# Resilience and Mitigation Working Group Meeting

New Mexico Energy, Minerals, and Natural Resources Department (EMNRD)

Energy Conservation and Management Division (ECMD)



### Purpose of Resilience and Mitigation Working Group Meetings

- Elicit existing, anticipated, and required mitigation initiatives, discuss resources available to support mitigation efforts and areas where resources are needed, and identify areas of potential **public-private partnership**.
- Dialogue will support creation of a Risk Mitigation Approach that describes how public and private partners across the state and region will enhance energy sector reliability and end-use resilience, including maintaining electric, liquid fuels, and natural gas system reliability, and securing energy infrastructure.
- Inform the update to New Mexico's State Energy Security Plan.





### Stakeholder Feedback

- 1) How does your organization engage with local emergency management to prepare for, and respond to, energy emergencies?
- 2) How is the process working well and how could it be improved?
- 3) What should New Mexico's Risk Mitigation Approach include and/or focus on?
  - **Energy Infrastructure**
  - **Major Hazards**
  - **End-User Experience**





### Introductions

Stakeholder Perspectives

Hazard Mitigation Assistance Programs

Next Steps

### Introduction: Energy, Minerals, and Natural Resources Department **Energy Conservation and Management Division**



Jacqueline Waite Bureau Chief, Energy Conservation and Management Division

### Introduction: Hagerty Consulting, Inc.



Katie Toskey Project Manager



Vanessa Castillo Deputy Director of Mitigation

### Hagerty Consulting, Inc.

Emergency management and homeland security consulting firm with nearly 20 years experience supporting all levels of government and the private sector. Assists clients, like the State of New Mexico, prepare for, respond to, and recover from disasters and other emergencies.

### **Introductions**

#### Please unmute and come on camera for the discussion.

- Name
- Organization
- Interest in energy preparedness and response



#### Registered Participants:

NM EMNRD ECMD (State Energy Office)

**NMRETA** 

Central New Mexico Electric

Cooperative

Jemez Mountains Electric

Cooperative

Lea County Electric

Roosevelt County Electric

Cooperative

Southside Electric Cooperative

Xcel Energy

Tri-State Generation

NM Gas Company

Targa Resources

Magellan Midstream Partners

Marathon Petroleum

Enstor

### Introductions

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Energy, Minerals and Natural Resources Department

#### **Natural Hazards**

The U.S. Department of Energy identifies the following natural hazards as causing the greatest overall property damage in New Mexico between 2009 - 2019:

- Winter Storms and Extreme Cold (21 events costing \$39) million)
- Wildfire (five events costing \$7 million)
- Flood (33 events costing \$6 million)
- Thunderstorm and Lightning (113 events costing \$6 million)
- Tornado (9 events costing \$1 million)

### Stakeholder Feedback

- Threats and vulnerabilities:
  - Validation of natural hazards, physical security, asset health, and supply chain as priority areas of concern.
    - Winter storms, extreme heat, drought, energy-water interdependency.
    - Maintenance of energy assets in rural and remote areas of the state.
    - Physical security of energy assets in rural and remote areas of the state.
  - Recommendation that the state's renewable energy transition be included to reflect concerns meeting energy demand during the transition of resources.
  - Emphasis on need to **integrate healthcare** into energy security planning.
- Mitigation measures:
  - Validation of all-hazards and risk-specific mitigation measures.
  - identification of the **need for greater resources** to support mitigation.
- Overall emphasis on the importance of public-private integration to prepare for, and respond to, energy events.



### Stakeholder Feedback

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# Hazard Mitigation Assistance Overview

General Eligibility / Project Attributes

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### FEMA Hazard Mitigation Assistance (HMA) Grants

#### HAZARD MITIGATION GRANT PROGRAM (HMGP)

Purpose: FEMA funded, State administered program and directly tied to a disaster declaration; break cycle of repetitive losses

Cycle: Post-Disaster

Local Match: 25%

Available DR Funding: Calculated by a percentage of incident

expenditures over 12-month timeframe

#### **BUILDING RESILIENT INFRASTRUCTURE AND COMMUNITIES** (BRIC)

Purpose: FEMA funded, State administered program and not directly tied to a disaster declaration; high-impact, neighborhood scale projects

Cycle: Annual

**Local Match:** At least 25% or 10% for economically disadvantaged rural communities (EDRC)

FY 2022 Funding\*: ~\$2.3B - nationally competitive program

#### FLOOD MITIGATION ASSISTANCE (FMA)

**Purpose:** FEMA funded, State administered program and **not** directly

tied to a disaster declaration; reduce NFIP claims

Cycle: Annual

**Local Match:** 0%, 10%, or 25%

FY 2022 Funding\*: \$800M - nationally competitive program

#### PRE-DISASTER MITIGATION (PDM) CONGRESSIONAL **COMMUNITY PROJECTS**

Purpose: FEMA funded, State administered program and not directly tied to a disaster declaration; break cycle of repetitive losses

**Cycle:** Annual (If Appropriated by Congress)

**Local Match:** At least 25% or 10% for small, impoverished

communities

**FY 2022 Funding\*:** ~\$154M – congressionally directed projects



# Hazard Mitigation Assistance Overview

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### **General HMA Program Eligibility**

Eligible – Feasible – Cost-Effective – EHP Compliant

- Eligible subapplicant
  - FEMA approved & locally adopted mitigation plan
    - 3 No construction or groundbreaking before grant award
      - Approved Notice of Interest (NOI)
        - Scope of Work with a clear level of protection increase
          - Mitigating natural hazards not man-made (primarily)
            - Benefit Costs Analysis (BCA) (Benefit Cost Ratio over 1.0)
              - Non-Federal Cost Share (Local Match) (25%, 10%, 0%, depending on program)
                - Period of Performance (POP) of 36 months (BRIC/FMA allows 48 months, strong justification required)
                  - 10 Not dependent on other projects or funding sources (standalone mitigation solution)
                    - Must comply with 2 CRF 200 and National Environmental Policy Act (NEPA)
                      - 12 Reimbursement based grant with eligible grant management costs and pre-award costs

#### Eligible:

Local governments, State agencies, cities, counties, special districts, tribal governments and private nonprofits (HMGP only)

#### Not Eligible:

Businesses, individuals



### **Local Hazard Mitigation Plan**

Entities seeking HMA funding **must** have a FEMA approved or be adopting participants of a Local Hazard Mitigation Plan (LHMP) or Multi-Jurisdictional Hazard Mitigation Plan (MJHMP)

- If not, you must partner with an eligible local entity that has a current FEMA approved and adopted Local Hazard Mitigation Plan/Multi-Jurisdiction Hazard Mitigation Plan
- The Hazard Mitigation Plan must be FEMA-approved at the time of obligation of funds

#### BRIC/FMA/PDM:

The Hazard Mitigation Plan must be FEMAapproved and locally adopted at the application deadline and time grant award



## Similar but Different Requirements

| Hazard Mitigation Plan                                                          | Energy Security Plan                                                                                |
|---------------------------------------------------------------------------------|-----------------------------------------------------------------------------------------------------|
| Required for FEMA HMA funding                                                   | Required for DOE – IIJA funding                                                                     |
| Stakeholder Engagement - cross-sector hazard mitigation partnership involvement | Stakeholder Identification – evaluation and documentation of all energy stakeholders across sectors |
| Risk Assessment – hazard profile for jurisdictional boundaries                  | Risk Assessment – energy infrastructure and cross-sector interdependencies                          |
| Mitigation Strategy – actions to mitigate each profiled hazard                  | Risk Mitigation – actions to enhance reliability and end-<br>use resilience                         |



### HMA Program Regulations – Duplication of Programs (DOP)

FEMA will not approve HMA funding if the authority lies with another Federal agency or program.



#### Agencies include:

- U.S. Fish and Wildlife Service (USFWS)
- Bureau of Reclamation
- Bureau of Land Management (BLM)
- Bureau of Indian Affairs
- US Department of Agriculture (USDA)
- U.S. Forest Service (USFS)
- Environmental Protection Agency (EPA)
- Department of Energy (DOE)



### **HMA Subapplication Types**

| Planning                             | Activities include developing a new hazard mitigation plan or updating a current mitigation plan.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            |
|--------------------------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Planning Related                     | Activities include updating or enhancing sections of the current FEMA-approved mitigation plan (risk and vulnerability assessments), integrating information from mitigation plans with other planning efforts (disaster recovery, comprehensive plans, long-term community planning initiatives), building capacity through delivery of technical assistance and training, and evaluating adoption and/or implementation of ordinances that reduce risk or increase resilience.                                                                                                                                                                             |
| Project<br>(Shovel-Ready / Phased)   | Activities involve construction and/or physical work. Examples include but are not limited to property acquisition demolition or relocation, flood risk reduction, infrastructure retrofit, structural elevation, structural seismic retrofit, hazardous fuels reduction, defensible space, and generator(s) (If benefit cost analysis (BCA) feasible). Typically, a shovel ready project includes construction activities only and already has completed a 60% design development, has all the sites identified, and has completed State environmental impact assessments. Phased projects include design activities (Phase I) and construction (Phase II). |
| Advance Assistance / Project Scoping | Activities include the planning and technical studies needed for the development of future shovel ready mitigation projects and future completed HMA subapplications. Advance Assistance can be utilized when the preferred alternative is not known. The activities typically seen in AA include seismic assessments, H&H / modelling, alternative analysis, feasibility studies, 60% design, EHP studies, BCA development, site selection, homeowner engagement, and a future project subapplication.                                                                                                                                                      |
| 5% Initiative                        | Activities are defined as mitigation actions that meet all HMGP requirements but may be difficult to evaluate against traditional program cost-effectiveness criteria. Examples include early warning systems, post-disaster building code enforcement, public awareness and education for mitigation campaigns, hazard identification or mapping, new techniques/methods of mitigation and generator(s) (if protecting a critical facility and if there is insufficient data to evaluate a generator project using a standard HMA-approved Benefit-Cost Analysis (BCA) method).                                                                             |



### Competitive BRIC Attributes

- Building codes (IBC/IRC 2015 or higher)
- Protects **critical infrastructure**
- Addresses ancillary benefits
  - Improvement to air/water quality, public health, and the economic opportunity
- Benefits socially vulnerable and disadvantaged communities
- Incorporates future conditions and climate impacts
  - Climate impacts include sea level rise, drought, more precipitation, more frequent storms
- Large-scale community impact and benefit
- Includes **nature-based solutions**
- Public private partnerships
- Overmatch (30% non-federal cost share)
- **BCEGS** rating of 5/5 or lower (1/1)

#### **Important Note:**

Cyber activities are eligible under BRIC, but must accompany a natural hazard risk reduction mitigation project



- ~\$2.3 billion available funding in 2022, \$1.3b increase from 2021
- 2021, the average project dollar amount is \$15M (smallest is \$189K and the largest is the program max at \$50M)
- 2021, **49%** of selected projects meet one or more of the Justice 40 interim criteria
- Success rate of **14%** in 2021 compared to 4% in 2020
- BRIC 2020 included one competitive wildfire project funded and there were **no** heat or drought projects selected
- BRIC 2021, **one** wildfire, **three** heat, and four drought competitive projects were selected



### Competitive FMA Attributes

- Entity must participate in the National Flood Insurance Program (NFIP) and not be withdrawn, on probation, or suspended
- Project activities must benefit NFIP insured structures
- Program prioritizes benefits to **Severe Repetitive Loss** (SRL) and **Repetitive Loss** (RL) properties
- Benefits socially vulnerable and disadvantaged communities
- Incorporates future conditions and climate impacts
- Includes nature-based solutions
- Private partnership cost share
- Entity participates in the Community Rating System (CRS) program
- Entity is a Cooperating Technical Partner (CTP)
- No property violations in the **National Violation Tracker**



#### **Key Program Notes:**

- ~\$800 million available funding, \$640m increase from 2021
- Program is focused on SRL and RL protection
- Non-federal cost share adjustments based on RL / SRL property mitigation or benefits area with an SVI greater than 0.5001 – 25%, 10%, 0%
- Project benefitting area must include NFIP insured properties

### **PDM Profile**

### **Congressionally Directed Spending**

- Protects critical infrastructure
- Mitigates risk to community lifelines
- Benefits socially vulnerable and disadvantaged communities
- Incorporates future conditions and climate impacts
- Includes **nature-based solutions** 
  - 10 of the 100 projects selected include greenways, open space, beach revitalization, climate resilience, and shoreline preservation
- Public private partnerships

#### **Important Note:**

Congressional delegation buy-in. Letter submitted to legislative affairs office.



#### **Key Program Notes**

- ~\$233 million directed to 100 mitigation projects
- Projects selected by Congress
- Subapplication types include **Project Scoping and Projects** (construction)

### **Disadvantaged Communities**

Justice 40 Initiative - EO 14008

#### Communities:

Either a group of individuals living in geographic proximity to one another, or a geographically dispersed set of individuals, where either type of group experiences common conditions.



#### **Disadvantaged Communities:**

Agencies should consider appropriate data, indices, and screening tools to determine whether a specific community is disadvantaged based on a combination of variables.







#### Resilience and Mitigation Working Group Meeting | 24

#### **Justice 40 Variables**

- Low income, high and/or persistent poverty
- High unemployment and underemployment
- Racial and ethnic residential segregation, particularly where the segregation stems from discrimination by government entities
- Linguistic isolation
- High housing cost burden and substandard housing
- Distressed neighborhoods
- High transportation cost burden / low transportation access
- Limited water and sanitation access
- Disproportionate impacts from climate change
- High energy cost burden and low energy access
- Job lost through the energy transition
- Access to healthcare

### **Public-Private Partnerships**

- Need to partner with an eligible HMA program subapplicant, "project sponsor"
  - Identify an eligible project that benefits the eligible entity
  - Identify additional potential partners to develop wholistic mitigation solution
    - Academia, local businesses, community-based organizations, private non-profits
  - Project provides significant ancillary benefits
    - Disadvantaged community protection
    - Whole community solution
    - Nature-based solution
  - Cover the non-federal cost share (match) requirement (25%)



Hazard Mitigation Assistance Overview

General Eligibility / Project Attributes

Project Types / Case Studies

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### **Mitigating Natural Hazards**







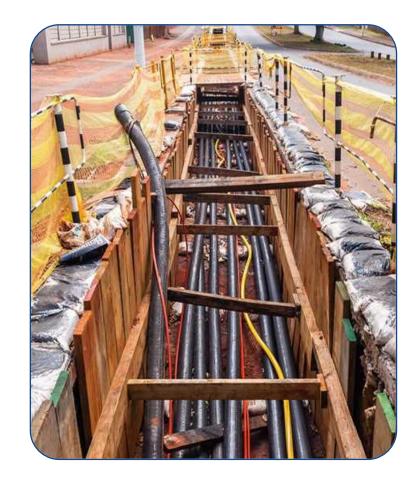




### **Utility & Infrastructure Protection Mitigation Activities**

### Infrastructure, utility, and water/sanitary sewer system protective measures

- Undergrounding utility lines
- Hardening utility lines (reduce sparking)
- Flood risk reduction
  - Elevation
  - Floodproofing and flood diversion
  - Stormwater management/drainage
  - Infrastructure relocation





### Case Studies: High Wind, Winter Storm, Wildfire

#### Nebraska and Kansas Electrical System Ice and Wind Storm Mitigation Projects

The Southwest Public Power District (SWPPD) and the City of Kiowa, KS completed two mitigation projects in the States of Nebraska and Kansas to address the impacts of winter storms/ice on electrical infrastructure. The improvements made in Nebraska included strengthening/replacing single poles and installing stronger conductors on an 11-mile stretch of 69-kilovolt lines along U.S. Highway 61. In Kansas, the City of Kiowa upgraded 15 blocks of power distribution infrastructure that supply power to approximately 1,200 customers. They replaced open conductors with insulated cables and installed lightning arrestors at connection points. In 2008, FEMA completed a study to assess the effectiveness of these projects and found that the infrastructure upgrades helped the states avoid significant losses from physical damage and loss of system function.

#### **Addressed Hazards**





#### **Regional Partnership Protects Power Transmission**

This multi-jurisdictional approach to mitigation allowed Nebraska and Kansas to cooperatively protect critical energy transmission facilities to ensure uninterrupted power flow during heavy winter storms.



Ice covers electrical sources







#### **PRIMARY LIFELINE**



(Power & Fuel)

Mitigation Action Portfolio: Winter Storms | 119





- \$1.5 million Total Project Cost
- 3 partnerships State, local and private
- Benefitting 1,200 customers
- Reduces overall damage to electricity infrastructure, increases reliability, increases **life-safety** benefits during winter events

### Case Study: Winter Storm

**Municipality:** Elkhorn Rural Public Power District (Special District)

**Amount of Award:** \$2.3 million

Program: HMGP

**Scope of Work:** The project created a redundant path for electricity to over 10,000 residential electrical consumers. The project included tying two electrical substation sources together via 9 miles of Sub-Transmission line. The new line used storm-resistant construction materials consisting of Twisted Pair conductor (T2 4/0 ACSR) and iron poles. Much of the line will have another set of electrical wires to serve individual electrical consumers. This distribution line will also consist of storm-resistant type wire; twisted pare conductor (T2 1/0 ACSR). The twisted pair conductor is less susceptible to damage caused by ice and wind due to its construction.

- \$2.3 million Total Project Cost
- 3 partnerships State, local and private
- Benefitting over **10,000** customers
- Providing reliable power to a rural community





### Case Study: Straight-Line Winds

**Municipality:** Imperial Irrigation District

**Amount of Award:** \$32 million

Program: BRIC

**Project Description:** The project will consist of storm hardening 28-miles of the 92 kV powerline. This segment of the line does not have any redundancies and is located in a high wind region. It will run from 15 miles north of the Niland Substation (Imperial County) to the Mecca Substation (Riverside County), including Bombay and North Shore Substations in between.



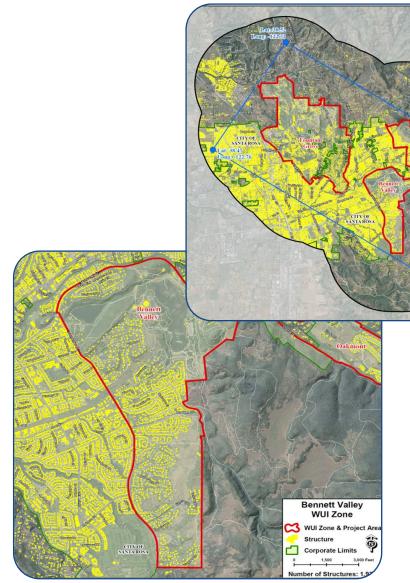
- \$32 million Total Project Cost
- 4 partnerships Federal, State, local and private
- Benefitting over **61,000** customers
  - 32% population affected
- Providing **reliable** power to disadvantaged communities, 0.9978 CDC SVI



Full Project Description

### Wildfire Mitigation Activities

- Defensible Space
  - Create perimeters around homes, structures and critical facilities through removal of flammable vegetation
- Ignition Resistant Construction
  - Roof assemblies, wall components, protection of fuel tanks
- Hazardous Fuels Reduction
  - Removal of vegetative fuels proximate to at risk structures. Must be within 2 miles of homes and other structures







### Case Studies: Wildfire

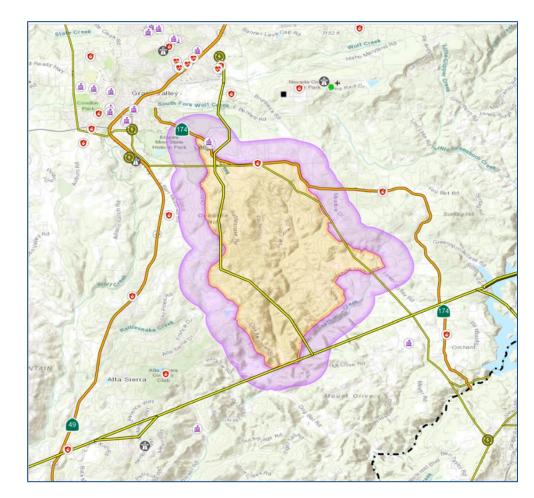
**Project Title:** Wildfire Retrofitting for Climate Resiliency

Municipality: Nevada County, California

**Amount of Award:** \$43.4 million

Program: BRIC

**Project Description:** This project will use nature-based solutions and a multi-faceted approach to directly address wildfire risk to lives, homes and community lifelines through 1) home-hardening and 2) near-home defensible space vegetation management, 3) landscape level fuel modification, and 4) community education. Coordinated deployment of proven strategies will mitigate severe and immediate risk while establishing a model that supports generational infrastructure change.



**Full Project Description** 



### **Energy Mitigation Activities**

- Generator
- Solar and Battery Storage
- Microgrid
  - Generator, battery, and/or renewable resources
  - Storage capacity
  - Connection/Switch (automatic or manual)





### Case Study: Microgrid

### Blue Lake Rancheria Tribe Microgrid

The Blue Lake Rancheria (BLR) is a Native American reservation located in an area subject to heavy rainstorms. forest fires, and frequent power outages. The reservation constructed a low-carbon community microgrid in 2017 to bolster its resilience to these outages. It helps power government offices, economic enterprises, and several Red Cross safety shelter-in-place facilities. The BLR microgrid integrates a solar array, battery storage, and control systems to allow the Rancheria campus to operate in tandem with, or islanded from, the main utility grid. This provides resiliency to the community because if the main grid experiences a power outage, the microgrid will automatically disconnect and go into island mode.

The system prioritizes clean generation, but if needed it will bring a 1-megawatt isochronous backup generator online to support the photovoltaic (PV) array and battery. The solar array also generates renewable energy regardless of whether or not it is in island mode, providing both carbon emission and electricity cost savings. The microgrid is projected to save \$150,000 a year and reduce 150 tons of carbon dioxide emissions annually.

FEMA I Building Resilient Infrastructure and Communities

#### Addressed Hazards







#### **Innovative Energy Solution Tested and Proven in 2019**

When a nearby wildfire caused a power outage in October facilities from experiencing a blackout. During the outage, the microgrid served 10,000 people, about 10 percent of the county's population, and is credited with saving four lives.

#### **Leveraging Partnerships for Tribal Lifeline Resilience**

By leveraging public and private partnerships, this project utilizes the latest in microgrid technology to mitigate cascading impacts to an entire tribal community.



Workers installing the racking for the Blue Lake Rancheria's 500-kilowatt low-carbon community microgrid project.

Source: U.S. Department of Energy Flickr https://www.flickr.com/photos/37916456@N02/27365396111







Safety & Security



Food, Water, Sheltering

PRIMARY LIFELINE



**Energy (Power & Fuel)** 

Mitigation Action Portfolio: All Hazards | 14



2019, the microgrid successfully islanded and kept the



solar system in June 2016. The solar system is a cornerstone of the tribe's

Case Study Guide



- \$6.3 million Total Project Cost
- **12 partnerships** State, local, private, and academia
- Benefitting 10% of the county population
- Provides system resiliency, reduces frequency in outages, and targets low-income communities

Hazard Mitigation Assistance Overview

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### **Hazard Mitigation Resources**

State Mitigation Webpage: https://www.nmdhsem.org/administrative-services-bureau/administrative-services-bureau-grants/

FEMA 2023 HMA Guidance: https://www.fema.gov/arants/mitigation/hazard-mitigation-assistance-guidance

FEMA HMA Webpage: https://www.fema.gov/grants/mitigation

FEMA Mitigation Action Portfolio: https://www.fema.gov/sites/default/files/2020-08/fema\_mitigation-action-portfolio-support-document\_08-01-2020\_0.pdf

Nature-Based Solutions: https://www.fema.gov/sites/default/files/documents/fema\_nature-based-solutions-guide-2-strategies-success\_2023.pdf

Public Private Partnerships: https://www.fema.gov/sites/default/files/documents/fema\_building-private-public-partnerships.pdf

Economic Benefit Values for Green Infrastructure: https://www.fema.gov/sites/default/files/documents/fema\_economic-benefit-values-greeninfrastructure.pdf

Innovative Drought and Flood Mitigation Projects: https://www.fema.gov/sites/default/files/documents/fema\_innovative-drought-flood-mitigationprojects.pdf

New Mexico Forestry GIS and Maps: https://www.emnrd.nm.gov/sfd/gis-and-maps/#gsc.tab=0

#### **Happening Now:**

Energy Storage and Microgrids for Energy Resilience and Reliability Webinar Series - Register Here

April 12 – Introduction to Microgrids

April 19 – Energy Storage & Microgrid Success Stories

April 26 – Microgrids in Puerto Rico and California

May 3 – Panel: Obtaining BRIC, HMGP & DOE Funding



# Questions

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Hazard Mitigation Assistance Programs

**Next Steps** 

### **Key Stakeholder Dates**

May 1-2, 2023: Regional Energy Security Exercise

SESP Stakeholder Presentations (government and other stakeholders June 26, 27, 2023: identified by EMNRD ECMD)



### Project Team



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