

# Environmental Law and Policy Annual Review



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## Panelists:

- **Burcin Unel, Ph.D, (co-author)**, Energy Policy Director, The Institute for Policy Integrity at New York University School of Law
- **Ellen Anderson**, former Chair of the Minnesota Public Utilities Commission
- **Adam Benschhoff**, Executive Director, Regulatory Affairs, Edison Electric Institute
- **Bradley Campbell**, President, Conservation Law Foundation

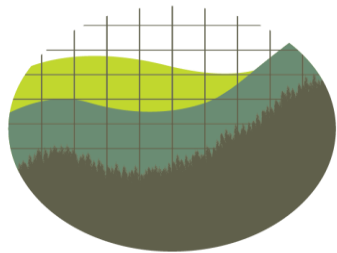
## Moderator:

- **Linda K. Breggin**, Senior Attorney, Environmental Law Institute



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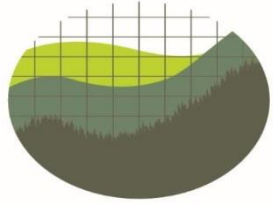
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# Managing the Future of the Electricity Grid: Distributed Generation and Net Metering

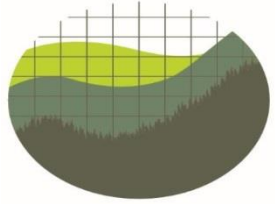
Richard L. Revesz

Burcin Unel



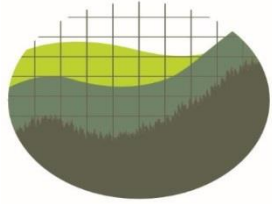
# Background

- Distributed generation
  - Solar photovoltaics
  - Distributed Energy Resources
- Net metering
  - Depends on underlying retail rates
    - Bundled, flat, volumetric rates
    - Based roughly on the average cost of providing electricity to the end user



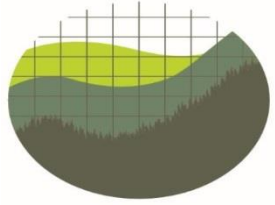
# Net Metering Debate

- Utility perspective
  - Recovering fixed costs of investment
- Ratepayer advocacy perspective
  - Cost shifting to non-DG customers
- Environmental advocacy perspective
  - Avoided emissions



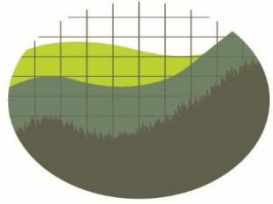
# Shortcomings of Current Net Metering Policies

- Inefficient price signals for consumption/investment
- Inadequate locational signals
- Perverse incentives for installation
- Varying emission benefits depending on time and location



# Avoided Cost/Social Benefit

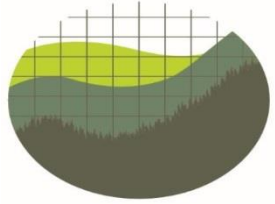
- Grid benefits
- Grid costs
- Social Benefits



# Time-, Demand-, Location- Variant Pricing

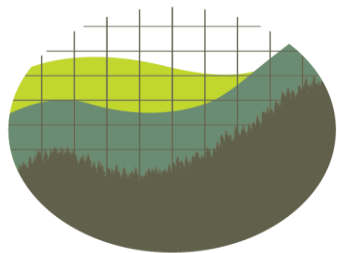
- Cost-reflective tariffs
  - Time variant
  - Demand variant
  - Location variant
  - Externalities
- A uniform framework that can be applied to all distributed energy resources
  - Distributed generation with or without energy storage
  - Energy storage
  - Demand response
  - Energy Efficiency





# Conclusion

- In the short run, an *Avoided Cost/Social Benefit* framework is necessary
- In the long run, a retail rate reform is necessary to be able to value all distributed energy resources accurately



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For Questions and Comments

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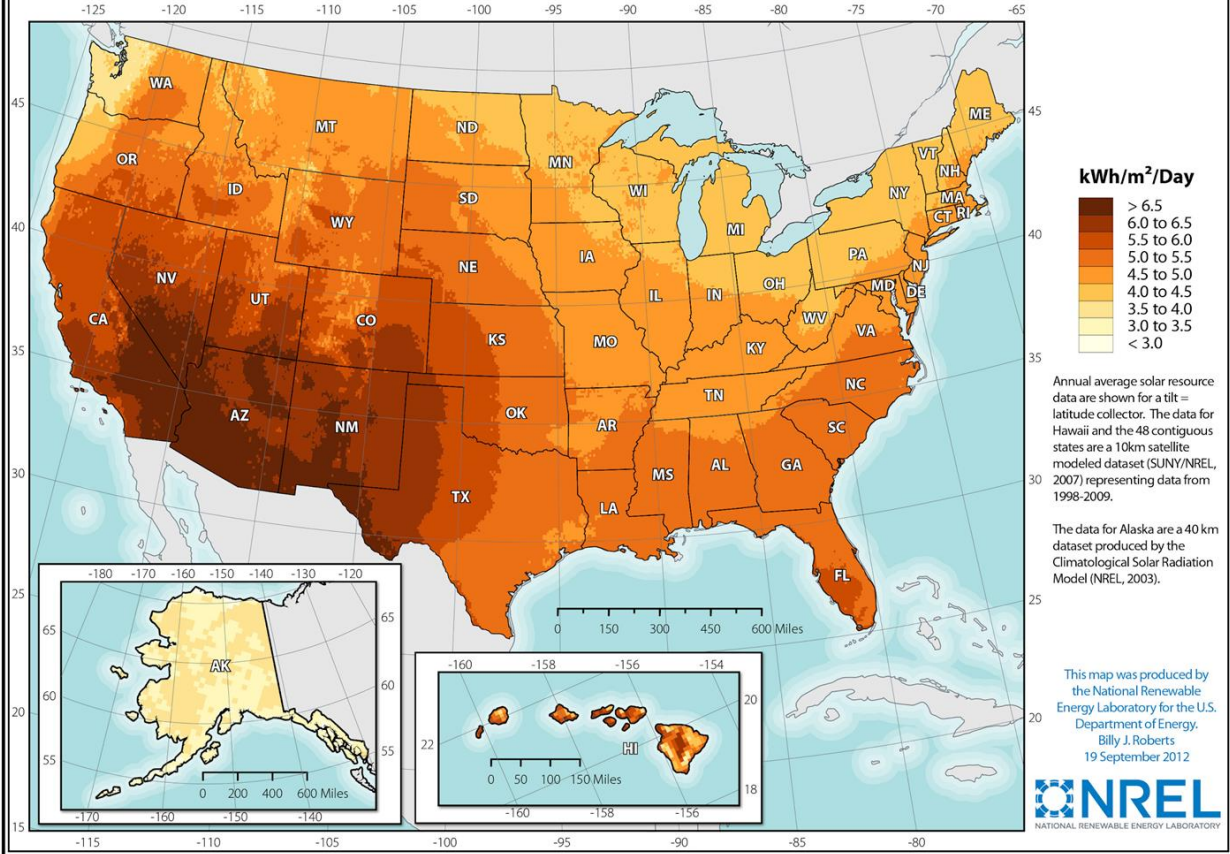
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4.9.18

Ellen Anderson  
Executive Director, Energy Transition Lab

# Photovoltaic Solar Resource of the United States



# Minnesota DG & Net Metering Policy

## Net Metering:

- Retail rate for up to 40 kW
- Avoided Cost: 40 kW-1 MW
- DG: under 10 MW

Minn. Stat. §216B.164

# Minnesota DG Rates

Value of Solar Tariff: \$0.976 kWh

- Required for Xcel's Community Solar Garden Program
- 1 Mw cap

Avoided Cost: \$0.02-.04 kWh

Avoided Cost + : \$0.05-.08 ?

What can you build for this rate?

1 MW “barely”

No DG; utility-scale only

Might work for 10 MW project, but no smaller

## Minnesota PUC Order:

“Because the Value of Solar rate compensates subscribers for the value - and only the value - that their generation brings to Xcel’s system, it will address concerns that nonparticipating ratepayers are subsidizing the program.”

IN THE MATTER OF THE PETITION OF NORTHERN STATES POWER COMPANY, DBA XCEL ENERGY, FOR APPROVAL OF ITS PROPOSED COMMUNITY SOLAR GARDEN PROGRAM,  
Sept. 6, 2016



DG not  
financeable,  
especially at  
rooftop scale



Costs to utility  
distribution system &  
to non-DG ratepayers  
too high



Ellen Anderson  
Energy Transition Lab  
[www.energytransition.umn.edu](http://www.energytransition.umn.edu)



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