



Minnesota Public Utilities Commission

# **Rate Design and Value of Solar**

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**Minnesota Public Utilities Commission**

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# Overview

- Rate Design Considerations
- Move to valuation
- NARUC draft DER Manual
- Experience in Minnesota



## Rate Design and Solar

- On-going discussion around country
- How to compensate solar
- Net Energy Metering, most prevalent
- Costs
- Benefits
- Adoption rates
- Benefits and costs time and location dependent



# Specific Concerns

- Utility costs fixed or variable?
  - Short term- costs are fixed
  - Long term- most costs are variable
- Who pays for the system?
  - Solar customers still connected to grid
  - Typical NEM credit against total bill
  - Cost shifting?
  - Benefits of solar?
- Revenue recovery
  - All customers?
  - Create a separate class?
  - Cross subsidies
- How to integrate solar
  - Impacts on reliability



# Options

- Leave NEM alone, better identify benefits
  - Argument- NEM necessary for solar adoption
- Implement higher fixed charges or a demand charge
  - Argument- all customers should pay something
  - Related- Minimum bill
- Rate Design
  - Time variant pricing
  - Decoupling
- Remember- impacts from solar dependent on time and location.



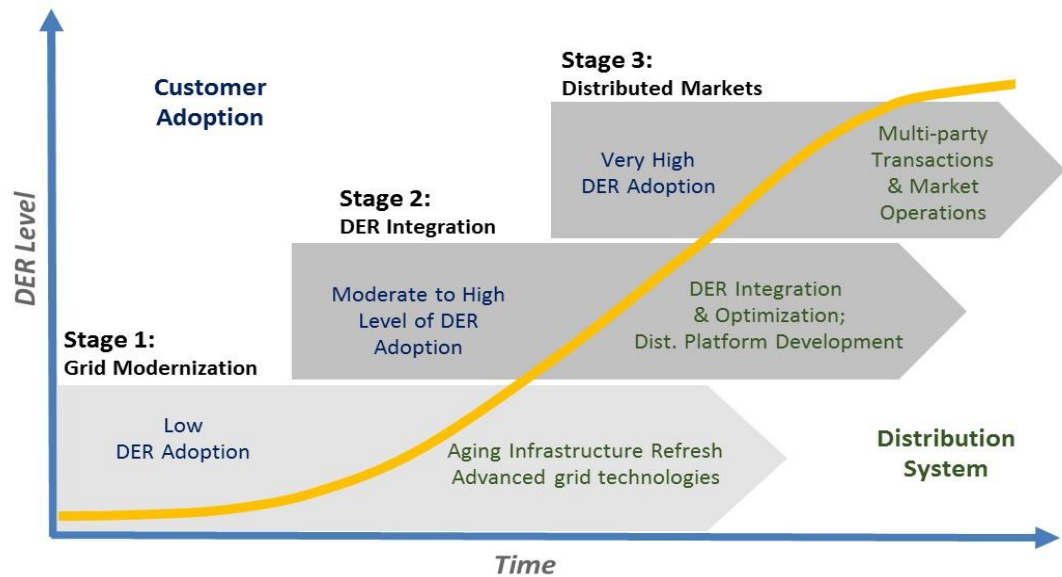
# NARUC Manual

- NARUC President Travis Kavulla (MT) tasked Subcommittee with developing a Manual:
  - “This subcommittee will work to create a practical set of tools—a manual, if you will—for regulators who are having to grapple with the complicated issues of rate design for distributed generation and for other purposes.”
- Draft released July 21, 2016
- Lays out variety of options and considerations
- Describes a How To framework for working through options
- Does not prescribe solutions; designed to help states wade through these issues and develop solutions appropriate to their state or jurisdiction
- Available at <http://pubs.naruc.org/pub/88954963-0F01-F4D9-FBA3-AC9346B18FB2>
- Comments send to [responses@naruc.org](mailto:responses@naruc.org)



# Overarching Themes

- Fixed costs
  - In short term, utility costs are fixed
  - In long term, utility costs are variable
- Revenue recovery
- Cost allocation
- Market value
- Technology
- Adoption rates





# Valuation

- aka Buy all/Sell or Credit all
- Customer paid for value separate from consumption
- Identifies 3 types of valuation
  - Value of Resource (VOR)
  - Value of Service (VOS)
  - Transactive Energy (TE)
- Technology needs
- Valuation models can change over time as adoption rates progress
  - VOR = low adoption
  - VOS = medium adoption
  - TE = high adoption





# Valuation in Practice

- Currently in effect only in Austin Energy territory (Value of Solar)
- Value of Solar soon to be active in Minnesota (Xcel service territory)
- Open proceeding in Arizona
- Trend away from rate case determination to valuation



# Valuation in Minnesota

- Legislature directed development of Value of Solar tariff
- Effort led by Minnesota Department of Commerce
  - Rate approved by the Minnesota PUC
- Identified 11 values

Avoided Energy/Fuel

Energy Losses/Line Losses

Avoided Capacity

Ancillary Services

Transmission and Distribution Capacity

Avoided Criteria Pollutants

Utility Integration & Interconnection Costs

Avoided CO2 Emission Cost

Fuel Hedging

Utility Admin Costs

Environmental Costs



## Conclusion

- Valuation is not easy
  - Determine benefits and costs
  - Determine other adjustments
  - Often subjective
- Costs and benefits differ by time and location
  - Some solar may increase utility costs, and should be passed to resource
- Are there other ways to make the utility “whole”?
- Understand that states and utilities differ
  - 2,000+ utilities across country, no one is alike



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# Questions?

Thank you!

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