Electric System Readiness for Increased Residential Electrification

Context

- NM Energy Transition Act: carbon-free electricity by 2045 (IOUs) and 2050 (coops)
- Load/Demand changes – scenarios examined in IOU's Integrated Resource Plans
- NM residential facts (EIA data, 2022)
  - Avg. retail price of electricity for residential sector in NM=14.1 ¢/kWh
  - Energy sources for home heating: 63% natural gas, 7% propane, 22% electricity
  - 85% of NM homes are air conditioned

Key issues for electric infrastructure

1. Generation capacity (with reliability, carbon, and affordability constraints)
2. Distribution infrastructure

SPS, EPE and PNM

1. How is the utility preparing for electrification growth of residential and small commercial customers?
2. What are the challenges?
3. Are there actions needed to support residential and small commercial electrification? If so, what are they?

Electric System Readiness – SESSION FORMAT

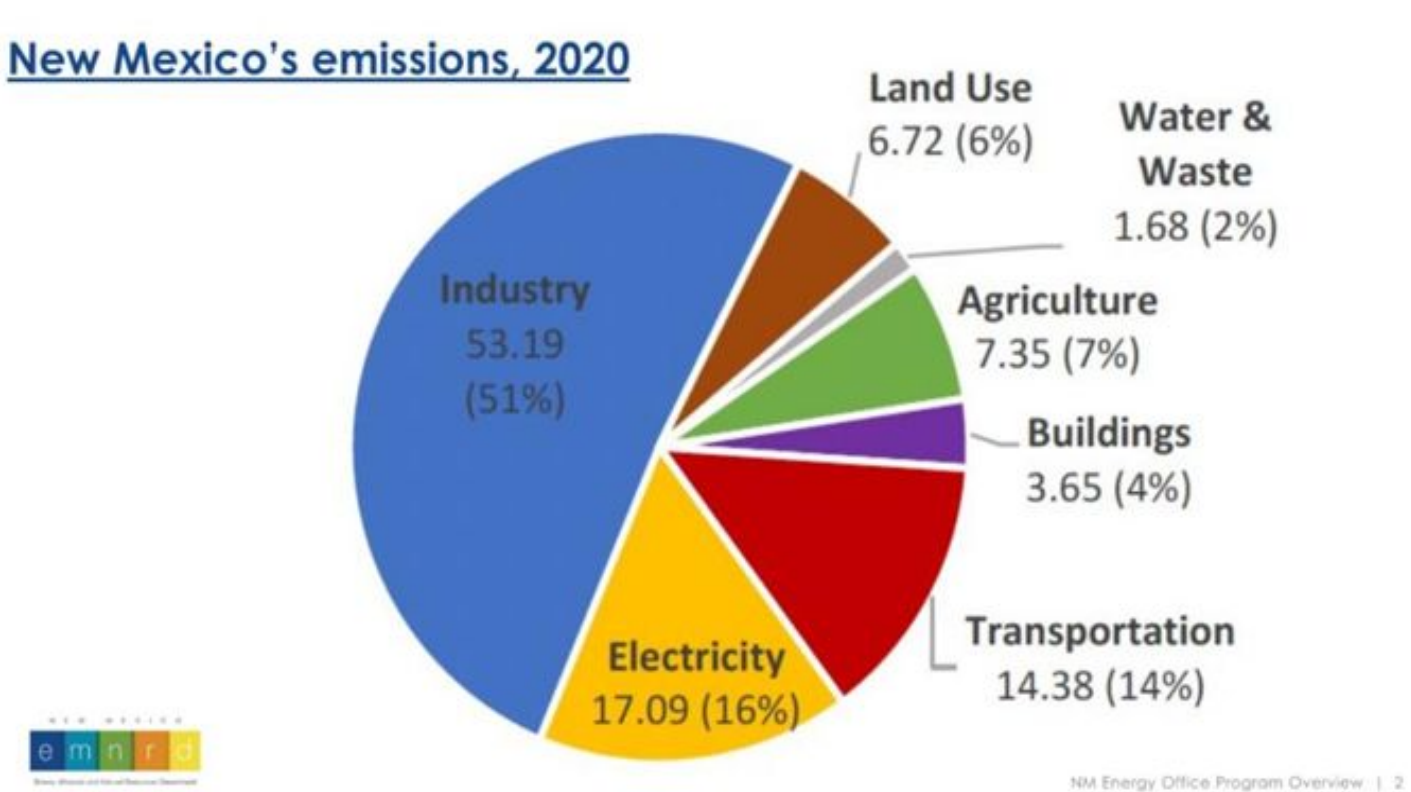
Utility representatives share insights – 5 minutes each

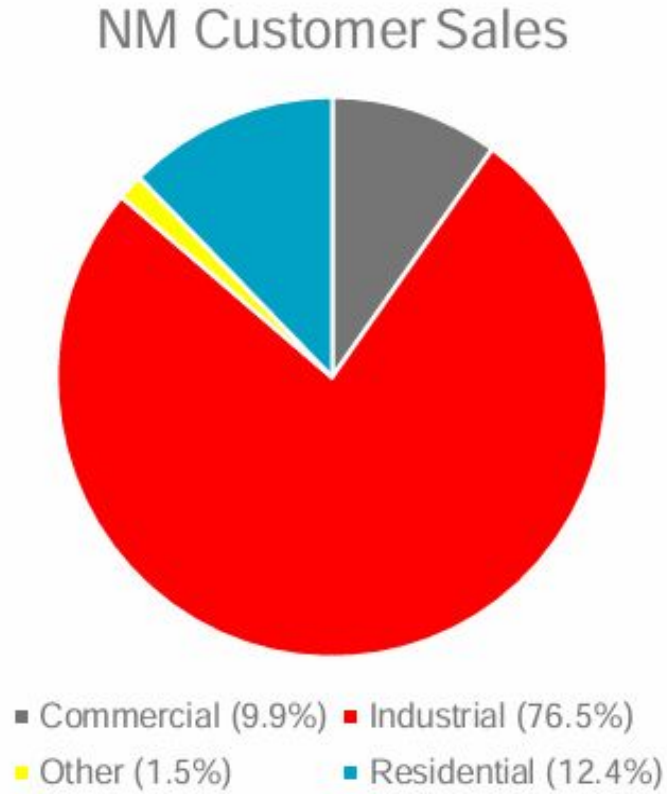
- **Brianne Jole**, Xcel Energy/Southwestern Public Service
- **Jesse Gonzalez**, El Paso Electric
- **Alaric Babej**, Public Service Company of NM

Participants - please hold questions until the Q&A period

Questions and comments - 20 minutes
(If we run out of time, please submit additional questions via the chat and Gridworks will follow up.)

State Emissions and SPS Customer Portfolio





Xcel Energy's territory serves many Industrial loads – serving Oil and Gas in the Permian Basin in Lea and Eddy County. Electrification efforts in this sector are the primary drivers for the growth seen in the SPS footprint today.

Residential Impacts through Electrification

Customers impacted

As homeowners and small businesses begin to electrify, the cascading impacts on the existing system are exacerbated. Each investment does not fall squarely on one customer but is spread across more and more customers until all customers are impacted and the cost of service slowly begins to increase for everyone to serve the electrification needs.

Utility Preparation for Electrification Growth

1. Infrastructure Enhancements:

- **Advanced Metering Infrastructure (AMI):**
  - Deploying advanced electric meters with two-way communication.
  - Implementing a secure communications network and Meter Data Management System (MDMS).
  - Enhancing data accuracy, operational efficiency, and customer service.

2. System Hardening and Resilience:

- **Annual Investments:** Regular investments in system hardening measures.
- **Infrastructure Upgrades:** Improving infrastructure to handle increased loads and withstand extreme weather conditions.
- **Reliability Improvements:** Employing N-1 contingency planning to ensure the ability to restore power after major system component failures.

3. Integration of Emerging Technologies:

- **Electric Vehicles (EVs):**
  - Developing managed charging programs for residential customers.
  - Optimizing charging times to align with grid capacity and minimize infrastructure upgrades.
- **Renewable Energy and Distributed Energy Resources (DERs):**
  - Modernizing the grid to accommodate DERs and increasing renewable energy integration.

The Electric Company
El Paso Electric

Challenges and Actions for Supporting Electrification

1. Challenges:

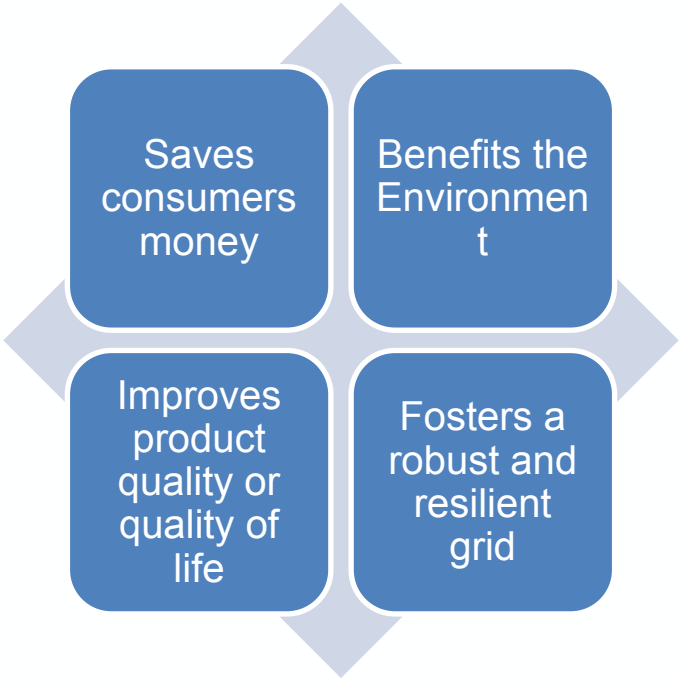
- **Infrastructure Constraints:**
  - Managing thermal ratings and ensuring voltage regulation under varying conditions.
  - Upgrading feeders, transformers, and other components to handle increased loads.
- **Financial and Resource Limitations:**
  - High costs associated with infrastructure upgrades and new technology implementation.
  - Balancing investments with available capital while maintaining financial stability.
- **Customer Adoption and Awareness:**
  - Lack of customer awareness about the benefits and options for electrification.
  - High upfront costs for electric appliances and EVs deterring adoption.

2. Necessary Actions:

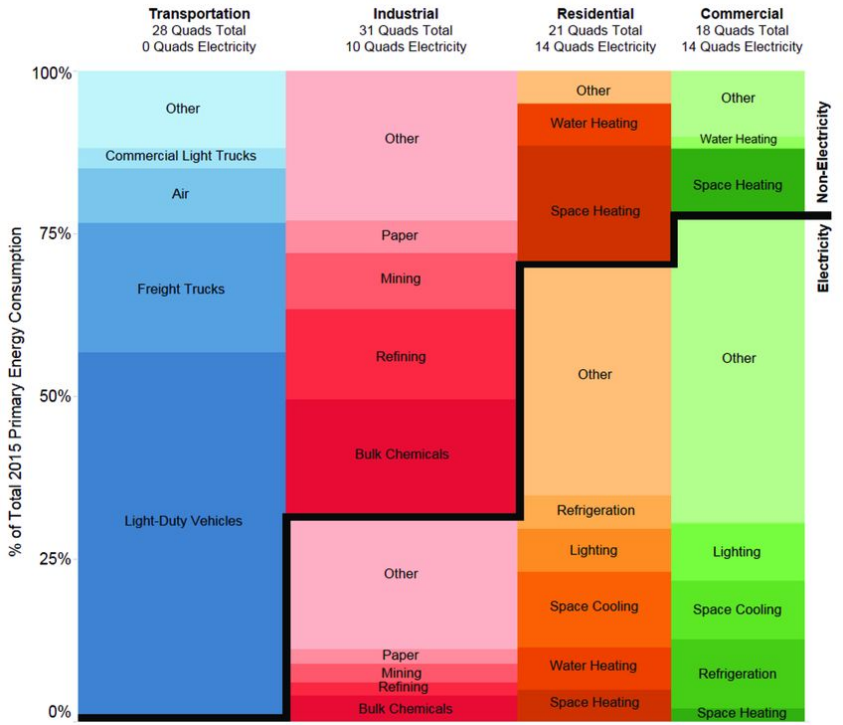
- **Policy and Regulatory Support:**
  - Advocating for clear and consistent policies that support electrification and renewable energy integration.
  - Streamlining permitting processes for electrification projects.
- **Technological Innovation and Pilot Programs:**
  - Investing in new technologies that support electrification, such as advanced metering infrastructure and integrated volt/VAR control.
  - Implementing pilot programs to test and demonstrate the benefits of new electrification technologies.
- **Customer Engagement and Education:**
  - Developing tailored programs for different customer segments to encourage participation in electrification initiatives.

ELECTRIFICATION POTENTIAL

PNM SUPPORTS BENEFICIAL ELECTRIFICATION



* Beneficial Electrification League



Primary energy consumption shares in 2015 Data from EIA 2017c; Figure from Jadun et al. 2017

BUILDING ELECTRIFICATION

INITIATIVES, OPPORTUNITIES, AND CHALLENGES

Today

- Increased heat pump incentives
- All-electric homes pilot
- Induction cooktop rebates
- Appliances

Tomorrow

- Workforce training
- Stacking State and Federal incentives
- Market transformation
- Inclusive financing

On the Horizon

- Grid Modernization
- Policy
- Customer education and awareness
- Retrofits

We welcome your questions.