ESTABLISH A NEW MEXICO RTO TASK FORCE

1 – DESCRIPTION OF ACTION

The New Mexico Grid Modernization Roadmap participants recommend the creation and ongoing support for a New Mexico Regional Transmission Operator (RTO) Task Force.

Among western states and utilities, momentum is building around access to renewable power and decarbonization. A majority of states in the west have aligned with newly passed clean energy laws, individual utilities have set ambitious greenhouse gas (GHG) reduction targets and the rapidly changing economics of wind, solar and storage has created unprecedented demand from major tech companies and industrial energy customers. This wide alignment in energy laws, GHG targets, and market demand is stymied by the disconnected and inflexible nature of the western electricity grid (western grid).

The western grid is a roadblock to efficiently decarbonizing the electric sector and meeting individual state renewable energy requirements. Those same issues also create unnecessary costs for energy customers and prevent investment from new industries into economies throughout the west.

Accordingly, a number of regional discussions about the benefits of RTOs and Independent System Operators (ISOs) are currently underway. As new markets begin to take shape, the state of New Mexico should be actively at the table, in order to ensure maximum benefit to New Mexicans. Accordingly, the state should form an RTO Task Force to actively participate in the regional discussions. The primary objective of the RTO Task Force will be to participate in these discussions on behalf of the state of New Mexico, looking for opportunities to explore the benefits to New Mexico that come from regional electricity coordination. The RTO Task Force will keep in mind the principles of resiliency, reliability, efficient use of the existing grid, transmission and generation asset optimization, system-wide carbon reduction, and economic development benefits for the state.

The RTO Task Force should be convened by the Energy Minerals and Natural Resources Department (EMNRD) and the Economic Development Department (EDD), meet no less than quarterly, designate individuals to participate in these regional discussions on behalf of the RTO Task Force, and make recommendations to the state. The RTO Task Force may determine that additional studies on market design of economic development may be warranted.
Beginning in 1996, FERC encouraged utilities engaged in interstate transmission and wholesale power sales to form RTOs or ISOs to better coordinate, control, and monitor an interstate electricity grid.¹ Today there are seven RTOs/ISOs in the U.S., usually organized as non-profit organizations. (See Figure 1 for a map of RTOs/ISOs in North America.) These serve as independent entities – meaning they are not owned or directly controlled by utilities – that administer and plan interstate transmission in the regions that they cover. These RTOs/ISOs also operate wholesale power marketplaces, where suppliers of wholesale power can compete to provide bulk electricity at lowest cost to meet demand, usually through day-ahead and real-time markets.

![Figure 1: North American RTOs/ISOs](https://www.ferc.gov/industries-data/electric/power-sales-and-markets/rtos-and-isos)

Unlike energy markets in the majority of the U.S., electricity in the west is managed through 38 different balancing areas, and overlain by a complex web of transmission rights and availability which severely inhibit the ability to optimize the diversity of renewable resources across the region. Figure 2 shows the various balancing areas in the West.


² FERC Map: https://www.ferc.gov/industries-data/electric/power-sales-and-markets/rtos-and-isos
As described in great detail in the “Western Flexibility Assessment, Investigating the West’s Changing Resource Mix and Implications for System Flexibility” (Western Flexibility Study)\(^3\), the system as it currently operates does not allow for efficient, cost effective transfer of energy resources and impedes effective balancing of capacity resources which is necessary to cost-effectively and reliably achieve each state’s renewable and clean energy goals.

In areas without RTOs/ISOs, wholesale power transactions take place through bilateral trading (i.e., through direct negotiation and contracting between buying and selling utilities, and between utilities and independent power producers on a contract-by-contract basis). Wholesale power markets can help promote the deployment of renewable energy, because they can more efficiently match electricity demand with excess local supply. This is especially true of real-time markets, which can help efficiently accommodate the variable nature of renewable energy, as well as geographic diversity between renewable resources and load centers.\(^4\) The potential for sales of renewable energy increases exponentially, because the potential number of buyers multiplies to include all buyers located within the region. This enables development and financing for many more renewable projects. To the extent that RTOs can help expedite transmission planning and management, they can also help ensure sufficient transmission capacity to match renewable generation with electricity loads.

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OTHER MARKET OFFERINGS

Establishment of a western regional market has been a topic of discussion for years, with complications around market governance being a primary area of concern for many entities. While many of these discussions took place in Sacramento, other states watched from afar and began taking their own piecemeal approaches to addressing the opportunities and challenges of western RTO development.

In addition to RTOs/ISOs, the California Independent System Operator (CAISO) Western Energy Imbalance Market (EIM) also offers a real-time wholesale power market in the West.\(^5\) Southwest Power Pool (SPP) created a similar option with its Western Energy Imbalance Service (WEIS).

With 11 utilities actively participating in the EIM and 9 more committed – representing over 80% of the western load – the realized benefits far outweigh expectations. Figure 3 shows participating in the CAISO EIM.

The EIM entities are now working towards creating a new market structure to add day-ahead trading opportunities through the extended day-ahead market (EDAM). The EIM and EDAM are important steps to market expansion, however alone neither will get anywhere close to addressing the

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\(^5\) Western EIM - About, Western EIM, https://www.westerneim.com/Pages/About/default.aspx

\(^6\) https://www.westerneim.com/Pages/About/default.aspx
bifurcated transmission system that severely limits the build-out of renewables that is necessary to achieve grid decarbonization and to meet market demand.

NEW MEXICO UTILITIES

In New Mexico, Southwestern Public Service (SPS) is a member of SPP, an RTO that provides both oversight of the bulk electricity grid and a wholesale power market. New Mexico utilities El Paso Electric, Tri-State Generation and Transmission Association, Inc., and the City of Farmington along with ten other utilities in the West use the SPP’s Reliability Coordinating Services, which are offered to utilities on the Western Grid. The increasing number of utilities taking advantage of SPP services in recent years is an indication that the time is right for a new RTO covering the Intermountain West. This would include New Mexico.

Other utilities served by SPP with New Mexico ties are Tri-State Generation and Transmission Association (Tri-State), Western Area Power Administration (WAPA), and Xcel Energy (SPS parent). In turn, Tri-State, WAPA, and Xcel participation indirectly connects many of New Mexico’s distribution cooperatives and municipalities to SPP services. These services are certified by the North American Electric Reliability Center (NERC). SPP offers its WEIS which will launch in February 2021. Eight utilities will be participants of the WEIS when it launches in February 2021, including Tri-State and WAPA (WAPA’s Upper Great Plains West, Rocky Mountain Region, and Colorado River Storage Projects).

Public Service Company of New Mexico (PNM) has a pending application to join the EIM and is scheduled to join the market in 2021. PNM’s entry is significant. At that point, most of New Mexico’s investor-owned utilities, cooperatives, and municipalities would be members of – or at least have indirect access to some services of—wholesale power market organizations. A high percentage of electricity customers throughout the state will then be served by utilities participating in these regional organizations. However, only a portion are tapping into all of the benefits that organized wholesale markets can provide. Those which are engaged in an energy imbalance market have the potential for more savings when all of the elements of an organized wholesale market can complete the picture, as further described below.

REGIONAL DIALOGUES

Importantly, there are several regional dialogues currently underway exploring the concept of regional electricity markets:

- The “Western Wholesale Electricity Market Configurations” Study (State-Led Markets Study): The Utah Governor’s Office of Energy Development, in partnership with the State

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7 https://spp.org/western-services/western-rc-services/
8 SPP is one of nine regional reliability councils in the U.S.
9 https://spp.org/weis
10 2 Western EIM - About, supra note 52. Western EIM - About, supra note 49.
11 Utah Governor’s Office of Energy Development description of project (https://energy.utah.gov/energy-information/state-led_market_options_study/)
Energy Offices of Idaho, Colorado, and Montana, received funding from the U.S. Department of Energy to facilitate a state-led study of market options in the West. The study includes technical Production Cost Modeling of different market structures and footprints, which will include detailed results for each individual state in the West. The study also includes a Market and Regulatory Review intended to help states evaluate the more qualitative aspects of different organized market configurations. The study is being directed by a “Lead Team” comprised of representatives of all the western states (Arizona, California, Colorado, Idaho, Montana, Nevada, New Mexico, Oregon, Utah, Washington, and Wyoming).

- **“Western Interstate Regional Electricity Dialogue” (WIRED)**\(^\text{12}\): WIRED is a collaborative effort of the Center for the New Energy Economy (CNEE), the Western Electric Industry Leaders (WEIL) Group, and many of the western governors’ energy policy advisors. Under the leadership of former Colorado Governor Bill Ritter, Jr., the participants have met over the course of 2020 to develop recommendations to western governors on three interrelated topics: (1) Resource Adequacy; (2) Transmission Planning; and (3) Greenhouse Gas Accounting & State Clean Energy Standards.\(^\text{13}\)

Other important studies are being conducted regionally that New Mexico could benefit from reviewing. These include:

- **Colorado Markets Study**: The Colorado Legislature passed the 2019 Colorado Transmission Coordination Act, which directed the Colorado Public Utility Commission (CoPUC) to investigate the merits of electric utility participation in energy imbalance markets, regional transmission organizations, power pools and joint tariffs. The act requires the commission to decide by Dec. 1, 2021, whether such participation is in the public interest and, if so, direct utilities to take appropriate action by July 1, 2022. This study work is currently underway at the CoPUC.

- **Individual Utility Studies, including**: A new study commissioned by Holy Cross Energy and the Intermountain Rural Electric Association finding that by enabling more efficient and transparent transmission coordination across Colorado the average residential electricity customer could save $255 per year by 2040 compared with today. This amounts to an annual electricity cost saving across Colorado of $1.76 billion. The coordination of electric grid investments across Colorado also facilitates integration to Western electricity markets, and creates 70,000 new jobs while reducing annual GHG from the electricity sector by 73% from 2005 levels.\(^\text{14}\)

\(^{12}\) Information on WIRED from Western Interstate Energy Board (https://www.westernenergyboard.org/wired-initiative-recommendations-to-western-governors/)


BACKGROUND ON NEW MEXICO ACTIONS RELATED TO RTO TASK FORCE FORMATION

As noted, New Mexico is participating as part of the lead team in the State-Led Markets Study through EMNRD, and representatives from EMNRD have participated in WIRED. However, the Grid Modernization Workgroup recommends that additional resources be dedicated to participating in these regional dialogues.

As described below in the risks, without a dedicated charge, or funding, for state entities to participate, allocating time for the endeavor can become a challenge.

Importantly, several notable New Mexico entities have been absent from these regional dialogues. These include the EDD and State Land Office (SLO). Conversations about the benefits of a regional electricity market to New Mexicans cannot be limited to representatives from an agency focused on energy issues. The benefits are indeed economic, as well, and SLO and EDD will be important voices from the state of New Mexico. To our knowledge, the state has not convened a multi-agency/stakeholder table, or task force, to look specifically at the benefits of regional electricity markets.

SECTION 3: IMPACTS OF THE ACTION

BENEFITS OF REGIONAL COORDINATION

For the purpose of this report, regional coordination means connecting western states to the same trading platform such that states can capture mutual benefits from sharing energy resources across the region, so that each utility (or state) would benefit from tapping into alternative resource options available from a different state in the region.

The types of benefits that come with regional coordination include:

- Environmental benefits, such as: adoption of clean energy and decreased reliance on fossil fuels; ability to integrate these new resources in a cost-effective manner, associated carbon emissions reductions; better utilization of transmission lines and renewable energy project siting in a way that minimizes land use disturbances.\(^\text{15}\)
- Additional coordination and planning of transmission systems that allow for greater regional flows;
- Consumer/Utility benefits, such as: overall cost savings; more efficient use of infrastructure; reliability benefits.
- Easier integration of distributed energy resources (“DER”) through promulgation of market participating mechanisms, with dual benefit for local resilience.
- State budget benefits as well as jobs, such as economic development benefits from renewable and transmission development.

Recent studies affirm these benefits. The “Western Flexibility Assessment, Investigating the West’s Changing Resource Mix and Implications for System Flexibility” (the WIEB Study) reveals that without regional grid coordination strategies the West will experience significantly increased costs and emissions due to lower flexibility in the longer run. Flexibility through grid coordination and additional strategies including transmission, storage, load management, diversity, and other measures, would help us to achieve the following:

- Reduction in renewable energy curtailment, increased CO₂ and production costs savings ($1 Billion/year). The existing transmission system is largely sufficient to 2030.
- The West will not be able to reach its existing clean energy policy targets without at least a coordinated day-ahead market because the renewable energy curtailment in each region will become unsustainable.

REGIONAL COORDINATION COMES IN LAYERS

Each added layer increases the above-mentioned benefits. There are a number of good descriptions of the various elements of each.17

- **EIM**: within-hour energy dispatch optimization, utilization of otherwise unused transmission after bilateral market transactions have closed. The growing benefits CAISO’s EIM have lured utilities serving seventy percent (70%) of the Western load.18 Benefits of EIM participation as described by PacifiCorp, a founding member, include “improved power production forecasting and optimized intra-hour resource dispatch. This brings important benefits including reduced energy dispatch costs through automatic dispatch, enhanced reliability with improved situational awareness, better integration of renewable energy resources, and reduced curtailment of renewable energy resources.”19 It is important to recognize, however, that the EIM includes trades for only 5-10% of overall WECC energy volume. It is an energy-only market, with very little capacity benefit.

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• **Day-ahead optimization:** Day ahead unit commitment optimization; potential for ancillary services optimization. Still no long-term planning benefits for capacity or transmission. See “Extended Day Ahead Market, Feasibility Assessment, Update from EIM Entities”\(^{20}\).

• **Organized wholesale market:** An organized wholesale market would achieve the following:
  - Non-discriminatory transmission access allowing renewable energy generators to competitively sell to a wide array of customers other than the incumbent utility
  - Efficient and competitive management of interconnection and transmission services
  - Efficient variable energy resource (“VER”) integration balancing variable generation
    - Flexible system operations with appropriate incentives to support VER integration
    - Resource adequacy standards, presumably state-based, that are equitable across a broad range of utilities and that fairly capture the value of capacity resources
    - Reduction of excess reserve requirements for loads and resources
  - Enhanced grid reliability
  - Centralized transmission planning across the entire market footprint
    - incentivize the construction of new transmission projects necessary\(^{21}\) to address grid congestion reliably and cost-effectively and to enable market access for renewables located far from load centers
  - Efficient use of the transmission system to serve load at least-cost
    - regional cost allocation and elimination of pancaked transmission charges\(^{22}\)
    - reduction of inefficient dispatch\(^{23}\)
    - use of financial transmission rights by market participants to hedge against potential losses related to the price risk of delivering energy to the grid
  - Market must accommodate carbon regulations and resource adequacy policies adopted by participating states
  - Independent, multi-state model for market governance
    - Include stakeholder processes that are open to meaningful participation by all stakeholders.

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\(^{21}\) NMRECA note: An RTO provides a way to recover the costs from everyone on the system which is hard to do today. An RTO really does not incentivize that, just provides a way to recover the costs.

\(^{22}\) New Mexico Renewable Energy Transmission Authority, 2020. “Tariff pancaking” is the compounding charges that currently costs of exporting renewable electricity from New Mexico through the WECC. An RTO in the WECC would decrease exporting costs, thus benefiting economic development in New Mexico. See pages 52-54 of New Mexico Renewable Energy Transmission and Storage Study, consultant ICF Resources, LLC. [https://nmreta.com/nm-reta-transmission-study/](https://nmreta.com/nm-reta-transmission-study/)

\(^{23}\) NMRECA note: We do this today within the parameters of the system. Increased efficiency is ok to say.
BENEFITS OF FORMING RTO TASK FORCE

As described above, there are numerous ongoing conversations around the region about regional electricity markets. While many of these are well-coordinated and funded (ex. State-Led Markets Study and WIRED), more are happening on an ad-hoc basis. A number of New Mexico stakeholders participate in these discussions in different ways, but the power will come from an organized RTO Task Force speaking in a united fashion about the needs and opportunities for New Mexico. Bringing together key voices, including the agencies like EMNRD, EDD, and SLO, the electric utilities, Public Regulation Commission (PRC) staff, energy producers, academic experts, will be an important step forward in having one coordinated voice for the state in the ongoing discussions. The benefit of this engagement will be ensuring that New Mexico directly benefit from the formation of regional electricity markets.

Importantly, many of the ongoing discussions and studies can be influenced by further direction from participating states. New Mexico should be ready to influence studies and modeling to ensure results produced provide the state with the information it needs to make important decisions in the future.

Beyond the benefit of having the state participate in a coordinated fashion and influence the regional dialogues and studies, the RTO Task Force will also work to make consensus recommendations to New Mexico decision-makers on additional research needs or necessary actions, such as legislation.

4 – PREREQUISITES, RISKS, ROADBLOCKS, AND ENABLERS

PREREQUISITES

Legislation is recommended to ensure the RTO Task Force has the participation and authority needed to carry out its mission. In order to ensure robust participation from state agencies involved, especially if they are asked to convene the RTO Task Force, funding their participation will be an important prerequisite.

The NM RTO Task Force participants are likely to include:

- EMNRD Staff (co-convener)
- EDD Staff (co-convener)
- SLO Staff
- NM Renewable Energy Transmission Authority (RETA)
- Local Economic Development Offices
- PRC Commissioners or Staff
- Electric Utilities
- Academic Institutions
- Environmental Advocates
- Energy Industry

We also note that, should the state wish for an RTO Task Force convener outside of existing state government, there are other regional entities who could potentially be contracted to convene the effort.
Some possible ideas include, but are not limited to, the Rocky Mountain Institute, CNEE, the Santa Fe Institute, or Energy Innovations LLC.

In addition to staffing the regional discussions about regional electricity markets and reviewing key studies, we expect that the RTO Task Force may want to commission and implement studies on the benefits to New Mexico from regional electricity coordination.

One such study could be a study outlining the best market structure to pursue by considering the range of potential benefits over a range of potential approaches. Like the Colorado Markets Study, the study could consider various market designs. Legislation could identify the study producer, possibly RETA, and provide the necessary funding. The RTO Task Force would be important as contributors to the study and implementers of study recommendations. This study would likely take 6 to 9 months to complete.

Another study could be an economic development report examining the various economic benefits for New Mexicans that could from various market designs. Such benefits include direct, indirect, and induced tax revenue, as well job creation associated with electricity generation and transmission development. This study would likely take 9 months and should be housed at the New Mexico EDD, and legislation should provide the necessary funding.

RISKS AND ROADBLOCKS

Possible risks include funding, participation and authority.

- **Funding:** The state is experiencing a budget deficit; funding for the RTO Task Force may not be possible at this time. Without funding, the RTO Task Force may not have the necessary resources to convene regularly or, more likely, to produce the work product necessary to successfully work toward a goal of regional coordination.

- **Participation:** Without funding, state agencies may not be able to supply staff to participate. Without the participation of key agency partners, the group may not have the expertise, or authority, it needs to speak for the state.

- **Authority:** Without legislative authority, can the RTO Task Force really speak for the state? What is the process of review and approval of RTO Task Force work product?

ENABLERS

While not necessarily critical, in order to mitigate the risks listed above, legislation is recommended to ensure the RTO Task Force has the participation and authority needed to carry out its mission. Such legislation should provide funding for the RTO Task Force, or a pathway by which the RTO Task Force can gain funding with time.
SECTION 5: STEPS TO IMPLEMENTATION

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<td>Establish the RTO Task Force through appropriate legislation</td>
<td>February 2021</td>
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<tr>
<td>Name participants</td>
<td>May 2021</td>
<td>EMNRD and EDD</td>
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<td>Hold quarterly meetings</td>
<td>Starting July 2021</td>
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<tr>
<td>Participate in WIRED and Utah Study</td>
<td>Ongoing 2021-2022</td>
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<td>Develop framework for necessary studies</td>
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<td>Pass legislation for funding studies</td>
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<td>Issue RFP for studies</td>
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<td>Select Study Author</td>
<td>May 2022</td>
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<td>Publish studies</td>
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<td>RTO Task Force Participants</td>
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6 – UTILITY COMMENTS/QUESTIONS/CONCERNS

COMMENTS FROM PNM

- PNM holds that this whitepaper does not give enough credit to the Energy Imbalance Market (EIM) and its effectiveness in providing plenty of benefits to participating entities that a full-blown ISO would also do, via joint dispatch which also helps with reducing the amount of renewable curtailments in each Balancing Authority (BA). The whitepaper’s treatment of EIM also appears to have been written earlier in 2020, since it does not include all the other utilities that have recently announced their intent to join the EIM, primarily the Colorado entities. Also, the whitepaper does not dive very deeply into the issues around lost revenue or shared revenue in transmission sales, nor how PNM and other electric utilities will be compensated if an ISO is formed. In turn, is it in PNM’s best interest to support or encourage an RTO, knowing the significant impact it could have on PNM transmission revenues and the impact on customers?

- Much of the PNM transmission revenue is generated by wholesale customers that now pay pancaked rates. In forming a full ISO, these pancake rates are eliminated and essentially the transmission revenues within the footprint are to a large degree lost.

- Has the impact from joining an RTO on voluntary customers been fully considered? Providing certain customers 100% of their energy served within the PNM footprint is straightforward. Providing this same in a full western EIM may create complications, particularly in bidding strategies. Also, states with differing RPS standards make it more difficult to provide RTO trading that allows for that differential (i.e., how to prevent the RTO from providing fossil resources into CA or NM when other states allow this resource requires some significant rules or bidding requirements). At this point these issues have been addressed by price signals, however when firming at 100% carbon free those pricing signals may not be sufficient.

- PNM questions the strategy of having a public official set and establish the framework for a regional economic marketplace.
• PNM would have preferred the direction of the group to be an effort to facilitate additional transmission lines within the existing BAA functions. Regulators could work on clearing the way for additional transmission build-outs and grid modernization. These are key elements of expanding the buildout of renewables across the west and do not take the authority out of the hands of New Mexicans. We are not sure New Mexicans want their electric grid controlled by California – even on a per share basis. New Mexico would have very little voice in the new market establishment. Expanding the rights of RETA or providing the same options for IOUs would be a way the NM legislature and regulatory bodies could already act within their authority to expedite this effort.