

New Mexico Grid Modernization Program

Briefing to the Legislative Science, Technology and
Telecommunications Committee
November 16, 2021



Energy, Minerals and Natural Resources Department

Legislative Charge

In 2020, the New Mexico Legislature passed the Energy Grid Modernization Roadmap Act (HB 233), a law that instructed the New Mexico Energy, Minerals and Natural Resources Department (EMNRD) to:

- 1) Develop a Roadmap “that shall detail priorities and strategies to modernize New Mexico’s Grid.”
- 2) Establish a grant program to support implementation of a modern grid.
 - To that end, the Legislature established the Grid Modernization Fund. To date, ECMD has not received monies specifically designated for this fund.

Grid Modernization Bill – HB 233 (2020)

- Bridges the gap between the Energy Transition Act goals and today's grid capability
 - ETA lays out a goal for carbon-free electricity in 2045 - does not provide a roadmap
- HB 233 presents a coordinated grid modernization vision that supports achieving the ETA goals
 - HB233 passage: Unanimous in Senate, 1 Nay in House!
- Key aspects of HB 233
 - Recognizes that grid mod is IOU and Co-op specific: A single definition of grid mod does not fit all;
 - Recognizes that the current grid does not allow efficient integration of high penetration of renewables, microgrids, smart meters, customer-owned solar or even community solar;
 - Recommends technologies and strategies such as: smart meters, real-time information at substations, industrial consumers, automated substation controls, automated control of distribution circuits, enhanced cyber security, energy storage and microgrids, infrastructure for EV charging
 - Preserves PRC oversight authority and requires PRC approval for implementing grid mod strategies with rate relief
 - Sets up a grant program to allow grid mod projects
- Directs EMNRD to convene a stakeholder group to include all pertinent state agencies, federal agencies, investor-owned utilities, cooperatives, representatives of regional, local and tribal governments and others to develop and implement a statewide grid modernization plan

Progress to-date

- EMNRD developed a [Baseline Report of New Mexico's Electricity Sector](#) in summer 2020/updated in April 2021 from which to measure progress.
- EMNRD convened the Grid Modernization Advisory Group (GMAG) in the fall of 2020 for eight virtual workshops.
 - Stakeholders from electricity sector, renewable industry, academia, national labs, consumer and environmental groups
- GMAG participants drafted [11 whitepapers](#) detailing action items for modernizing the grid.
 - Have been publicly available since February 2021
 - Peer-Reviewed by technical and policy experts
- EMNRD established Grid Modernization Grant Program in spring-summer 2021, leveraging federal and state funds.

Grid Modernization Grant Program

- Supports pilot projects that advance research and understanding of electric grid function and operation
- Projects target electric distribution or transmission infrastructure to expand renewables and increase grid reliability, while accounting for and integrating the growing number of customer-sited energy resources on grid
- \$301,600 for grid modernization pilot projects available in FY22

Eligibility

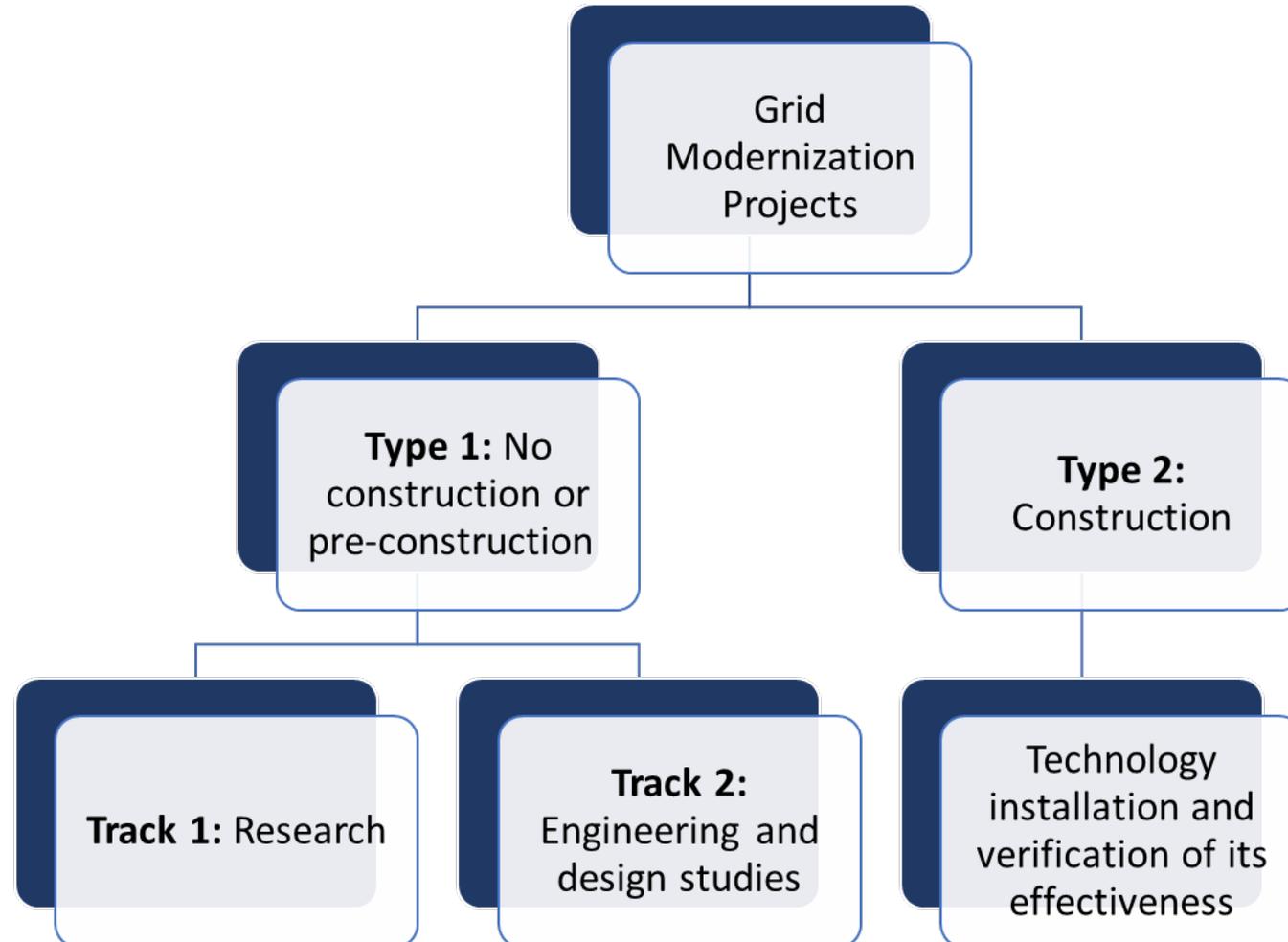
Entities eligible for funding include:

- Municipal and County governments
- State agencies
- State universities
- Public schools
- Post-secondary education institutions
- Indian Nations, Tribes and Pueblos

****All projects must take place within the State of New Mexico.**

Requested Application Types

- **Type 1** projects are designed to help get projects off the ground.
- **Type 2** projects are designed to build/install and prove the value of an existing technology.
- An applicant can apply for both types.



No.	Project Evaluation Criteria
1	<p>Project Approach</p> <p>This criterion considers whether the project focuses on a new technology or a new or innovative application of an existing technology that will provide useful information to the state, utilities, electric cooperatives and the public related to grid modernization. <i>This includes the ability to secure a statement of cooperation with the utility managing the service area in which the project will take place.</i></p>
2	<p>Alignment with Grid Modernization and Energy Goals</p> <p>This criterion considers whether the project has the potential to improve electrical system efficiency, reliability, resilience and security; lowers operations and maintenance costs; and meets energy demands through a flexible, diversified and distributed energy portfolio consistent with New Mexico's energy goals (<i>i.e., including the project's potential success, lessons to be learned, scalability, or broader applicability.</i>)</p>
3	<p>Education and Public Awareness</p> <p>This criterion considers whether the project has the potential to foster the public's, students' or a specific government or industry sector's overall understanding and appreciation of the benefits of modernizing the electric grid.</p>
4	<p>Economic Development</p> <p>This criterion considers whether the project is likely to stimulate in-state economic development, including the creation of jobs and apprenticeships. This criterion will also consider the potential for further development of a commercial market for grid modernization technology services.</p>
5	<p>Capabilities</p> <p>This criterion considers several elements, all of which must be met:</p> <ul style="list-style-type: none"> • experience completing projects of similar size and scope, including staff, contractor or partner expertise to perform the proposed work; • level of understanding and experience with the specific technology or research in question; • alignment of work outlined with proposed budget (<i>i.e., the ability to complete the project financially</i>); • alignment of proposed deliverables with the proposed project schedule; • the proposed methods for evaluating project progress and success; and • for Type 2 projects, this criterion also considers preparedness and readiness for construction projects as demonstrated by engineering studies and other relevant documentation.

Application Process

- Application review started on July 1, 2021
- [Request for Applications](#)
- **Application review is on-going!**
 - 3 proposals submitted to-date, one was responsive, others given feedback
 - Additional inquiries/expected projects
 - ALL approved projects will be placed in a queue and funded when resources are available
 - Future state allocations, SEP funding and other federal funding as available

1st Project – City of Albuquerque BRAIN

- To meet our 100% renewable energy usage goals and effectively interact with the modern grid, the City of Albuquerque's Energy and Sustainability Management Division (ESMD) Energy Command Center (ECC) will establish a data repository and computer-based analytics platform that enables real time interaction with our current and historical utility and building performance related data streams. This data resource will be named the Balanced Resource Acquisition and Information Network (BRAIN)
- BRAIN will enable real time visibility, flexibility and responsiveness with the City of Albuquerque's existing and future energy storage, generation and building controls resources to benefit the public, the City's critical systems and infrastructure, the State of New Mexico, PNM and in collaboration with Smart Cities Connect.

Project Budget

Total Cost = \$580,000

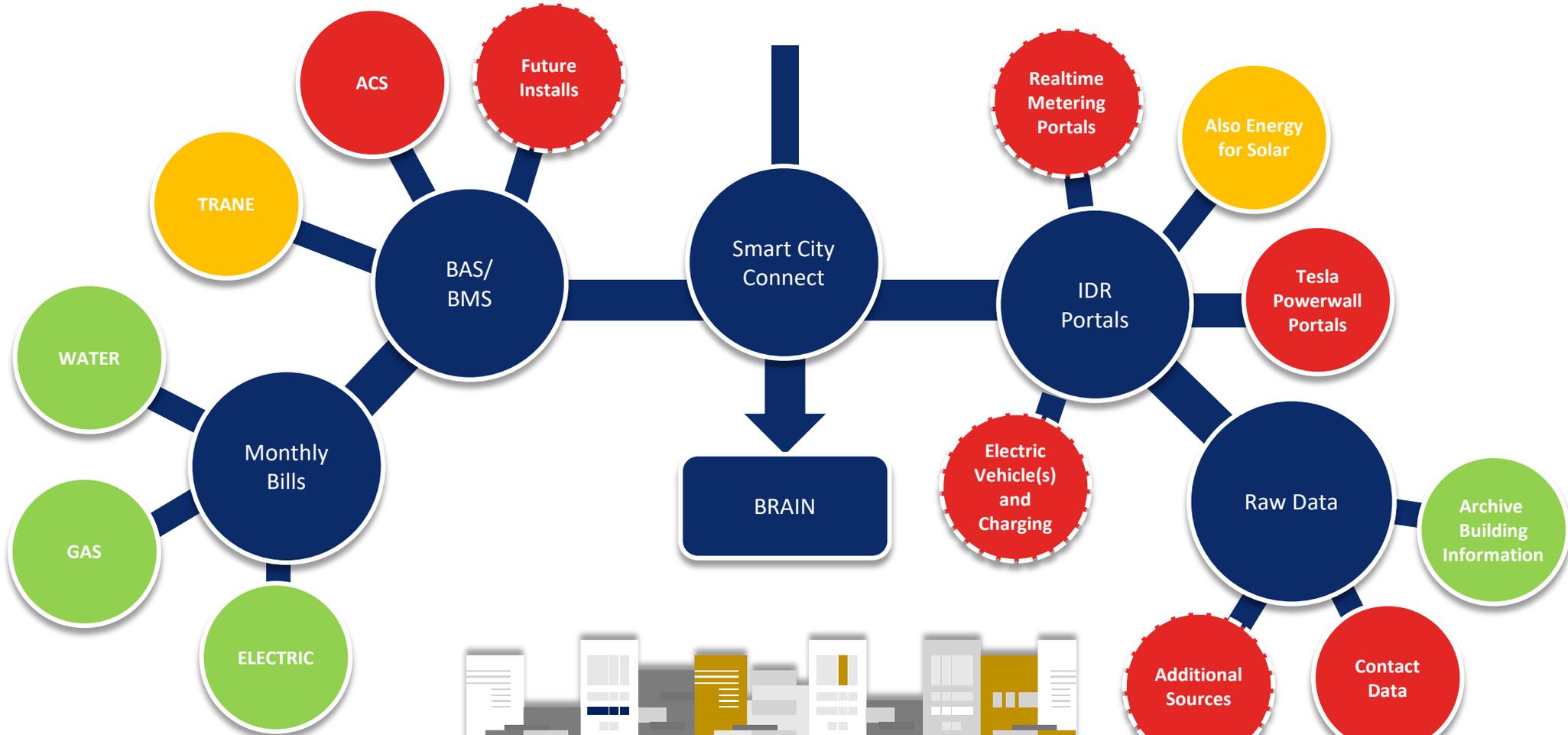
- 52% (\$301,000) from EMNRD (Funding reverts June 30, 2022)
- 38% (\$279,000) from City Council (ESMD's budget)
- 10% (\$58,000) in-kind support from sub-contractor

Budget Allocation by Task						
Tasks:	#People	# Months	#Hours	Time Period	EMNRD Grant Budget	Other Budget
1. Determination of Inputs.	1	2	320	Aug 2021-Oct 2021	\$20,758.62	\$19,241.38
2. Determination of Schema	1	2	320	Aug 2021-Oct 2021	\$20,758.62	\$19,241.38
3. Determination of potential analysis models (ML)	1	2	320	Aug 2021-Oct 2021	\$20,758.62	\$19,241.38
4. Determine inputs to be prototyped	4	0.25	160	Nov 2021-Jan 2022	\$10,379.31	\$9,620.69
5. ETL of selected inputs into schema	3	2	960	Nov 2021-Jan 2022	\$62,275.86	\$57,724.14
6. Implementation of initial predicted models	1	2	320	Nov 2021-Jan 2022	\$20,758.62	\$19,241.38
7. Initial development of prototype dashboard and reporting	3	2	960	Feb 2022-Apr 2022	\$62,275.86	\$57,724.14
8. Integration of predictive models into dashboard and reporting	1	2	320	Feb 2022-Apr 2022	\$20,758.62	\$19,241.38
9. Analysis, anomaly resolution, white paper, efficacy	3	2	960	Feb 2022-Apr 2022	\$62,275.86	\$57,724.14
10. Presentation to ENMRD-government entities (Milestone)				May 2022-July 2022		
Total:	4	12	4640	Aug 2021 - July 2022	\$301,000.00	\$279,000.00

Benefits of Project to New Mexico

- Advancement of grid modernization goals/objectives
- Public Education Potential
- Economic Impact
- Replicability Potential**

BRAIN - Description



BRAIN - Visualization

Pillars of Visualization-

- 100% Renewable Goal Performance
- Utility Usage and Spend Performance
- Building Comfort Performance
- Building Health Performance
- Solar & Battery Performance
- Solar & Battery Grid Response
- Water Performance
- Reactive Maintenance Priority
- Predictive Maintenance Priority
- Real Time Usage & Spend
- On the fly ROI for ECM Projects
- Selective automated work order generation



BRAIN – Benefits to City of Albuquerque

Data lake/data river for IDR meter data, building data, equipment data, billing data and site data for the whole city in one digitized platform

Observe and diagnose problems in real-time from the CABQ Energy Command Center

Smart City enablement to measure improvements against corresponding actions

Performance to Goal – 100% Renewable, other

Make it easier for professional and technical staff to manage resources due to the integrated nature of the platform.

Work with the Utility to support their constraints or opportunities with the Energy Imbalance Market.

- Solar, Battery, Load management



Thank You

Future comments and questions can be directed to:

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