronger Together”

Small microgrid projects have too much overhead to be feasible for individual communities. When combined into a county-wide distributed energy initiative with tribal collaboration, everyone wins.

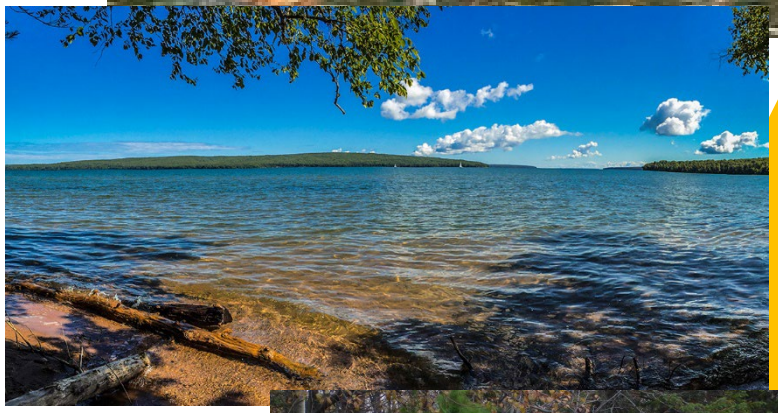
Serving 28 Cities, Villages and Towns in Bayfield County, Wisconsin; Red Cliff Band of Lake Superior Chippewa Indians – community populations range from 101 to 2051



WISCONSIN OFFICE OF Sustainability & Clean Energy

muGrid Analytics

Project Goals



Reduce carbon emissions both locally and on the grid through the deployment of region-wide electric vehicle charging infrastructure for the public and for fleets and through the deployment of local solar PV electricity production.

Increase community resilience by implementing clean solar-plus-storage microgrids at critical facilities.

Reduce carbon emissions locally by converting diesel snowplows to CNG.

WISCONSIN OFFICE OF Sustainability & Clean Energy

muGrid Analytics

Project Partners

State of Wisconsin

Office of Sustainability and Clean Energy
Prime Applicant

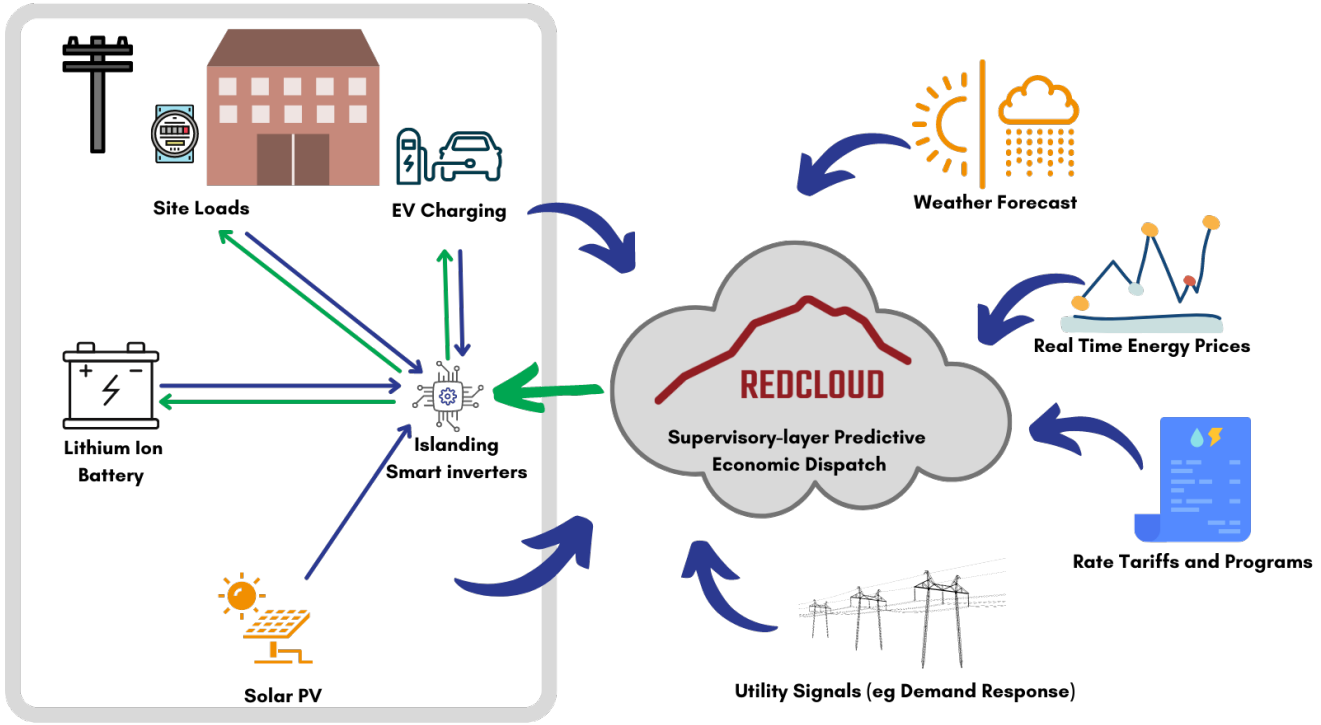
- **Public Service Commission**
- **Bayfield County**
  - **Towns and Villages**
  - **muGrid Analytics (Project Technical Support)**
- **Red Cliff Band**
- **muGrid Analytics (Program Leadership and Community Support)**
  - **Cheq Bay Renewables**
  - **Wisconsin Economic Development Corporation (WEDC)**
    Office of Rural Prosperity (ORP)
  - **Slipstream, Inc**

Technology Summary

13 communities will host:

- 23 microgrids incorporating solar, battery energy storage, and EV charging for highway maintenance fleet, transit fleets, and public charging.

The microgrids will contain combinations of solar PV, battery energy storage, electric vehicle charging, islanding smart inverters, and the level of intelligent control required by the complexity and size of each microgrid system

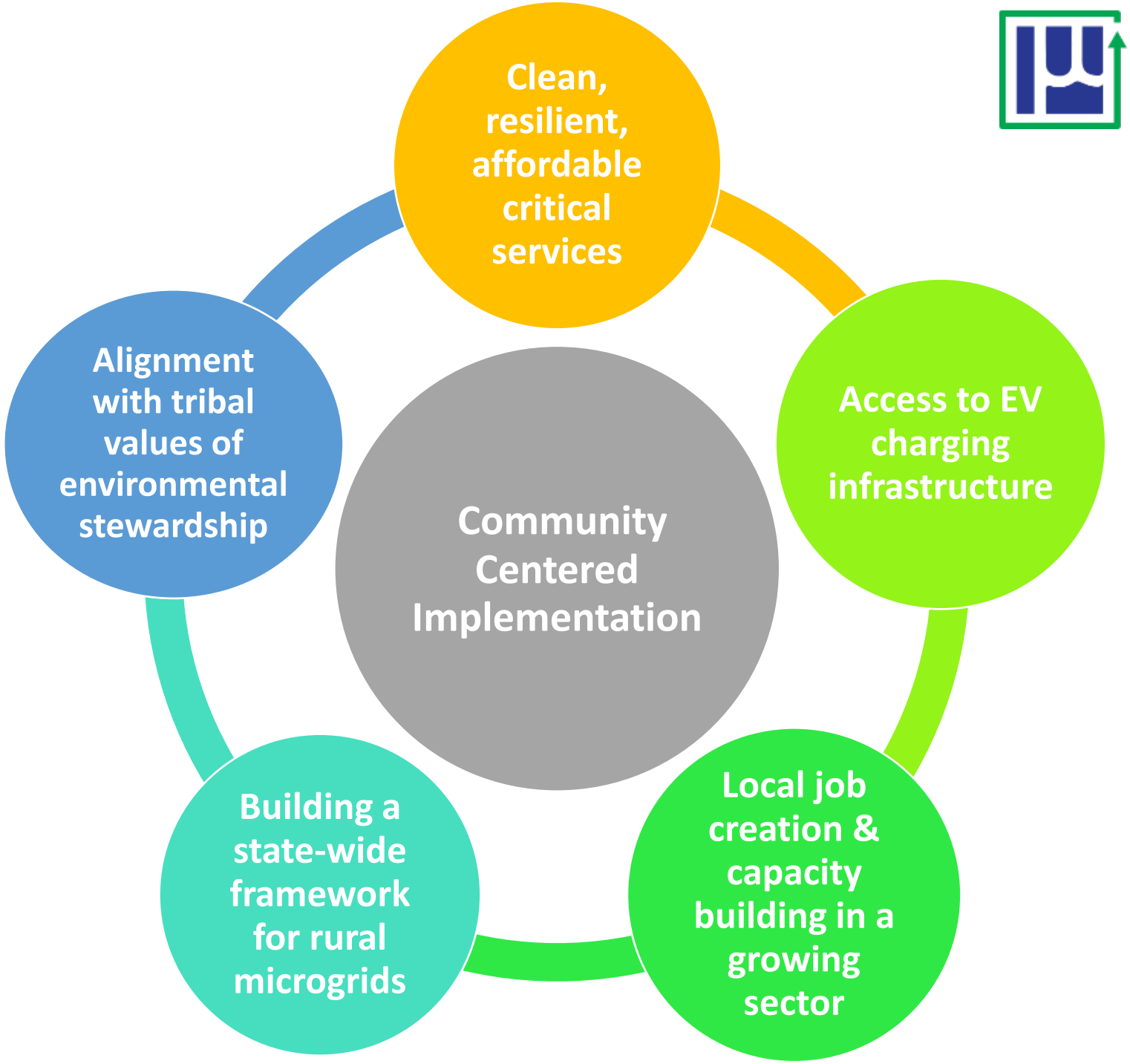


Bayfield County will convert heavy duty snowplows from diesel to CNG and install CNG fueling and maintenance capability to serve 28 communities with critical winter services.

WISCONSIN OFFICE OF Sustainability & Clean Energy

muGrid Analytics

Community Benefits



Community Benefits - continued

Community Centered Implementation Action Plan
Public Meetings and Presentations
Community Surveys
Site Visits and Tours
Educational Programs
Public Relations
Community Advisory Boards
Continuous Feedback

Maria Redmond
Director
WI Office of Sustainability & Clean Energy
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osce@wisconsin.gov

NRECA

May 7, 2024

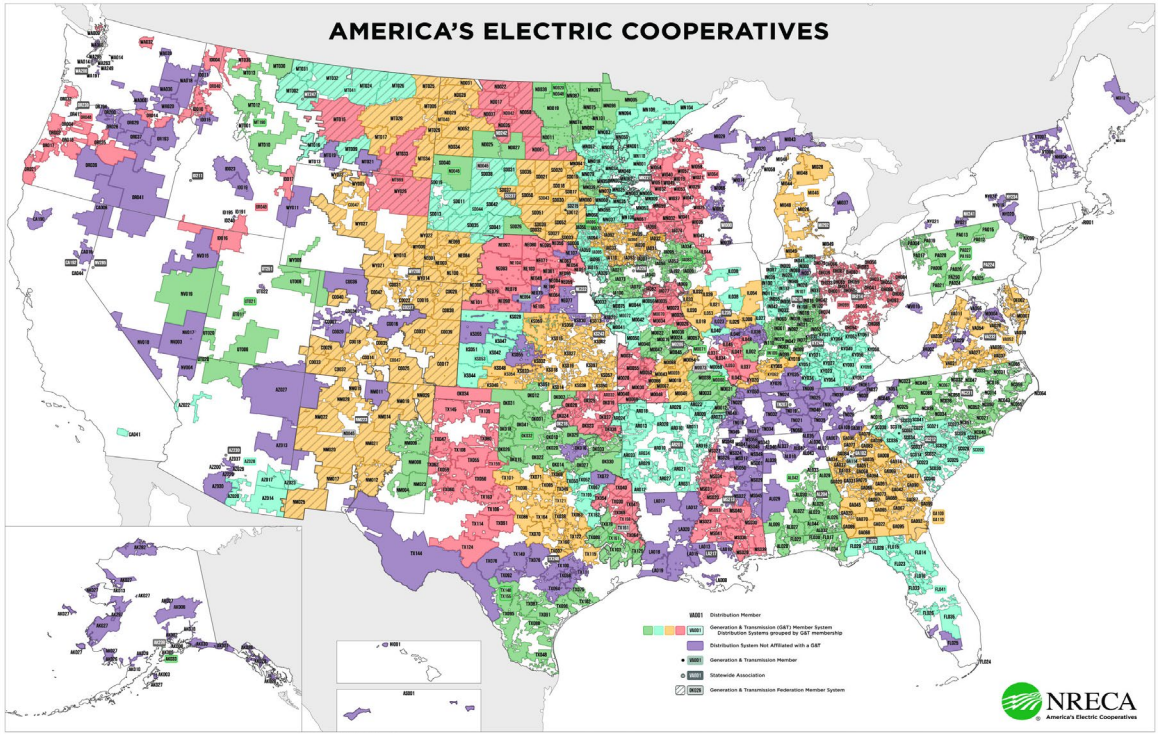
Improving Energy Resilience with Rural and Remote Microgrids

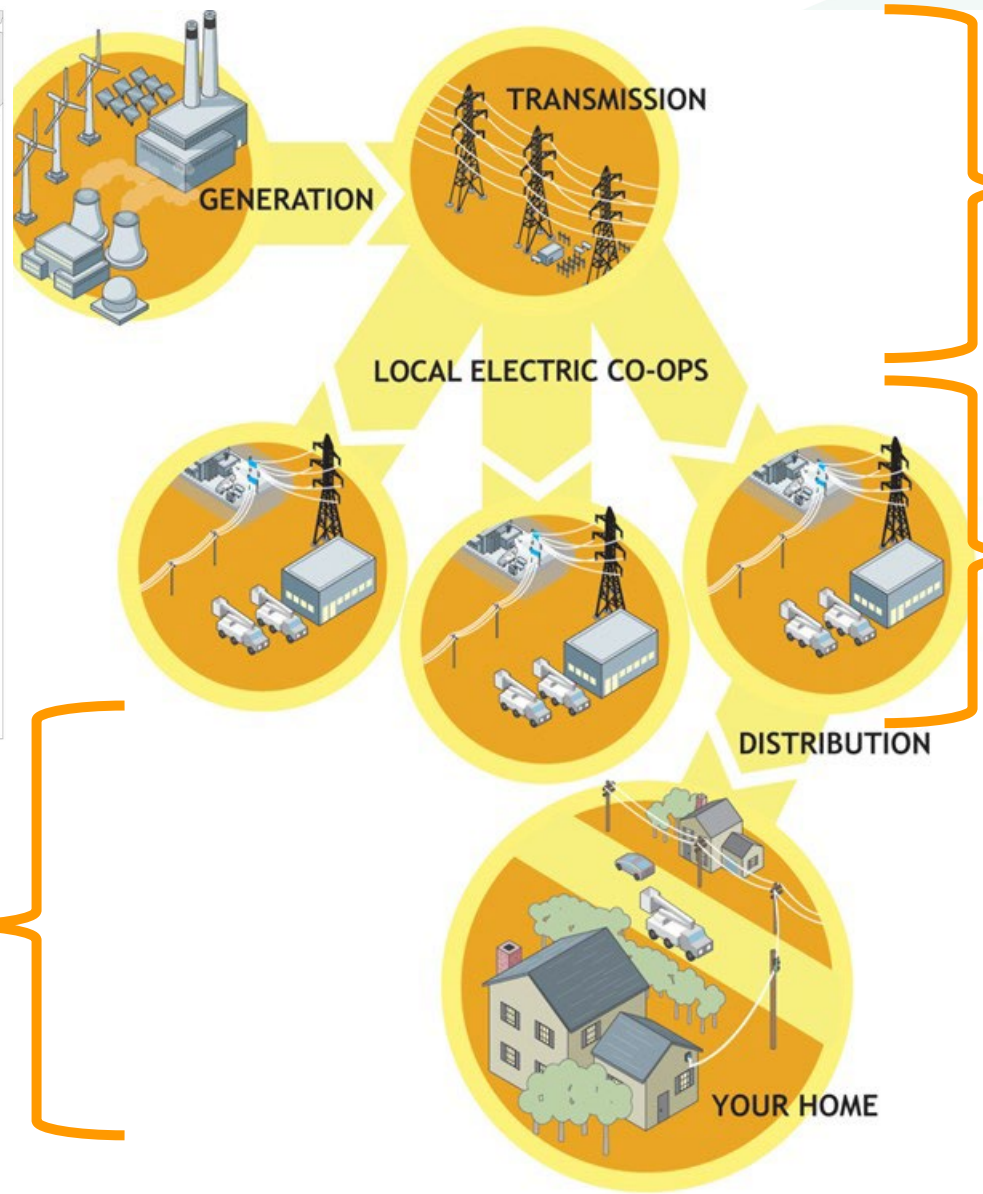
NASEO-NARUC Microgrids State Working Group Webinar

Tolu Omotoso, Director of Energy Solutions

National Rural Electric Cooperative Association (NRECA)

Electric Cooperatives By the Numbers





62
G&T Cooperatives

833
Distribution Cooperatives

Of which 662 are a member of one or more G&T

42 Million

NRECA
America's Electric Cooperatives

40

NRECA's Consortium Approach

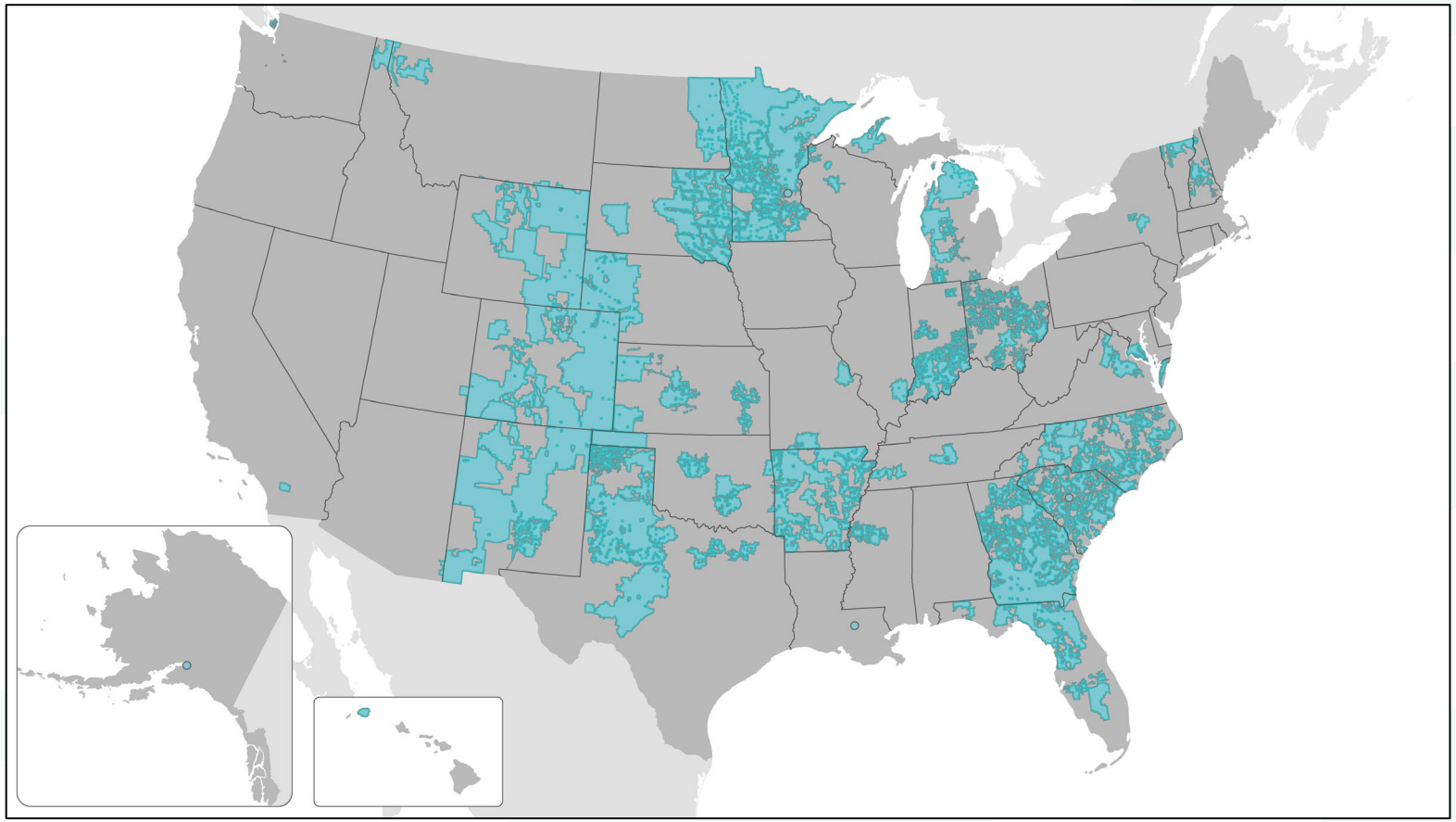
NRECA
America's Electric Cooperatives

Stronger Together: The Consortium Approach

- Cyber and physical security
- Electric vehicles
- Microgrids
- Natural hazards
- Smart grids and data

NRECA
America's Electric Cooperatives

NRECA's Microgrid Consortium Member Participation



Data on Participants:

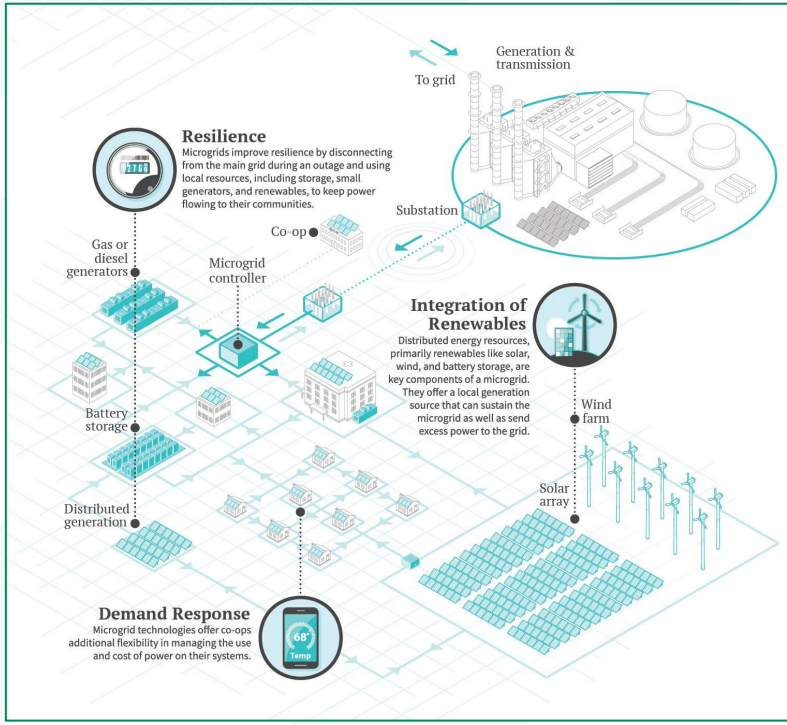
- 126 member staff
- 96 member organizations from 37 states, including:
  - 71 Distribution (Median Size: 35,475 consumers)
  - 15 G&T
  - 5 Statewide
  - 2 Service/Supply
  - 2 Associate/Affiliate

NRECA
America's Electric Cooperatives

Microgrid Consortium Goals

Coops coming together that have implemented or are planning to implement microgrid programs.

- ✓ **Enable information sharing** and collaborative solutions (planning, engineering, design, operations, economics).
- ✓ **Leverage opportunities** as networks or groups of regional microgrids to apply for funding.
- ✓ Create education-based programs to **develop workforce** solutions.
- ✓ **Demonstrate unique programs** that utilize technologies to improve grid reliability, resilience.
- ✓ **Address fundamental barriers** / implement solutions to integrate microgrids to infrastructure.



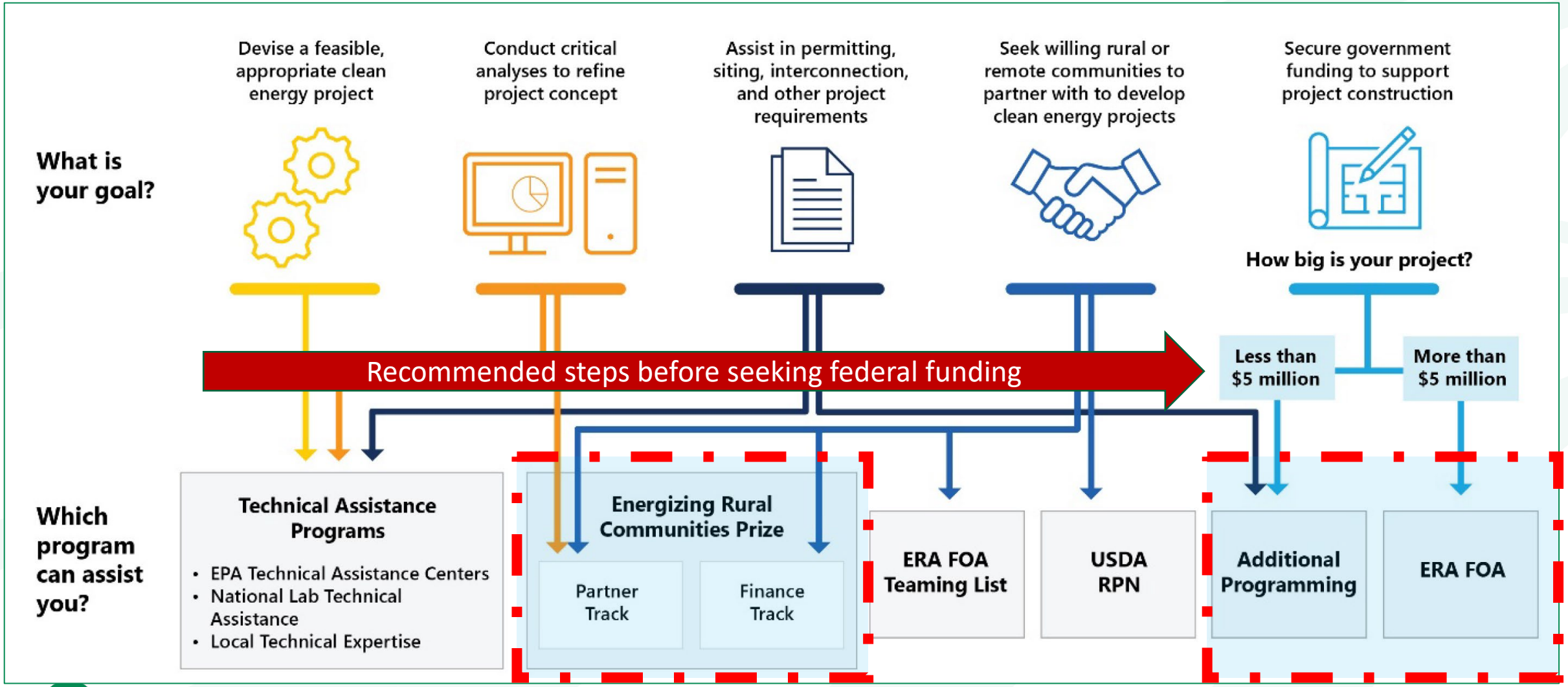
NRECA America's Electric Cooperatives

https://www.cooperative.com/programs-services/government-relations/infrastructure-resource-hub/Pages/Secure/microgrid-consortium.aspx

Funding From DOE

NRECA
America's Electric Cooperatives

DOE/OCED ERA Programs



OCED ERA Programs

Devise a feasible, appropriate clean energy project

Cond
analys
proje

What is your goal?

Recommend

Which program can assist you?

Technical Assistance Programs

- EPA Technical Assistance Centers
- National Lab Technical Assistance
- Local Technical Expertise

Energizing Rural Communities Prize

Through workshops and community input, the ERA Program has found that two of the biggest barriers to improving energy systems in rural or remote areas are developing the necessary partnerships and securing financing. With this in mind, the ERA has announced the Energizing Rural Communities Prize.

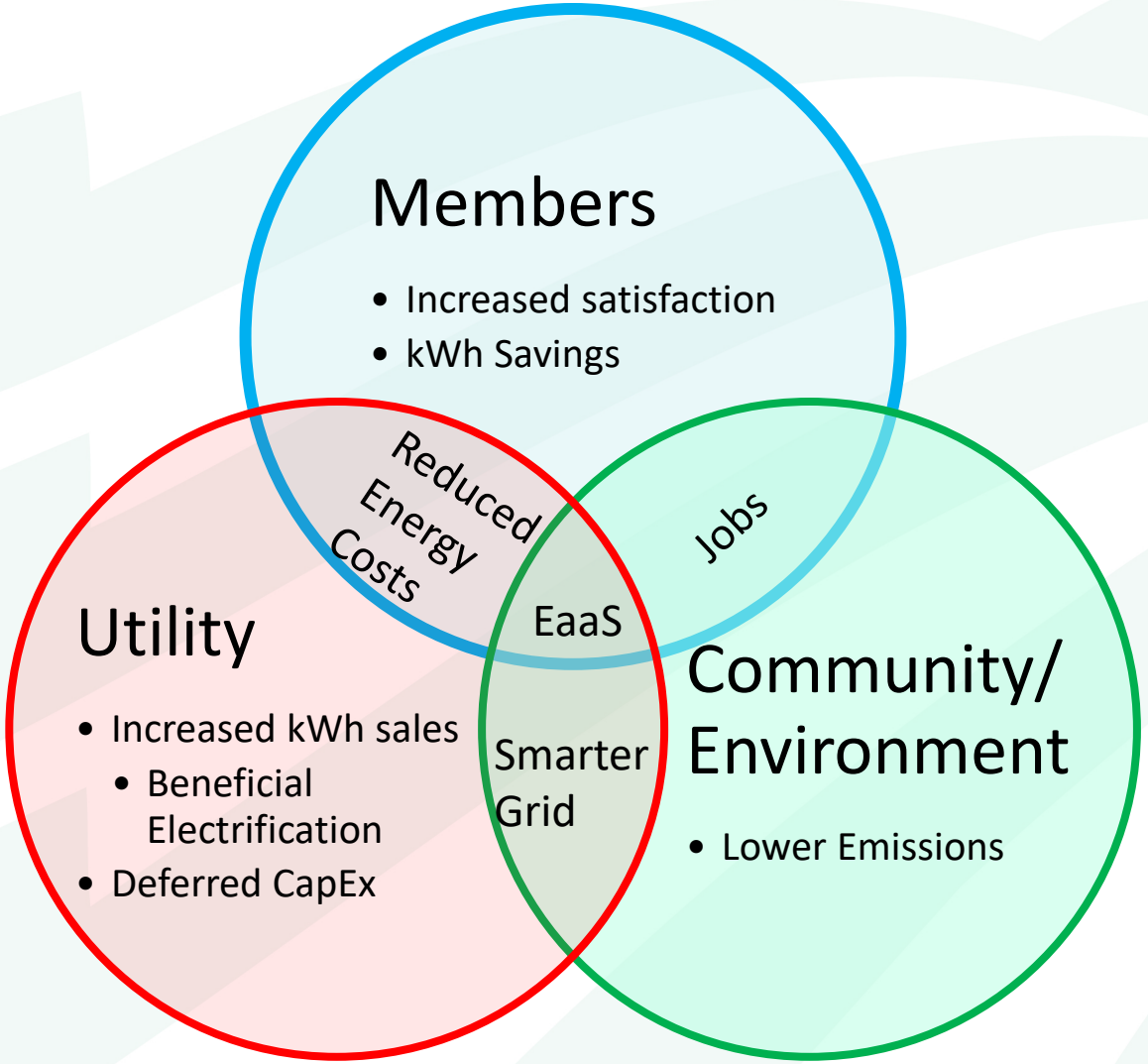
The $15 million Energizing Rural Communities Prize challenges individuals and organizations to develop partnership plans or innovative financing strategies to help rural or remote communities improve their energy systems and advance clean energy demonstration projects in rural or remote areas. The term ‘‘rural or remote area’’ is defined as **a city, town, or unincorporated area that has a population of not more than 10,000 inhabitants.**

7 American Made Challenge | Energizing Rural Communities Prize

NRECA's Partnership Framework

Partnership Objectives

- ❑ Develop win-win-win relationships between utilities, communities and technology providers
- ❑ De-risk replicable/scalable projects
  - ❑ Conduct preliminary engineering analysis - microgrid feasibility studies
- ❑ Apply for project funding
  - ❑ IIJA/IRA
    - ❑ OCED ERA
    - ❑ OCED Prize
    - ❑ USDA New ERA



Partnerships being sought

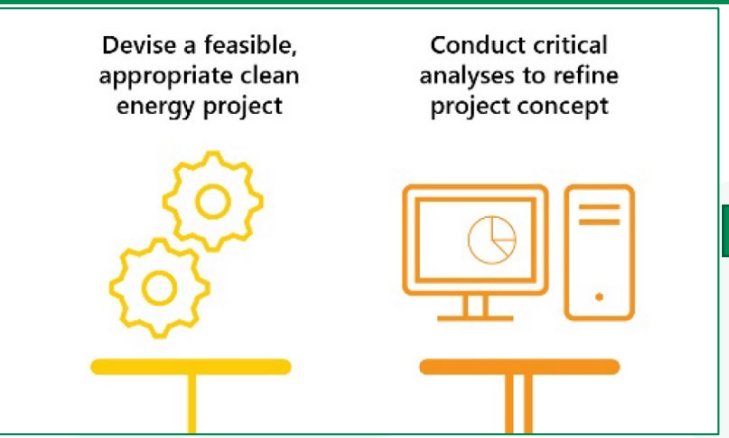
- ❑ Industry
  - ❑ OEMs
  - ❑ Key Accounts
- ❑ Educational Institutions
  - ❑ Local Colleges
  - ❑ School Districts
- ❑ Local Community
  - ❑ Workforce Assn
  - ❑ Builders Assn
  - ❑ Contractors

Risk Mitigation

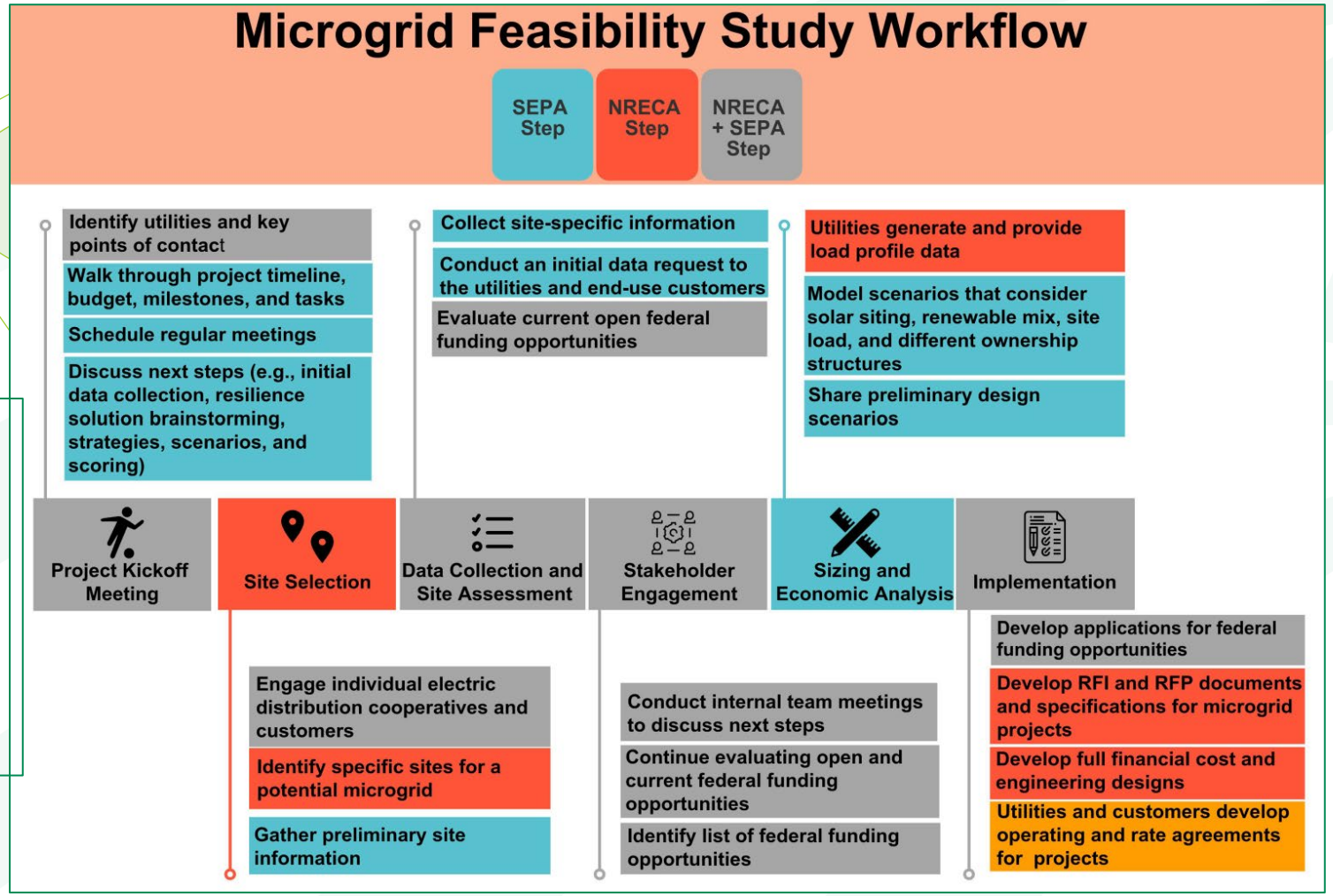
- ❑ Feasibility Studies
- ❑ Extended Warranties

NRECA America's Electric Cooperatives

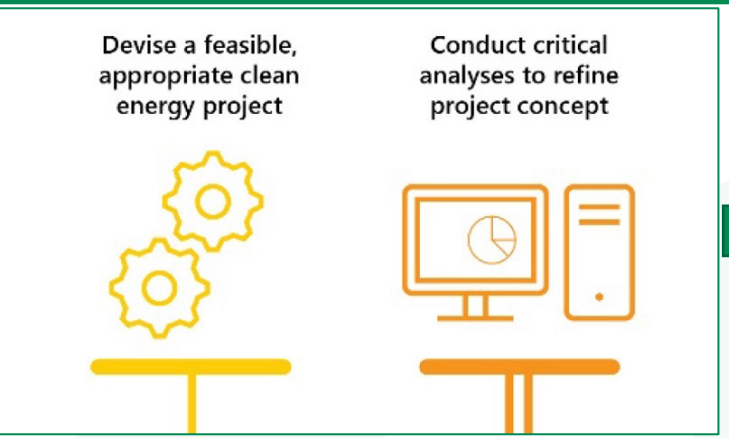
Benefits of the ERA Prize



- Introduce our team to OCED
  - Prize comes with free mentoring from OCED
- $100k no strings attached
  - Opportunity to win additional $200k
- Test run the entire process
  - Standardize data collection
  - Evaluate potential vendors



Benefits of the ERA Prize



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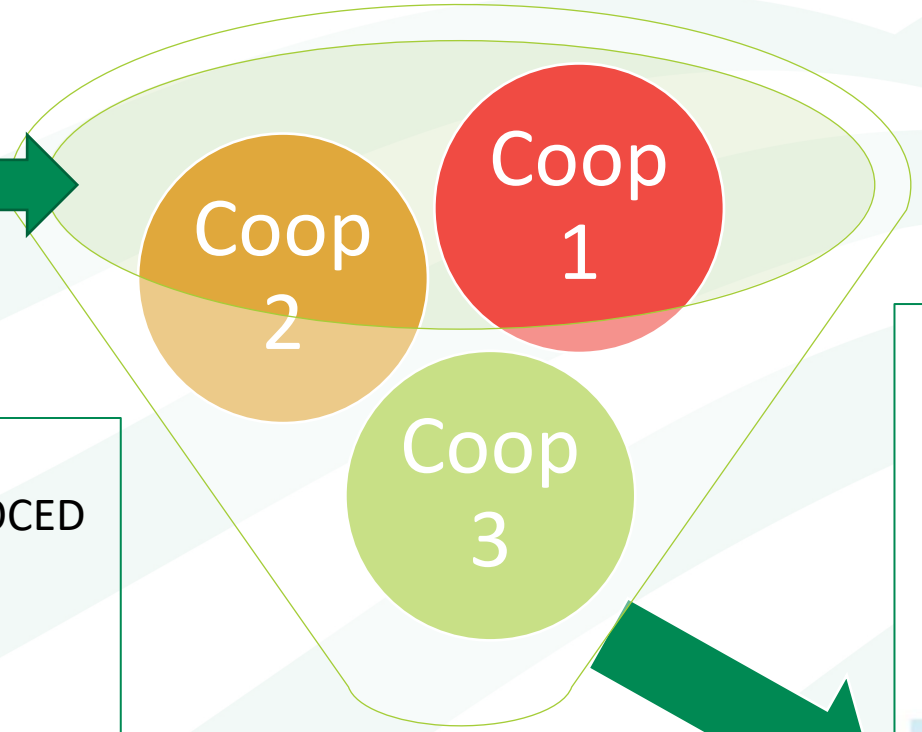


- Coop 1 – No Go. Terminate
- Coop 2 – Maybe
- Coop 3 – Proceed

Funding Opportunities

OCED's ERA

Purpose:

- To provide financial assistance to improve, in rural or remote areas of the United States, the resilience, safety, reliability, and availability of energy and environmental protection from adverse impacts of energy generation.

Eligible uses of funds:

A. 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 by rural or remote areas;
D. Providing or modernizing electric generation facilities;
E. Developing microgrids; and
F. Increasing energy efficiency.

Microgrids CARED

End of Project Goals

- **Improve grid reliability and resiliency of the grid** in the rural communities benefiting from the microgrid subprojects.
- Support overall r**eduction in the use of carbon emitting energy sources**, especially during times of peak demand.
- **Provide backup resources for outage mitigation to help reduce 80%** of outages caused in some communities.
- **A measurable reduction of power supply costs** for the participating cooperatives and their consumer-members.
- **Community engagement and participation in co-op workforce development.**

Project Locations

Cooperative Name	Abbrev	Community Name & Zip Code	NCES Locale Lookup Rural/Remote	2020 Population
Anza Electric Co-op, Inc.	AEC	Anza CDP, CA; 92539	42: Rural, Distant	3,075
Blue Ridge Energy	Blue Ridge	Cherry Lane Township, NC; 28627	43: Rural, Remote	1,563
Flathead Electric Cooperative, Inc.	FEC	Cooke City CDP, MT; 59081	43: Rural, Remote	77
Minnesota Valley Electric Cooperative	MVEC	Shakopee Mdewakanton Sioux Community, MN, 55372	Tribal	779
Missoula Electric Cooperative	MEC	Clinton CDP, MT; 59825	42: Rural, Distant	1,018
Trico Electric Cooperative	Trico	Arivaca CDP, AZ; 8561	43: Rural, Remote	623
Volunteer Electric Cooperative	VEC	Town of Decatur, TN; 37322	42: Rural, Distant	1,563

Community Benefits Plan

Community and Labor Engagement

- Several members engage with the communities, local governments, tribes, unions, and local businesses.
- 70% of the consortium members have a Collective Bargaining Agreement in place.

Investing in the American Workforce

- Create about 100 jobs
- Many career advancement opportunities for coop employees = jobs with benefits stay in rural America.

Diversity, Equity, Inclusion, and Accessibility (DEIA)

- Establish DEIA plans to enhance diversity, reduce barriers, and increase access to new, good-paying jobs.
- Develop creative partnerships with community members, and integrate diversity in career track and workforce development.

Justice40 Initiative

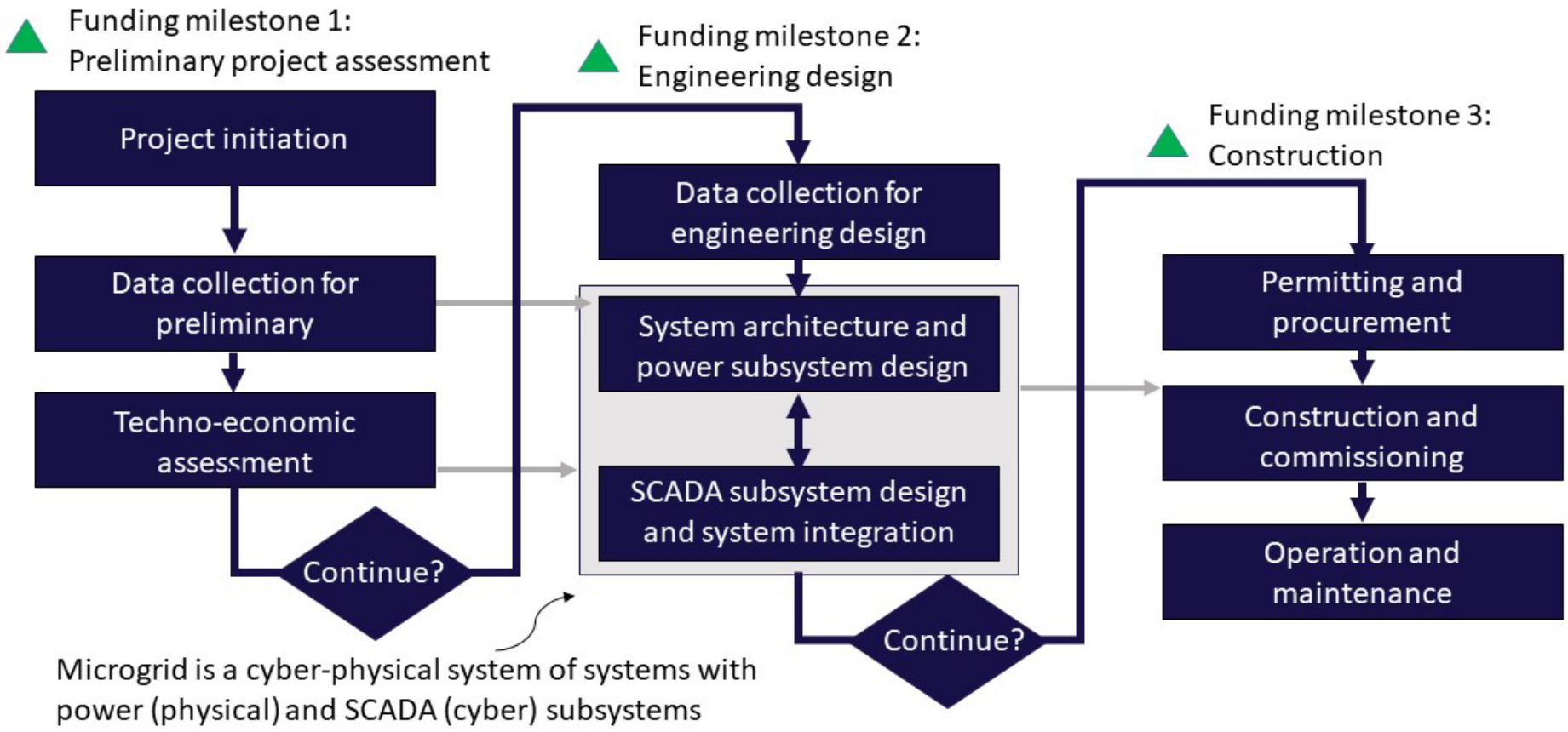
- 16 census tracts will benefit of which 12 (75%) are considered disadvantaged or partially disadvantaged by CEQ.

Benefits and Projected Outcomes:		
Benefit	**Timeframe**	**Metrics for Tracking**
Increased county revenue	Lifetime of the project	Increased revenue ($)
Increased direct employment and workforce development	Lifetime of the project	Increased jobs (#)
Increased indirect employment	Lifetime of the project	Increased jobs (#)
Increased clean energy enterprise creation and contracting	During construction and through the Lifetime of the project	
Increased reliability and resilience	Lifetime of the project	Increased community resilience hubs (#), size of resilience infrastructure deployed (MWh)
Improved air quality and decreased environmental exposure	Lifetime of the project	
Decreased energy burden	Lifetime of the project	Energy expenditure savings ($), energy saved (MMBTU, MWh), fuel reduction (GGe)
Negative Impacts, Risks, and Mitigation Strategy		
Impact	Timeframe	Mitigation Strategy
Increased traffic	During construction	Work with local DOT and planning dept. to identify least disruptive option
Air pollution from construction	During construction	Work with local DOT and planning dept. to identify least impactful option
Increased demand for housing that decreases housing affordability and availability	Lifetime of Project	
Land use change	Lifetime of project	

Challenges/Priorities for States

NRECA
America's Electric Cooperatives

70% of Implementation Process is Design



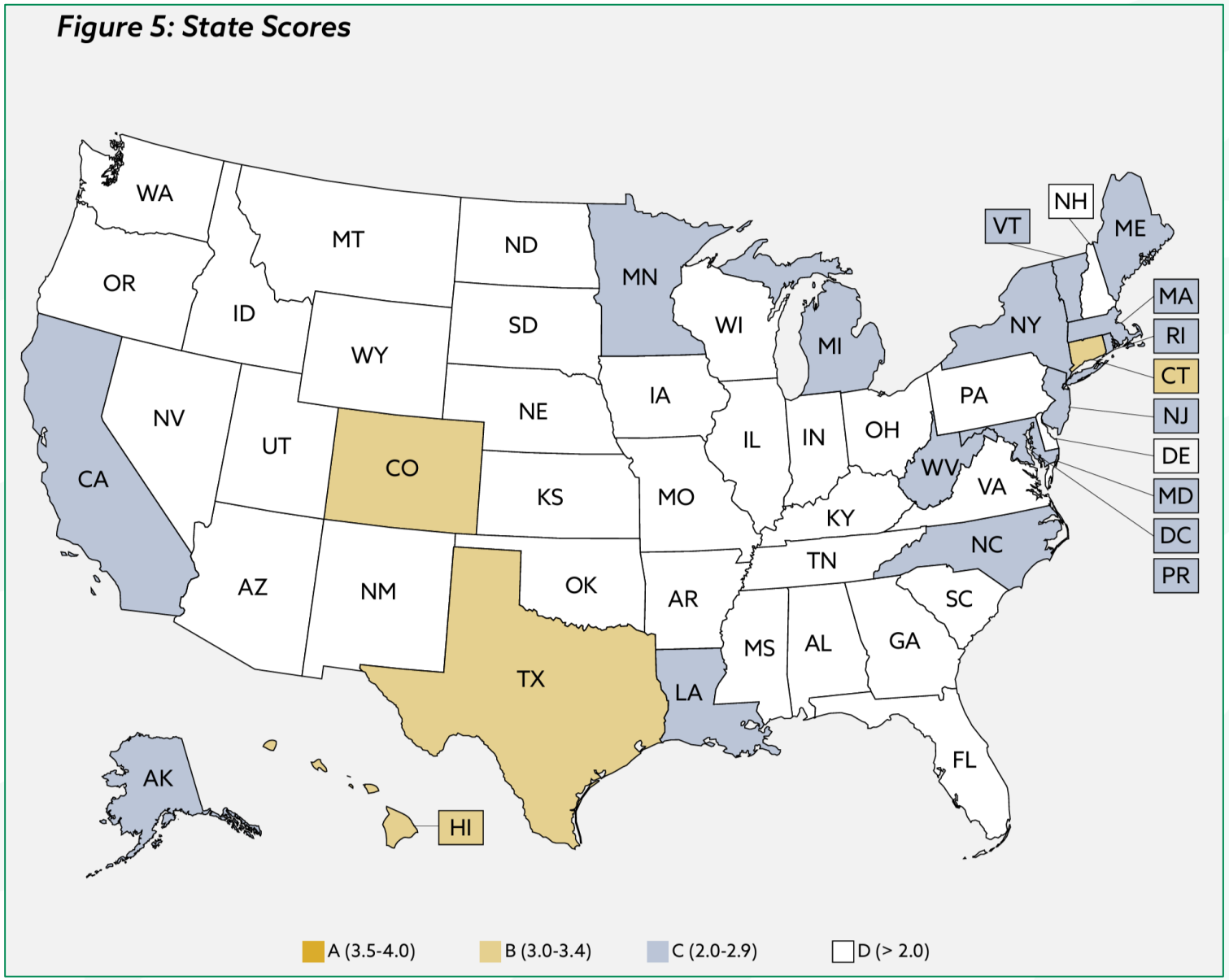
More State Level Funding

https://dlg.colorado.gov/microgrids

https://www.in.gov/oed/grants-and-funding-opportunities/grid-resilience-program/

Think Microgrid State Scorecard 2023

- Deployment
- Policy
- Resilience
- Grid Services
- Equity



NRECA America's Electric Cooperatives

Question & Answer

Closing Announcements

- Thank you to U.S. Department of Energy, Office of Electricity
- Slides and recording will be emailed to attendees and posted to NASEO and NARUC websites in coming days