



Grid Resilience and Innovation Partnerships Program (GRIP)

Selections Overview

Maria Robinson, Director, Grid Deployment Office

Colin Meehan, GRIP Project Manager, Grid
Deployment Office

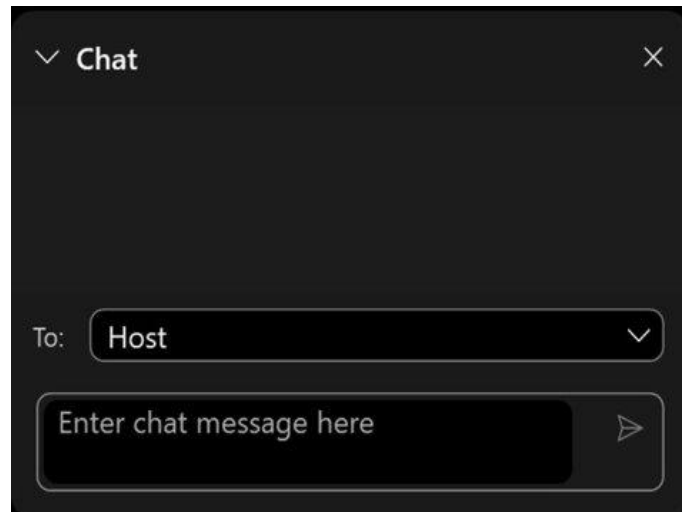
October 24, 2023



Housekeeping

Questions?

If you have technical questions – please put them in the chat box for the host.

A screenshot of a chat window with a dark background. At the top left is a dropdown arrow and the word "Chat". At the top right is a close button (X). Below this is a "To:" label followed by a dropdown menu showing "Host". At the bottom is a text input field with the placeholder text "Enter chat message here" and a send button (arrow) on the right.

Chat

To: Host

Enter chat message here



Maria Robinson

Director, Grid Deployment Office





Colin Meehan

Project Manager, GRIP
Program



Anne Egger

Project Manager, Grid
Resilience



Kristen Frick

Project Manager, Grid
Innovation



KC Fussell

Metrics and Analysis Lead



Agenda

GRIP Selections

1. Webinar notice/disclaimer
2. GRIP Selections Overview
3. GRIP Topic Area Information
4. Topic Area Project Spotlights
5. Themes and Trends

Next steps

What's next for GRIP and GRIP Applicants?



GRIP Selections Overview

- ▶ The Bipartisan Infrastructure Law **invests \$10.5 billion** in the Grid Resilience and Innovation Partnerships (GRIP) program.
- ▶ The first round of GRIP funding totals nearly **\$3.5 billion** and **will support 58 projects in 44 states across the U.S.** This is the **largest single direct investment in critical grid infrastructure** in U.S. history.
- ▶ GRIP will catalyze **\$8 billion** in public and private investment to enhance the nation's ability to deliver affordable, clean energy to American communities, prepare for extreme weather, and meet clean energy goals.
- ▶ GRIP will enable the addition of **35 GW of renewable energy**, expanding U.S. renewable energy capacity by **10.5%**.





GRIP Topic Areas


Topic Areas Overview


Program	Program Description	Eligible Entities	Selectees
40101c: Utility/Industry Resilience Grants	Support activities that reduce the likelihood and consequence of impacts to the electric grid due to extreme weather, wildfire, or natural disasters	Grid operators, storage/generation operators, transmission owners/operators, distribution providers, fuel suppliers	<ul style="list-style-type: none">• 16 projects (7 large/9 small)• \$919M federal investment• \$1.7B total investment
40107: Smart Grid Grants	Deploy and catalyze technology solutions that increase the flexibility, efficiency, reliability, and resilience of the electric power system, with particular focus on enhancing the system's capabilities	Private entities, universities, states, tribes, local governments	<ul style="list-style-type: none">• 34 projects• \$1.1B federal investment• \$2.5B total investment
40103b: Grid Innovation Program	Demonstrate innovative approaches to transmission, storage, & distribution infrastructure and to harden & enhance resilience and reliability and demonstrate new approaches to enhance regional grid resilience	States, Tribes, PUCs, and local governments	<ul style="list-style-type: none">• 8 projects• \$1.4B federal investment• Up to \$4.3B total investment


Project Spotlight: Climate Adaptation Resilience Program


- ▶ **Selectee:** Hawaiian Electric
- ▶ **Location:** Hawai'i Island, O'ahu, Moloka'i, Lana'i, and Maui Island
- ▶ **Federal budget:** \$95M
- ▶ **Total investment:** \$190M
- ▶ **Project Description:** Hawaiian Electric will invest in a comprehensive and transformative hardening of the electric transmission and distribution system through seven different solutions that will limit damage from severe events such as hurricanes or wildfires and prevent conditions that could lead to such events. The project will decrease the likelihood of outages and decrease restoration times when outages occur.
- ▶ **Project Benefits:**
 - System-wide resilience against a range of unique and diverse hazards, including wildfires, hurricanes and lava flows.
 - Increased grid operations resiliency during severe events in disadvantaged communities (DACs) and rural or hard-to-service areas.
 - High-quality jobs, apprenticeship programs, and partnerships with local educational institutions.
 - Commitment to utilize union labor for all project work in accordance with existing Collective Bargaining Agreement with IBEW.


Hardening Measures:


Transmission Hardening 


Wildfire Monitoring 

Hazard Tree Removal 

Critical Pole Hardening 

Critical Circuit Hardening 

Lateral Undergrounding 

Control Center Hardening 

Project Spotlight: Adaptable Grid Project

- ▶ **Selectee:** Oklahoma Gas & Electric Company (OG&E)
- ▶ **Location:** Oklahoma
- ▶ **Federal budget:** \$50M
- ▶ **Total investment:** \$102M
- ▶ **Project description:** OG&E will create a smart grid platform that enhances grid system visibility, invests in autonomous controls, strengthens the grid against extreme weather, promotes the expansion of distributed energy resources, and enhances adaptability for future load within OG&E's service territory serving 887,000 customers across 19 tribal tracts, 20 federally recognized tribes, and approximately 150 disadvantaged communities (DACs).
- ▶ **Project benefits:**
 - Three separate Community Benefits Agreements to support disadvantaged communities (DACs) and improve education and workforce planning
 - 100% of project benefits will flow to DACs and Tribal lands impacted by extreme weather
 - Creation of education and upskilling opportunities through existing relationship with local universities

Anticipated Impacts:



Avoided Customer Outage Minutes:
50M+ / year



Avoided Customer Outage Costs:
\$17M+ / year



Significant job creation & workforce
development opportunities



Unlocking EVs and other grid edge
technologies in rural areas

Project Spotlight: Joint Targeted Interconnection Queue Transmission Study Process and Portfolio (JTIQ)

- ▶ **Selectee:** Minnesota Department of Commerce
- ▶ **Location:** Iowa, Kansas, North Dakota, Nebraska, Minnesota, Missouri, South Dakota
- ▶ **Federal budget:** \$464M
- ▶ **Total investment:** \$1.3B
- ▶ **Project Description:** Innovative partnership to plan, design, and construct five transmission projects across seven states that will unlock 30 GWs of new generation, primarily wind and solar, and provide numerous interregional benefits, including scalable transmission solutions, new renewable generation, lower energy costs, enhanced community engagement, and workforce development.
- ▶ **Project benefits:**
 - Targeted training and other workforce development activities specific to disadvantaged communities (DACs), with direct financial support for travel and lodging for disadvantaged workers to access training
 - Development and deployment of a regional energy literacy education and engagement initiative





GRIP Selectee Themes and Trends

Project Themes and Trends

	Description	Selectees and Funding Levels
Wildfire Resilience	GRIP projects around the country will make significant investments in wildfire resilience and mitigation projects and will deploy innovative solutions to improve grid operators' ability to approach wildfire prevention, protection, mitigation, response, and recovery.	<ul style="list-style-type: none">• 13 projects• \$662.5 federal investment• \$1.26B total investment
Microgrids	GRIP projects will support investment in over 400 microgrids, which are a group of interconnected loads and distributed energy resources that can provide electricity to a smaller community or region, which enhances the resilience of the grid against extreme weather.	<ul style="list-style-type: none">• 11 projects• \$659.1M federal investment• \$1.4B total investment
Renewables Integration	GRIP projects will support further integration of renewables through technological deployments such as Distributed Energy Resources (DERs) and Distributed Energy Resource Management platforms (DERMS) that will further unlock renewable energy resources to the grid, as well as EVs, batteries, and other devices.	<ul style="list-style-type: none">• 17 projects• \$1.6B federal investment• \$3.6B total investment
Community/DAC Impacts	All GRIP projects include a Community Benefits Plan (CBP) that outlines how the project will invest in disadvantaged communities (DACs) and in workforce development and labor engagement.	<ul style="list-style-type: none">• 100% of projects have J40 commitments• 84% of projects include labor union partnerships

Renewables Integration

- ▶ GRIP projects include innovative **clean energy solutions** that will lead to an increased integration of renewable resources
 - Innovation was demonstrated through both technological solutions and creative approaches/strategies
- ▶ Proposals that involved renewable integration, generally involved the deployment of distributed energy resources (DERs) as part of larger projects that incorporated technologies more directly related to resilience and reliability
 - The use of DERs commonly allowed for increased renewable penetration without deployment of transmission infrastructure
- ▶ Many renewable integrating proposals incorporated reconductoring, but not as many projects incorporated the use of advanced materials which could further expand the impact of the proposals
- ▶ While High Voltage Direct Current (HVDC) was identified as a priority investment in this FOA, GRIP received fewer HVDC proposals than anticipated in this cycle

Renewable Integration project benefits:

Clean Energy
Acceleration



Resilience and
Adaptivity



Grid Capacity &
Load Flexibility



Renewables Integration

Federal Investment	Total Investment
\$1.6B	\$3.4B

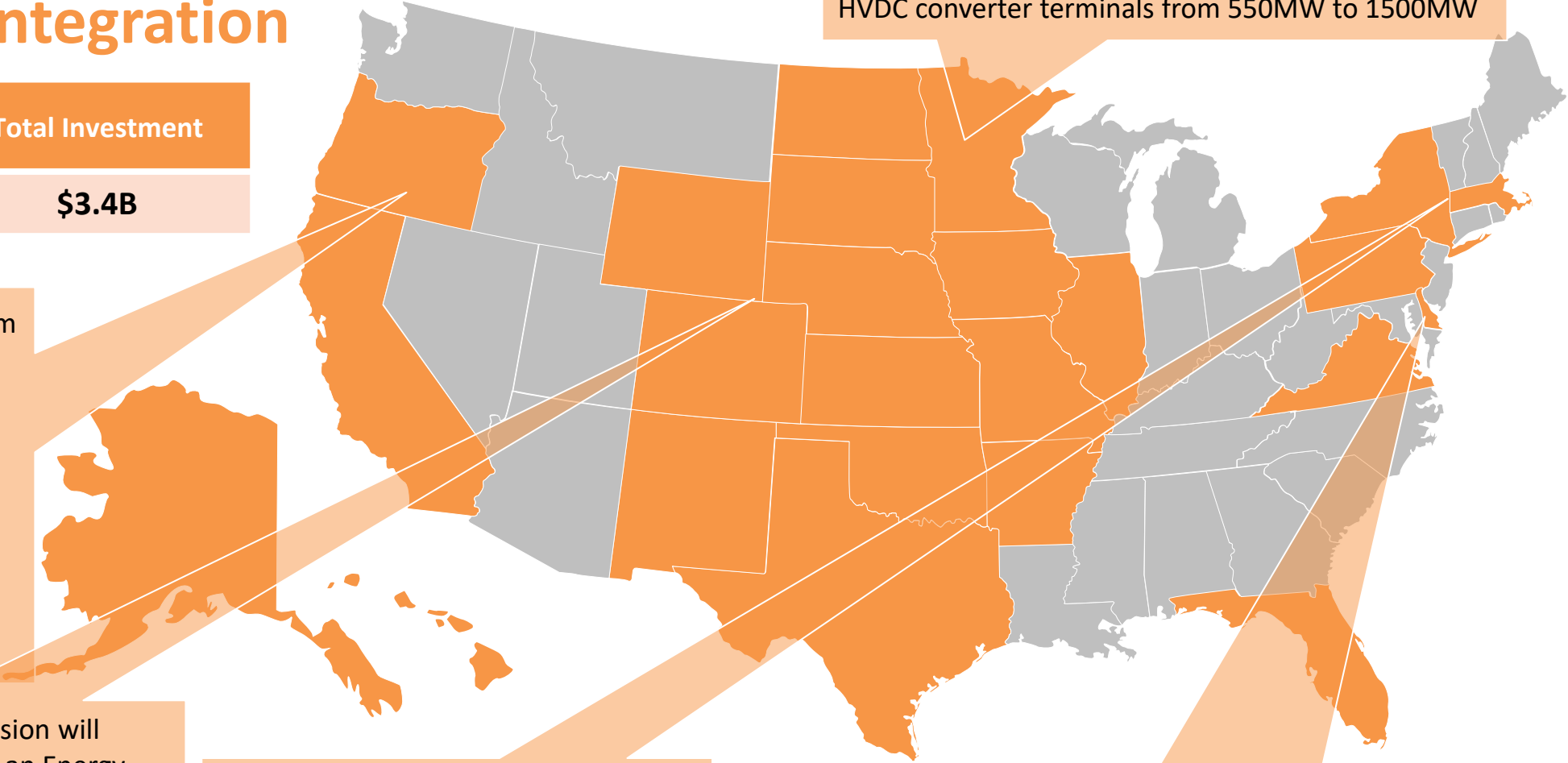
Confederated Tribes of Warm Springs will partner with Portland General Electric to upgrade a transmission corridor from 230kV to 500kV, unlocking 1.8GW of new generation and providing workforce development opportunities for tribal members

Tri-State Generation and Transmission will implement DER management and an Energy Services Platform to manage over 200MW of distribution-sited clean generation and enable over 200MW of flexible load across CO, NE, NM, and WY

National Grid in NY and MA will deploy cutting-edge DER and distribution system management tools to enable a transition to a fossil-free system by 2050

Pecan Street will support the Delaware Electric Cooperative in increasing hosting capacity by ~10MW through flexible interconnection

Allete will use state-of-the-art technology to upgrade HVDC converter terminals from 550MW to 1500MW



Renewables Integration Project Spotlight: Connected Clean Powercity

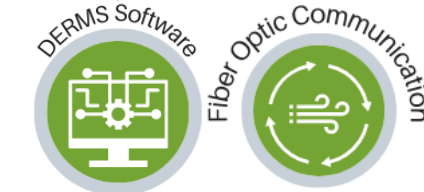
- ▶ **Selectee:** Sacramento Municipal Utilities District
- ▶ **Location:** Sacramento County, CA
- ▶ **Federal investment:** \$50M
- ▶ **Total investment:** \$156.1M
- ▶ **Project Description:** Deployment of a multi-purpose intelligence system to an existing ADMS to create an energy ecosystem that lends both grid operators and increased visibility, management and control. The new intelligent ecosystem consists of four key elements that will be dispersed across small and large utilities in addition to Tribal partners in rural and urban communities.
- ▶ **Community Benefits:**
 - >50% of project benefits will be realized in DACs
 - Project case study chosen to optimize project impacts in tribal communities

Project Key Elements:

1. Grid edge intelligence at scale



2. Advanced DERMS



3. OMS modernization

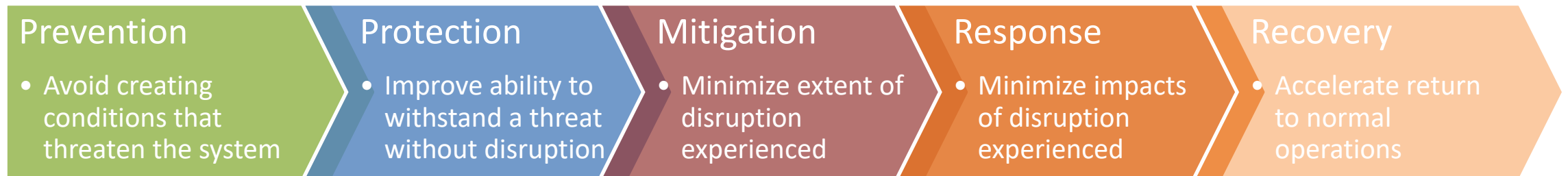


4. Enabling technology and systems



Wildfire Resilience Investments

- ▶ Projects that were most responsive to GRIP's utility resilience goals provided clear demonstrations of how proposed investment responds to a specific threat or otherwise provides exceptional protection above and beyond "business as usual" reliability improvements
- ▶ Strategies developed demonstrate a comprehensive understanding of vulnerabilities and necessary resilience improvements while offering a range of possible solutions
- ▶ Proposed innovative solutions tended to improve grid operators' ability to address most if not all the following high-level wildfire resilience strategies:



Wildfire Resilience Investments

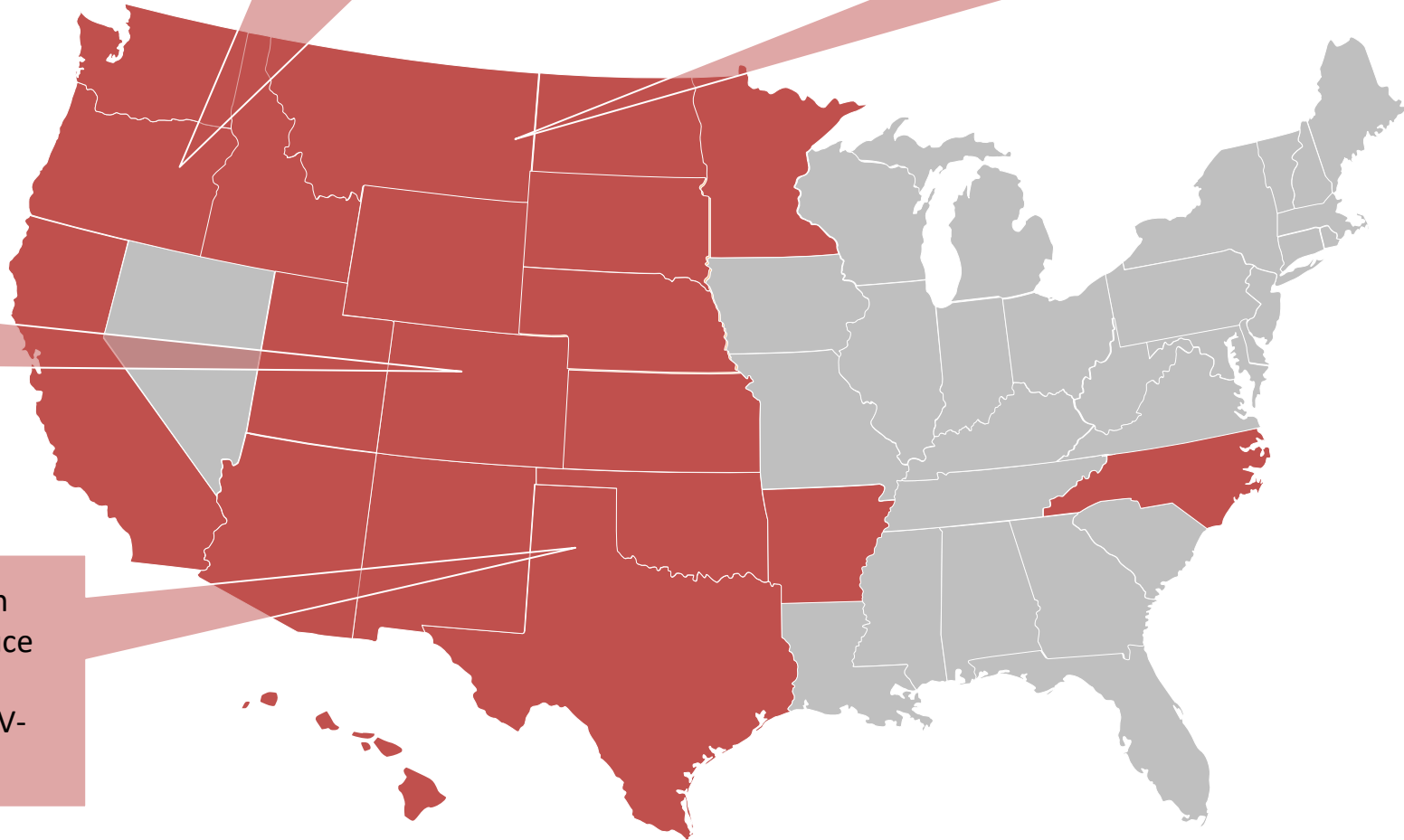
Federal Investment	Total Investment
\$662.5M	\$1.26B

Holy Cross Electric will lead a group of 39 co-op utilities in a consortium approach to developing wildfire hardening and prevention best practices

Xcel will implement a portfolio of seven projects across CO, NM, and TX to reduce wildfire risk and impacts, including hardening, fire spread modeling, and EV-evacuation readiness

PacifiCorp will use two GRIP projects to deploy wildfire detection and hardening measures throughout their territory (WA, OR, ID, WY, UT, CA)

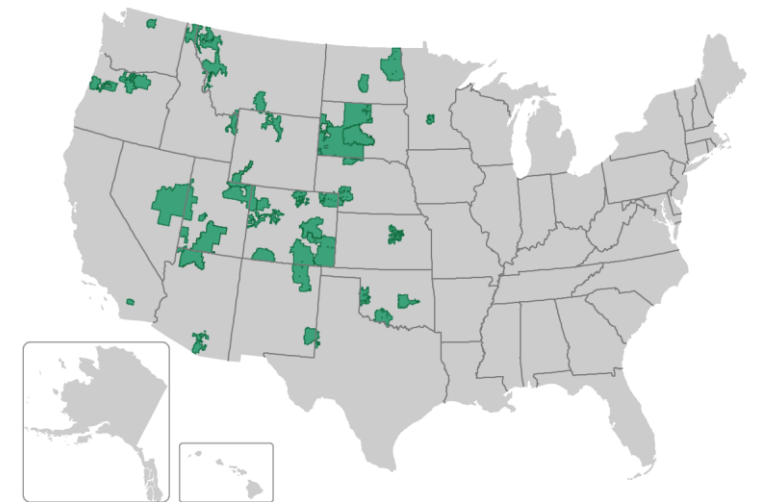
Missoula Electric Cooperative will deploy distribution system automation and weather detection and forecasting to minimize wildfire risk



Project Spotlight: Wildfire Assessment and Resilience for Networks (WARN)

- ▶ **Selectee:** Holy Cross Electric Association
- ▶ **Location:** Arizona, California, Colorado, Idaho, Kansas, Minnesota, Montana, North Dakota, Nebraska, New Mexico, Oklahoma, Oregon, South Dakota, Utah, Washington, Wyoming
- ▶ **Federal budget:** \$99M
- ▶ **Total investment:** \$145M
- ▶ **Project Description:** Innovative, collaborative effort across 39 small, rural electric co-ops in high-threat areas for wildfires and deployment of technology that can quantify the expected direct impacts of utility-ignited wildfires
- ▶ **Community Engagement:**
 - At least 77% of WARN cooperatives to sign a statement committing to negotiate a community benefits agreement, good neighbor agreement, or similar agreement
 - Creation of a community partnerships team, where relevant community groups will engage with the cooperative
 - Create of 100 new full-time jobs
 - Organized labor support with majority of project labor to be provided by unions
 - Deployed technology and its resulting impacts will be focused primarily within the 171 DACs identified within the project area

WARN Project Locations



Microgrid Investments

- ▶ **GRIP will support the deployment of 400+ microgrids across the U.S.**
- ▶ Proposals generally focused on microgrids to reduce risk on rural radial lines or to support DACs by both improving reliability and mitigating the impacts of extreme weather events
- ▶ Projects demonstrated a strong demand for microgrids with batteries and installation of new protective devices
 - Battery involved projects tend to support grid capacity and renewable integration
 - Protective devices were mostly commonly reclosers, trip-savers, or substation breaker replacements
- ▶ Majority of microgrid-involved projects proposed utility-operated microgrids, but both utility-operated and behind-the-meter microgrid projects will receive funding

Microgrid project benefits:

System Hardening



Sectionalization, Adaptivity, and Control



Visibility and Control



Resilience and Adaptivity



Grid Capacity and Renewables Integration



Microgrid Investments

Federal Investment	Total Investment
\$659.1M	\$1.4B

DTE will deploy adaptive microgrids in DACs to support resilience and flexibility

The Kit Carson Electric Co-op will install battery-enabled microgrids in rural and tribal areas

The Electric Power Board of Chattanooga will build six microgrids in high-need neighborhoods

PECO will work with public entities to support critical facility resilience, including a microgrid, in Philadelphia



Project Spotlight:

Louisiana Hubs for Energy Resilient Operations (HERO) Project

- ▶ **Selectee:** Louisiana Department of Natural Resources
- ▶ **Location:** Louisiana
- ▶ **Federal investments:** \$249M
- ▶ **Total investment:** \$498.6M
- ▶ **Project Description:** 385 resilient, community-based microsystems with far-reaching reliability, resilience, and clean energy benefits to critical infrastructure along hurricane evacuation routes. Benefits include enhanced energy security, reduction in CO2 emissions, permanent workforce opportunities, lessened energy burden, greater access to clean energy, and replicable model for other geographies.
- ▶ **Community Benefits:**
 - Investments focused on benefiting a subset of disadvantaged communities (DACs) in the state that are most vulnerable to and least able to respond to and recover from extended outages, based on income levels, flooding risk, and building loss risk.
 - Reduce the impact of long-duration outages in DACs by strategically investing in grid-interactive resilience projects.
 - 875 new graduates of workforce training, pre-apprentice, and apprenticeship programs by 2030
 - Project labor agreements with local labor unions and provide [Community Benefits Agreements](#) in requests for proposals (RFPs) to guide local hiring and engagement.

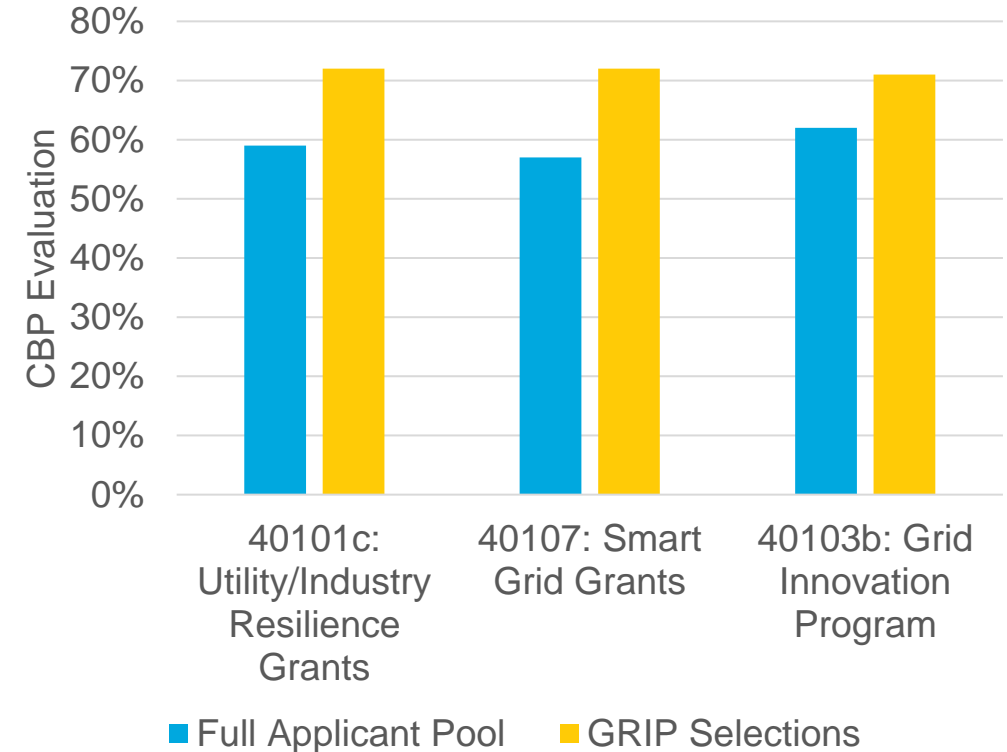


Community Benefits

- ▶ Across each of GRIP's funding programs, successful projects included CBPs that shared and maximized the project's benefits across disadvantaged communities
- ▶ Other common elements across successful CBPs:
- ▶ Substantive discussion of all four CBP elements (Community & Labor Engagement, Quality Jobs, DEIA, & Justice40)
 - Commitment to the inclusion of at least one SMART* milestone per budget period
 - Inclusion of opportunities to elicit and respond to community feedback at multiple stages of project deployment
 - Demonstrated intent to negotiate additional commitments if needed

*Specific, Measurable, Assignable, Realistic and Time-Related

Selected projects were responsive to all four CBP elements:



GRIP-funded CBPs will directly support DACs across the country

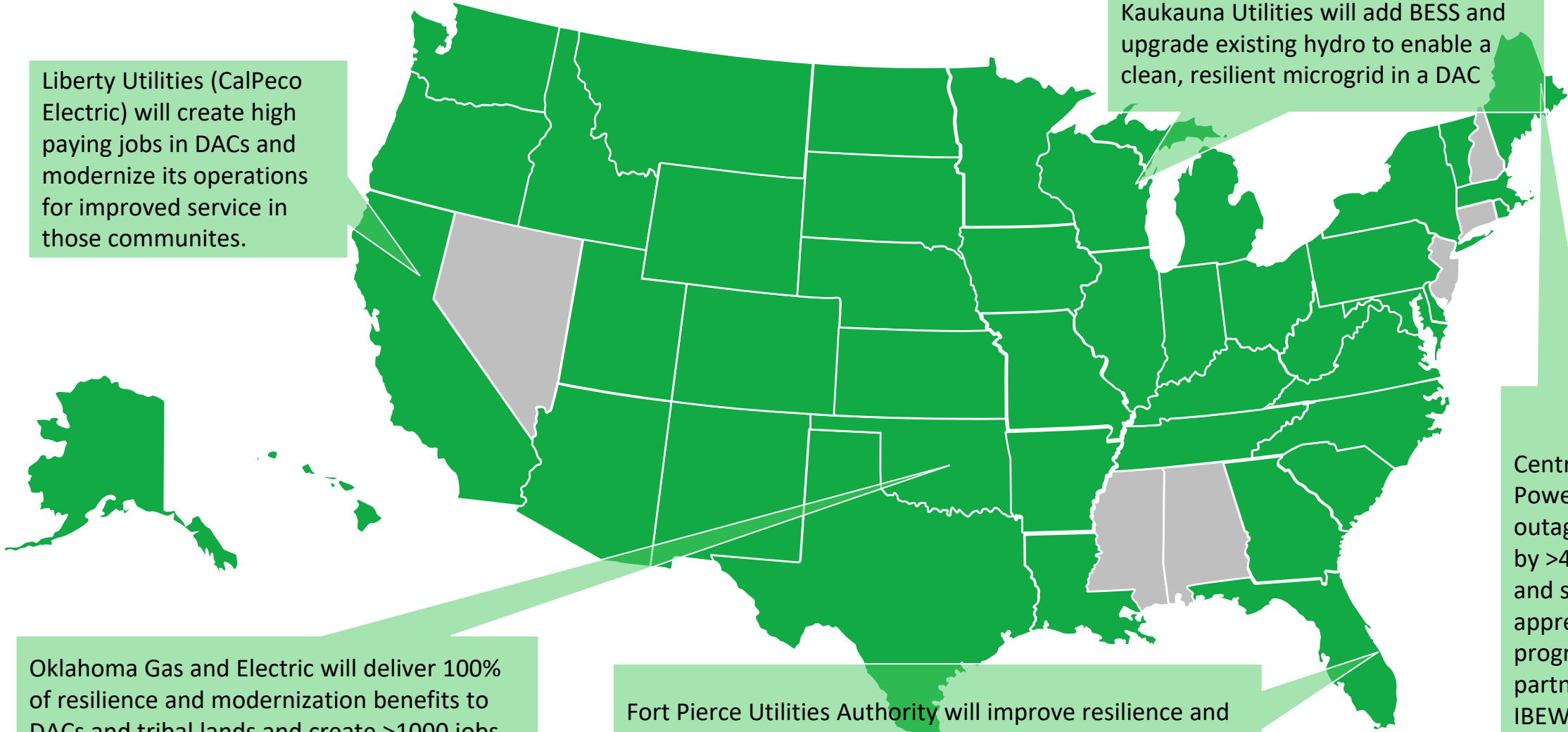
Liberty Utilities (CalPeco Electric) will create high paying jobs in DACs and modernize its operations for improved service in those communities.

Kaukauna Utilities will add BESS and upgrade existing hydro to enable a clean, resilient microgrid in a DAC

Central Maine Power will reduce outage frequency by >40% for DACs and sponsor an apprenticeship program in partnership with IBEW 1837

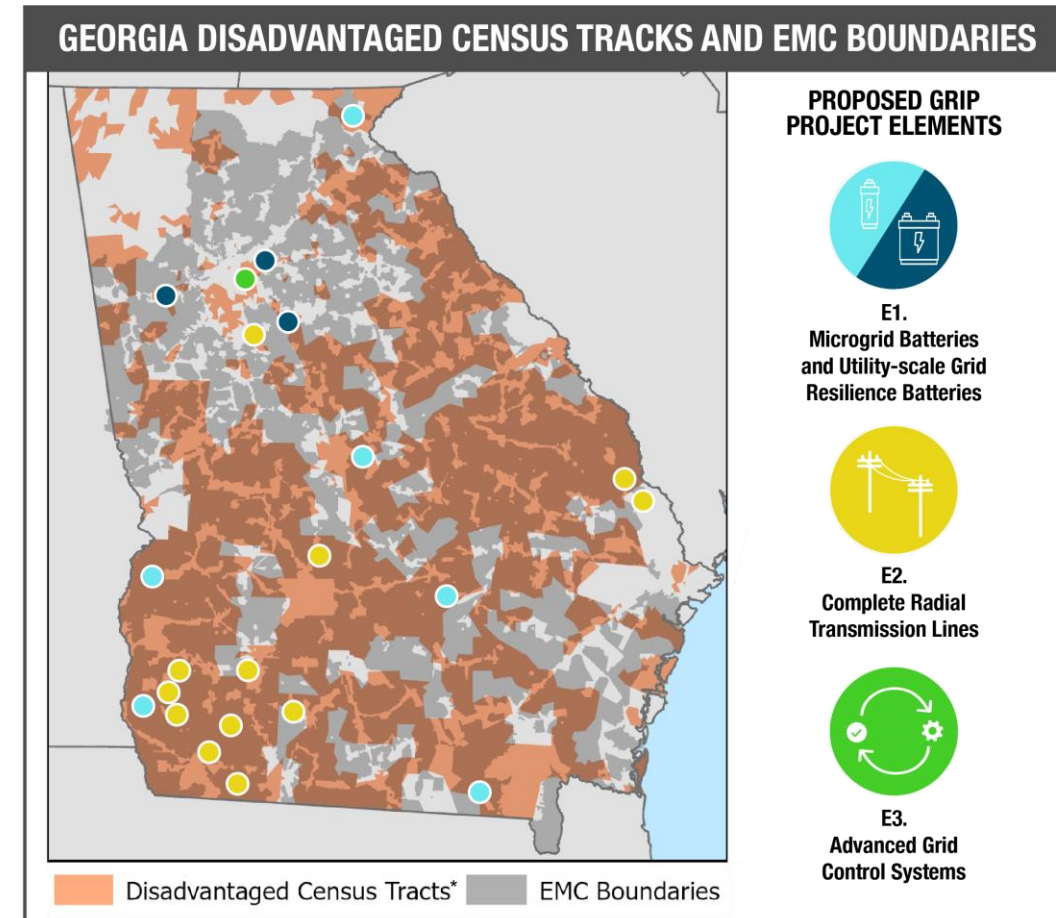
Oklahoma Gas and Electric will deliver 100% of resilience and modernization benefits to DACs and tribal lands and create >1000 jobs across the supply chain

Fort Pierce Utilities Authority will improve resilience and upgrade obsolete assets while decreasing energy burden and increasing energy democracy in DACs



Project Spotlight: Regional Grid Improvements to Address Reliability in Georgia with a Focus on Remote or Hard-to-Reach Communities

- ▶ **Selectee:** Georgia Environmental Finance Authority
- ▶ **Location:** Georgia
- ▶ **Federal investment:** \$249M
- ▶ **Total investment:** \$507M
- ▶ **Project Description:**
 - Project combines transmission-level topology modernization (radial lines) with distribution-focused resilience improvements (microgrid/BESS)
 - New transmission lines will serve 17 substations with enhanced reliability and resilience. The lines and substations were chosen to be prioritized to maximize benefits in rural and disadvantaged communities and increase opportunities for solar development
 - The Advanced Grid Control Systems will significantly improve the grid operators' modeling, system control and real time resource analysis
- ▶ **Community Benefits:**
 - Investments primarily benefit rural communities to ensure remote and hard-to-reach communities see a large impact from this project.
 - Local and diverse suppliers identified, >25% of project budget will flow to MWBEs/DBEs



* Georgia Disadvantaged Census Tracts determined by the Council on Environmental Quality (CEQ) Climate and Economic Justice Screening Tool, found at <https://screeningtool.geoplatform.gov/en/#3/33.47/-97.5>.



GRIP Next Steps

GRIP 2 Goals: Lowering barriers to entry for future* GRIP applicants

► Eligibility Outreach and Messaging

- Encouraging vendor-driven or consortia applications
- Supporting small utilities and technology vendors to apply for larger projects across multiple service territories

► Streamlined Concept Paper Process

- Form-based and shorter page limits to give applicants an easier process with less time commitment
- Better feedback to applicants by providing guidance for 'best fit' GRIP programs in addition to specific feedback

► Increased Full Application Guidance

- Additional GDO/GRIP-led instructional webinars will occur throughout the application timeline
- Technical criteria are simplified and re-organized to clarify the review process for applicants
- Additional guidance identifying priority areas of investment for the GRIP 2 funding cycle
- Interviews will be offered to the largest (\$) projects to allow for additional interfacing between DOE and applying project teams

27 ***Next GRIP FOA to be announced before Jan. 1, 2024**





Contact Us



<https://www.energy.gov/gdo>



GRIP@hq.doe.gov

Thank you!

