The Economics and Politics of Pricing Distributed Solar

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IEEFA / IPI Energy Finance Conference
March 17, 2015
Historical DG “valuation” driven by PURPA and state net metering statutes

- **PURPA:**
  - “avoided cost”
  - wholesale transaction

- **Net Metering (NEM):**
  - retail rate “credit” (usually) for excess generation
  - can be used to “offset” monthly bill

- **Other approaches:**
  - “feed-in tariffs” (FIT)
  - “value-of-solar” approaches (VOS)
Net metering is common, but program details vary ...

Note: Numbers indicate individual system capacity limit in kilowatts. Some limits vary by customer type, technology and/or application. Other limits might also apply.

This map generally does not address statutory changes until administrative rules have been adopted to implement such changes.
Why is solar “value” a hot topic?

Source: GTM Research (2013)
Falling costs driving solar boom...

Source: GTM Research, SEIA
Welcome to the Terrordome… $/MMBTU by Energy Type

Source: EIA, CIA, World Bank, Bernstein analysis
Solar “grid parity” is here...

Protecting the Midwest’s Environment and Natural Heritage

Source: GTM Research (2015)
So what are the incumbents doing?

(1) Some are attacking rooftop solar ...

(2) Some are getting into the game ...
Utility strategy: Focus on “fairness” and challenge net metering


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What are the Challenges and Obstacles for Fairness?

- Hidden subsidies like net metering allow higher income customers to avoid system costs, which are then paid by middle and lower income customers.

- Loss of customers. California reported over 1,000 MW and over 104,000 solar projects at the end of 2011.

- Under net metering, such projects pay little distribution or other fixed costs, despite the fact they impose new costs on the system.

- Competition. Third parties owned 72% of residential solar systems and over one-quarter of non-residential solar systems installed in 2012 (through May 27) in California.
Utility strategy: Raise “fixed” costs and add solar fees

• Wisconsin: Regulators agree to increase fixed charge on We Energies electric bills (Nov. 14, 2014)

• Arizona: SRP's proposed rate hike targets new rooftop-solar customers (Dec. 4, 2014)

• New Mexico: New Mexico's largest utility wants to charge solar owners up to $30 a month (Dec. 22, 2014)

• Utah: "Solar tax" on the table in Utah general rate case (July 30, 2014)
Fixed Monthly Charges (current and proposed) of Investor-Owned Utilities in Wisconsin

- **Wisconsin Electric Power Co**
  - Current Monthly Charge: $9.13
  - Proposed 2015 Charge: $16.00

- **Wisconsin Public Service Corp**
  - Current Monthly Charge: $10.40
  - Proposed 2015 Charge: $25.00

- **Madison Gas and Electric**
  - Current Monthly Charge: $10.44
  - Proposed 2016 Charge: $49.00
  - Proposed 2017 Charge: $70.00

*MG&E has temporarily withdrawn their 2016 & 2017 proposals.*
MGE (Wisconsin) rate redesign proposal

Energy charges (cents/kWh)

- 2014: 14.4 cents/kWh
- 2015: 12.9 cents/kWh
- 2017 (originally proposed): 4.0 cents/kWh

Protecting the Midwest’s Environment and Natural Heritage
Impact of Rate Design Proposals

- Low-usage and DG customers will pay more
- Net metering is devalued
- Less incentive to save energy
- Less ability to control energy bills
- Fewer options for self-generation
- Fewer opportunities for innovation and competition
Expert Reactions:

Jon Wellinghoff:

“fixed charges are a false fix”

Dr. Charles Cicchetti:

“abuse of market power”

Karl Rabago:

“astounding failure of basic ratemaking”
“Fairness” depends largely on the “value” of solar.
And many studies are finding solar benefits exceed costs.

Source: Vote Solar
Recent PV valuation studies:

- **Maine:** PUC study values solar at 33 cents/KWh, more than double the price of utility power.

- **Nevada:** E3 study determines grid benefits of rooftop solar systems installed through 2016 will exceed costs by $36 million.

- **Mississippi:** PSC study finds solar net metering will provide a net benefit to Mississippi in nearly every scenario analyzed.

- **Many similar studies** from states like California, Texas, New York, and Vermont.

- **BUT in Louisiana:** Draft study found net cost, when including the cost of state tax credits.
Some states are taking more holistic approach:

• New York REV docket: utility as “distributed system platform provider”

• Massachusetts grid modernization: advanced meters and dynamic pricing

• Minnesota e21: thought experiment in a regulated state
Takeaways:

- Solar cost/benefit and valuation debates have been highly politicized.

- Is current focus on rate design obscuring core social/policy rationale for clean energy transition?

- Fundamental business model reform seems inevitable.
  - Start with clear goals;
  - Learn from NY and other leaders;
  - Focus on data, not unsupported philosophical arguments.