



VOICES OF EXPERIENCE
*Decarbonization Strategies
& **Grid Planning***

*Summer Series Session 3
August 20, 2024*

Load Growth and Decarbonization



U.S. DEPARTMENT OF
ENERGY | OFFICE OF
ELECTRICITY



Agenda

- **Welcome**
- **Voices of Experience Overview**
- **Utility Speakers**
 - **Karan Patel, Rappahannock Electric Cooperative (REC)**
 - **Jené Reese, Omaha Public Power District (OPPD)**
 - **Wilson Peppard, Oncor Electric Delivery (Oncor)**
- **Open Discussion**
- **Wrap and Adjourn**

Introduction

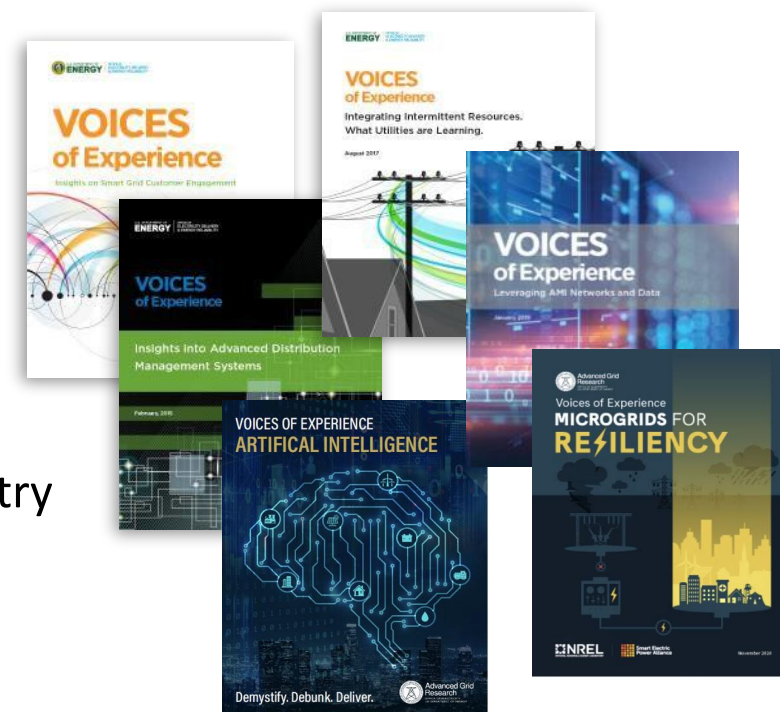
- Your knowledge and experience are key!
- Feel free to use the chat
- Chatham House Rules





Voices of Experience

- DOE Initiative started in 2011 to support the Recovery Act Smart Grid Program
- Series of Guidebooks on Energy.gov
[<https://www.energy.gov/electricity-insights/voices-experience>]
- Provide a forum to exchange ideas and learn from colleagues
- Capture high-level insights and advice
- Focus on areas that pose challenges or are critical transformation
- Create a valuable resource for utilities
- Provide an educational foundation and neutral perspective for other industry stakeholders
- **New in 2024...Decarbonization Strategies and Grid Planning**



A Stakeholder's Guide to Electrification

A Stakeholder's Guide to Electrification

What is Electrification?

- Video
- Powerpoint
- Fact Sheets

Topical Briefs

- What is Electrification?
- Technology that Enables Electrification
- Customer Engagement and Electrification
- Resource Planning, Electrification, and Equity
- Resiliency, Risk, and Electrification

Interviews, Presentations, and Discussions

- Grid Talk Podcasts
- Webinars: SMUD's Mapping Tool for Sustainability and Equity
- SEPA TV

Electrification

Discover resources on the benefits and impacts of electrification.

VIEW MORE



Available on Energy .gov
<https://www.energy.gov/electricity-insights/stakeholders-guide-electrification>

Decarbonization and Grid Planning

- Series kickoff at DistribuTECH 2024–February 26th in Orlando, Florida
- Cost and Rate Implications of Decarbonization–May 1, San Diego
- Piloting Decarbonization Technology–June 13, Kansas City
- Summer Series Virtual Discussions
- Deep Dive into Load Growth and Decarbonization
- All briefs and registration links are available on energy.gov



Key Takeaways...So Far

- Widespread electrification and unprecedented load growth is impacting decarbonization strategies and goals for many utilities
- A broad range of technology options is necessary
- The interplay of market dynamics and regulatory frameworks is complex
- Behind-the-meter resources are being considered and are necessary
- Grid planning sometimes requires navigating polarized political climates
- More transparency around the drivers of cost and rate increases is needed
- Like the telecom industry, the utility industry may be moving towards value-based and fixed cost rate structures

Key Takeaways from Customer Programs, Demand-Side Management and Decarbonization (July 9th, 2024)

- Utilities must bring the customer along to achieve the clean energy transition.
- While some may be interested in GHG reductions, saving money is the universal language of customers.
- Utilities are integrating DSM, EE, and DR into their IRP process but are challenged with change management internally to get folks comfortable with it.
- Compensation for customers participating in DR programs need to reflect the true net system benefits
- AI can help utilities become smarter about dispatching resources and improving customer data analytics.

Meghan Dewey, Vice President of Products and Services at Duke Energy



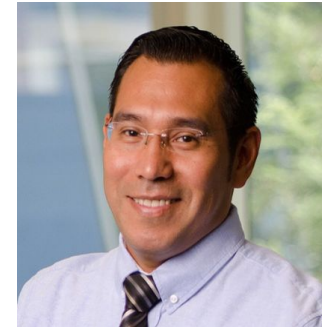
Sara Norris, Director of Energy Efficiency Services at Austin Energy



Key Takeaways from Rate Design Guiding Principles for Decarbonization (July 23rd, 2024)

- Around two thirds of the utilities responding to the survey question said that decarbonization goals are changing how they design their rates.
- Few utilities currently incorporate the social cost of carbon in their rate structure because it is difficult to quantify.
- Adjustors are increasingly used by utilities to recover costs associated with fuel price variability and infrastructure investments to ensure financial stability.
- Behind-the-meter resources are a key component of decarbonization and grid planning.
- Ensuring equitable cost allocation across different customer classes is important—and complex.

Alcides Hernandez, Pricing Strategy Manager, SMUD



Gregory A. DeLizio, Manager, Pricing Initiatives at SRP



Load Growth and Decarbonization

Karan Patel, P.E., MBA

**Managing Director - Energy
Solutions and Clean Energy (REC)**



Jené Reese, P.E., PMP, MEM

**Manager - Large Commercial
and Industrial Sales and
Services (OPPD)**

placeholder for headshot

Wilson Peppard, PE

**Director – Economic
Development (Oncor)**





Karan Patel [CAR-in PUH-tel]

(He/Him/His)

- Currently the Managing Director of Clean Energy and Energy Solutions at Rappahannock Electric Cooperative (REC)
- Joined REC in June 2023 as the Staff Electrical Engineering Supervisor in the Engineering Department
- Previously worked for:
 - A clean energy startup focused on Virtual Power Plants (VPPs) / Demand Response (DR)
 - An Investor-Owned Utility (IOU) in their Distribution Automation group
 - Another IOU in their Smart Grid, Technology, and Innovation group
 - An engineering consulting firm as a Distribution Planning Engineer
- Graduated from Clemson University with a Bachelor's of Science in Electrical Engineering
- Registered Professional Engineer (P.E.) in the state of Georgia
- Received a Master of Business Administration (MBA) from University of North Carolina – Chapel Hill, Kenan-Flagler Business School





REC Overview

Electric distribution cooperative serving ~180,000 meters in 22 Virginia counties

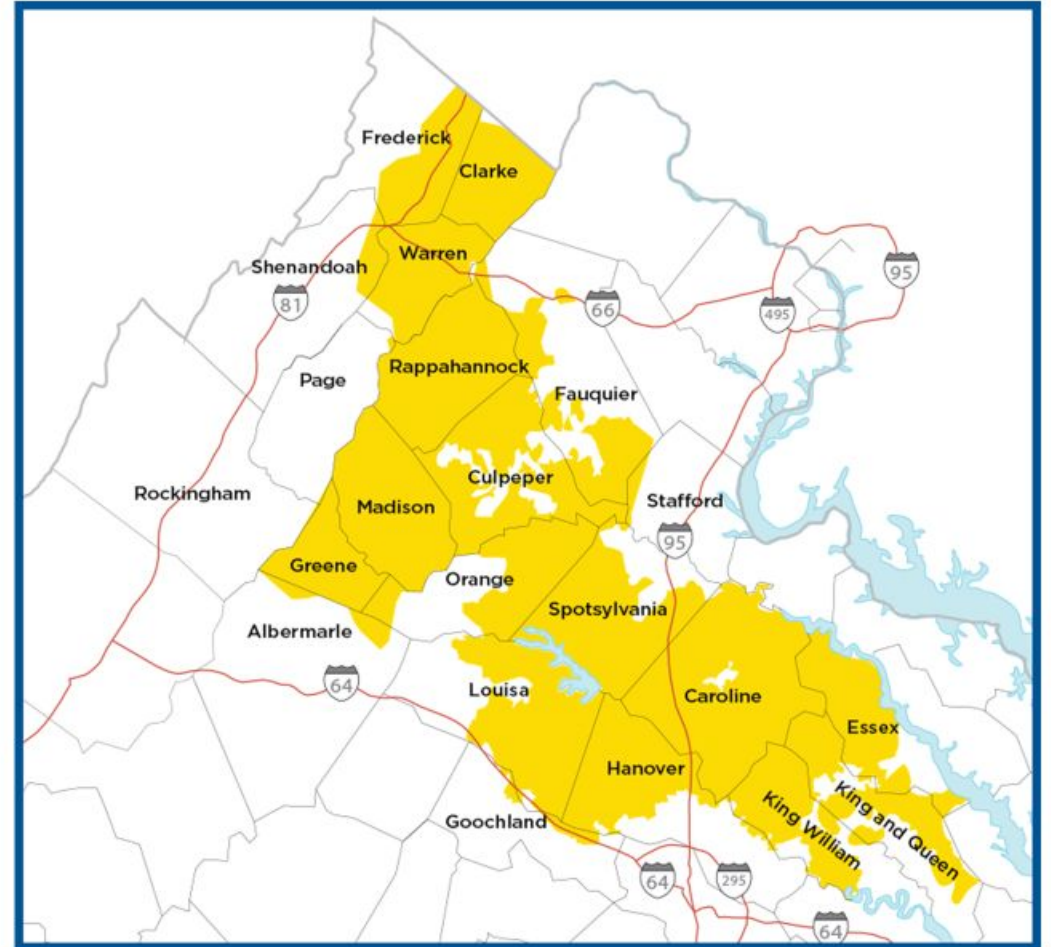
Service territory is between D.C. and Richmond and spans from the Blue Ridge Mountains to almost the coast of Virginia

~18,000 miles with roughly 40% UG and 60% OH

Density is ~10 meters per mile

Operates 12kV, 35kV HVD & sub-transmission, and 115kV lines

Diverse service territory from rural to suburban, industrial, and data centers



Placeholder for Jené's Slides



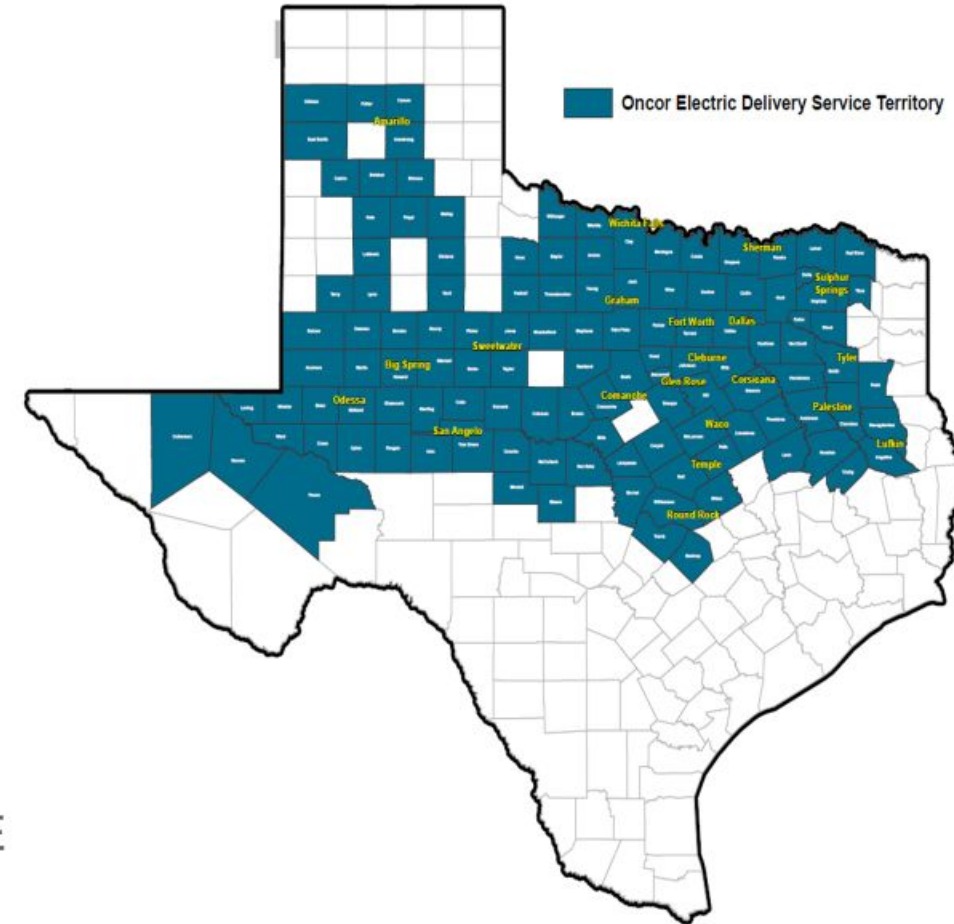
Oncor – Electricity Voices Presentation

ONCOR ECONOMIC DEVELOPMENT

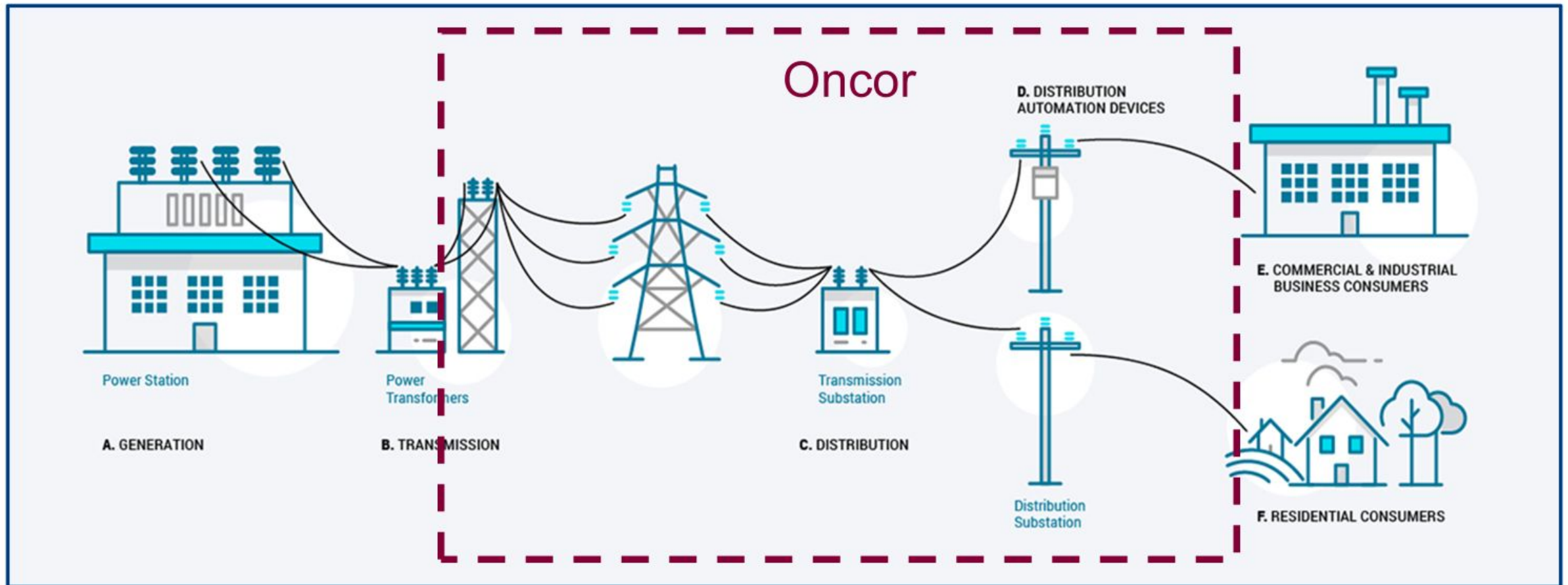
August 2024

Wilson Peppard – Oncor Director – Economic Development

143,000 MILES
OF TRANSMISSION AND DISTRIBUTION LINE



ELECTRIC DELIVERY



Texas Industrial Electric Load Trends

- Average Texas City of 50,000 = 150 MW (Waxahachie)
- Average Texas City of 1 million = 3,000 MW (Austin)



Distribution/Warehouse

- Standard D/W Typical Range: 1-2 MW now 3-5 MW
- Automated D/W Typical Range: 5-10 MW now 10-25 MW



Manufacturing

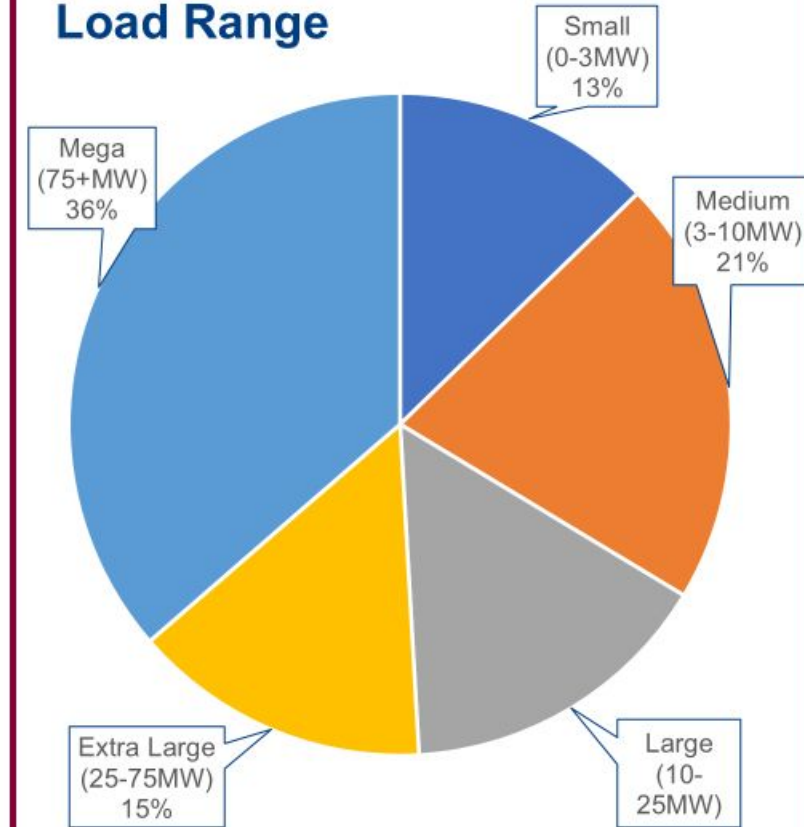
- Light Industrial Typical Range: 5-10 MW now 10-30 MW
- Heavy Industrial Range: 10-50 MW now 60-2,000 MW



Data Centers

- Colo Typical Range: 5-100 MW now 50-500MW
- Large Colo & Enterprise Typical Range: 200-400 MW now 500-4,000 MW

Load Range



Wrap-Up

- **Decoding Decarbonization: A Utility Handbook**
- **Decarbonization Challenges: A briefing from the workshop in Orlando, FL held on February 26, 2024.**
- **Cost and Rate Implications of Decarbonization: A briefing from the workshop in San Diego, CA held on May 1, 2024.**
- **Impact of Increased Loads on Decarbonization: A briefing from utility interviews on data centers and decarbonization. (Coming Soon!)**





VOICES OF EXPERIENCE

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Thank you for joining us today!



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