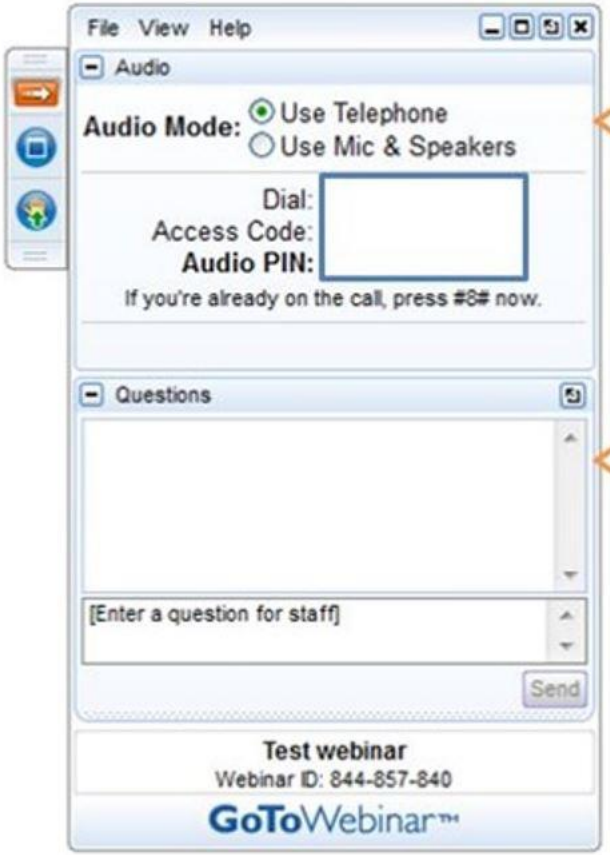
State-Federal RPS Collaborative Webinar

Ending the Solar Tug of War: Can There be Common Ground on Net Metering?

Hosted by
Warren Leon, Executive Director, CESA

Wednesday, October 15, 2014

Housekeeping



All participants are in "Listen-Only" mode. Select "Use Mic & Speakers" to avoid toll charges and use your computer's VOIP capabilities. Or select "Use Telephone" and enter your PIN onto your phone key pad.

Submit your questions at any time by typing in the Question Box and hitting Send.

This webinar is being recorded.

You will find a recording of this webinar, as well as all previous CESA webcasts, archived on the CESA website at

www.cesa.org/webinars

About CESA

Clean Energy States Alliance (CESA) is a national nonprofit organization working to implement smart clean energy policies, programs, technology innovation, and financing tools, primarily at the state level. At its core, CESA is a national network of public agencies that are individually and collectively working to advance clean energy.

State-Federal RPS Collaborative

- With funding from the Energy Foundation and the US Department of Energy, CESA facilitates the **Collaborative**.
- Includes **state RPS administrators**, **federal agency representatives**, and other stakeholders.
- Advances dialogue and learning about RPS programs by **examining the challenges and potential solutions** for successful implementation of state RPS programs, including **identification of best practices**.
- To sign up for the Collaborative listserve to get the **monthly newsletter** and announcements of **upcoming events**, see: www.cesa.org/projects/state-federal-rps-collaborative

Today's Guest Speakers

Susan Glick, Senior Manager, Public Policy, Sunrun, susanw@sunrun.com

Jim Kennerly, Senior Policy Analyst, NC Clean Energy Technology Center, jdkenne2@ncsu.edu

NC STATE UNIVERSITY

Ending the Solar Tug of War: Can There Be Common Ground on Net Metering?

Jim Kennerly
Senior Policy Analyst
NC Clean Energy Technology Center
(formerly the NC Solar Center)
College of Engineering, NC State University

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Formerly the NC Solar Center

NC STATE UNIVERSITY

The NC Clean Energy Technology Center Energy Policy Team

Home of

Technical Expert Partners In

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Our Solar Outreach Partnership (SolarOPs) Work: Solar PV Soft Costs, and Why They Matter

- Non-hardware "soft" costs represent 64%* of the total cost of a rooftop solar PV system
- Lower soft costs = less cost of state and federal incentives for projects, greater affordability.
  - Easier access to capital and financing
  - Greater customer acceptance

*Source: National Renewable Energy Laboratory (link)

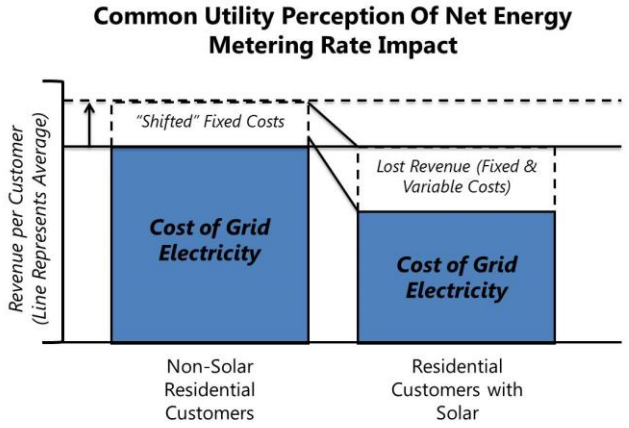
Soft Cost Risks of Adding Fixed Charges to Common Solar PV Rate Designs

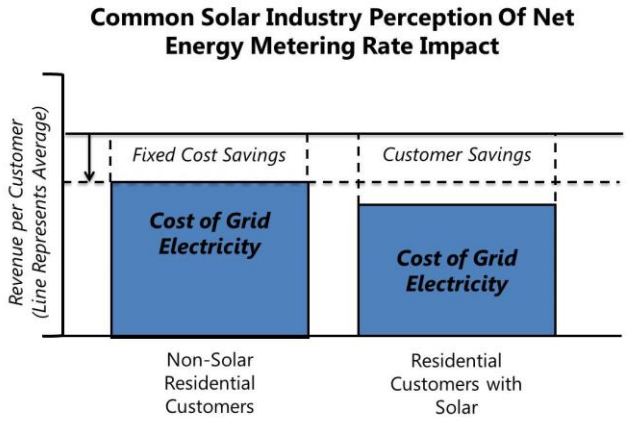
- Net energy metering (NEM) is well-known and understood by utilities, customers, the industry and its financiers.
- Our findings: dramatic changes to NEM could increase:
  - Customer acquisition & marketing costs by increasing the installer's time and cost in educating customers about changes; and
  - Financing costs, as investors in rooftop PV companies demand a greater risk premium for their investment.

Dueling Views of Solar/NEM Rate Impact

All parties agree that more solar is good, but to stakeholders, net metering is:

- (Utilities/Allies) Unfair for a subset of customers that cannot "afford" it, and shifts costs to these customers because the "value of solar" is *less* than the retail rate.
- (Solar Advocates/Industry) Not enough at the retail rate, because the "value of solar" *meets or exceeds* the retail rate





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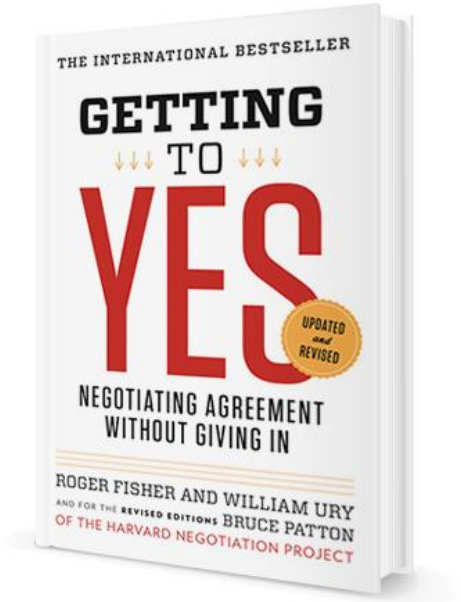
The NEM "Tug of War": How Can it End?

Key Point from *Getting to Yes*:



Focus on interests, not positions.

Mick Jagger Translation:

You can't always get what you want…but if you try sometimes, you might find you get what you need.

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Cautions Related to "Value of Solar"

- Using solar cost-benefit analysis (CBA) is very useful for understanding the locational (and overall) value of PV for planning/IRP purposes.
- However, **CBA may not be appropriate for ratemaking purposes**, especially if non-solar cost shifts are left unaddressed.
- Examples of well-known (and broadly supported) non-solar cost shifts include:
  - Non-cost effective low income discount and efficiency programs
  - Industrial customer load "retention"/growth discounts
  - Discounts for senior citizens (or use of "medical baselines" in California)
  - Offering the same rates in areas with different "load densities" (e.g. for rural and urban customers)
  - Rates at average cost (instead of at the time-of-use).
- Most importantly: CBA makes it **difficult for solar stakeholders and utilities to agree** on a consensus approach.

A Cleaner, Clearer Approach: Focusing on *Objective* Utility Costs, Not *Normative* Solar "Value"

Utility Cost Category	Fixed or Variable?	Examples
Demand-Related	Partially fixed, partially variable (varies with customer demand)	Share of power/"production" plant, T&D infrastructure costs.
Energy-Related	100% variable (varies with customer energy usage)	Share of power/"production" plant, T&D infrastructure costs, cost of fuel, other purely variable costs of producing each kWh of energy.
Customer-Related	Unavoidable, by definition	Cost of metering, billing, service drops, the purely unavoidable share of the distribution system.

Source: NARUC Utility Cost Allocation Manual, 1992.

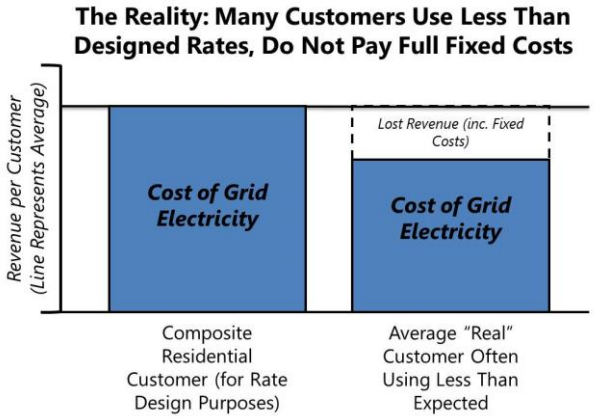
Regulatory & Rate Design Approaches for a Distributed Energy Age

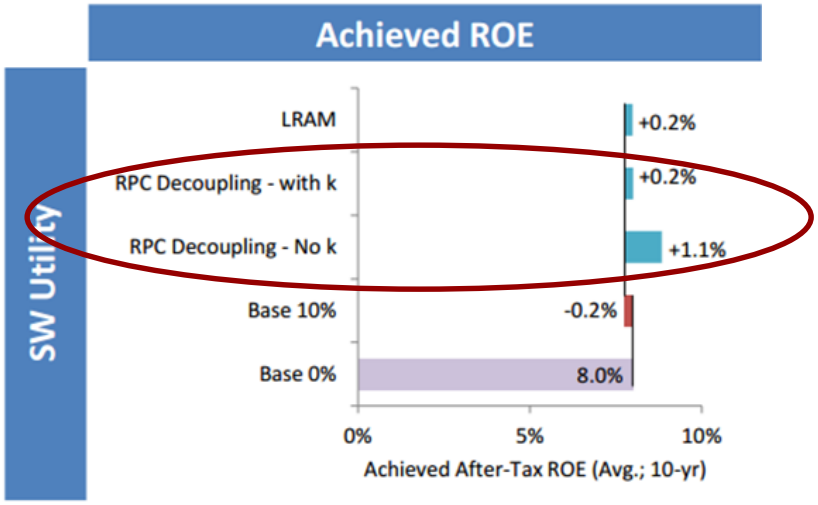
It is possible to keep retail NEM for the long term while raising net metering program caps, but with a three-step cost recovery approach:

1. Revenue Decoupling (With An Adjustable Return on Equity)
2. A “minimum monthly contribution”/minimum bill (assessed for all customers)
3. Rates that reflect the varying cost of electricity at different times of use

Step One: Utility Revenue Decoupling

- Without special shareholder incentives, non-utility owned distributed energy resources (DER) can (and has) reduced utility earnings.
- Applying a decoupling adjustment to all customers' rates (a great many of whom are using less and detracting from earnings) will:
  - Strengthen a utility's ongoing financial position;
  - Provide some breathing room with investors questioning their creditworthiness; and
  - Help them prepare for new roles (as a grid integrator or DER provider) and investments (in DER and intelligent grid infrastructure)





Source: Lawrence Berkeley National Laboratory analysis of utility net metering impacts (link)

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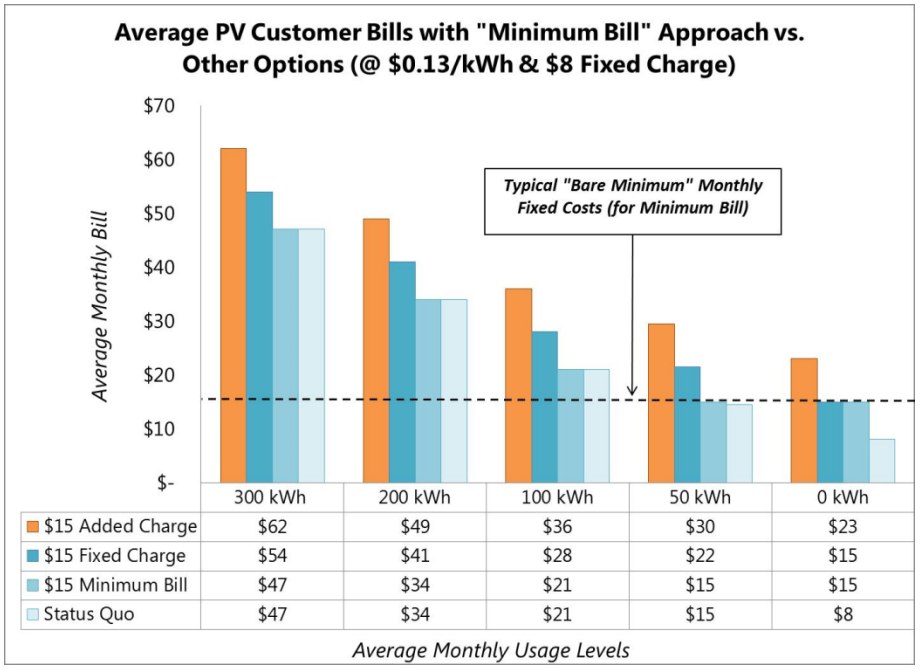
Step Two: A Minimum Monthly Contribution/Bill

- While many customers must pay fixed "facilities" charges *regardless of their energy usage* (and thus can discourage certain forms of energy conservation), a minimum bill is a flexible "floor" for a utility bill that accounts for customer energy usage as well.
- A minimum bill captures critical **customer-related** revenue associated with fixed costs not varying at all with demand and energy needs that the utility must incur (e.g. metering, portions of the distribution system)
- Unlike fixed charges, flexible minimum bills ensure (along with decoupling) that customers do not overpay for these costs when NEM policies change.



	300 kWh	200 kWh	100 kWh	50 kWh	0 kWh
$15 Added Charge	$62	$49	$36	$30	$23
$15 Fixed Charge	$54	$41	$28	$22	$15
$15 Minimum Bill	$47	$34	$21	$15	$15
Status Quo	$47	$34	$21	$15	$8

Source: Upcoming Poster Presentation at Solar Power International 2014, 22 October 2014

For an invaluable resource on utility costs, please see the National Association of Regulatory Utility Commissioners' (NARUC) *Electric Utility Cost Allocation Manual* (1992, available here.

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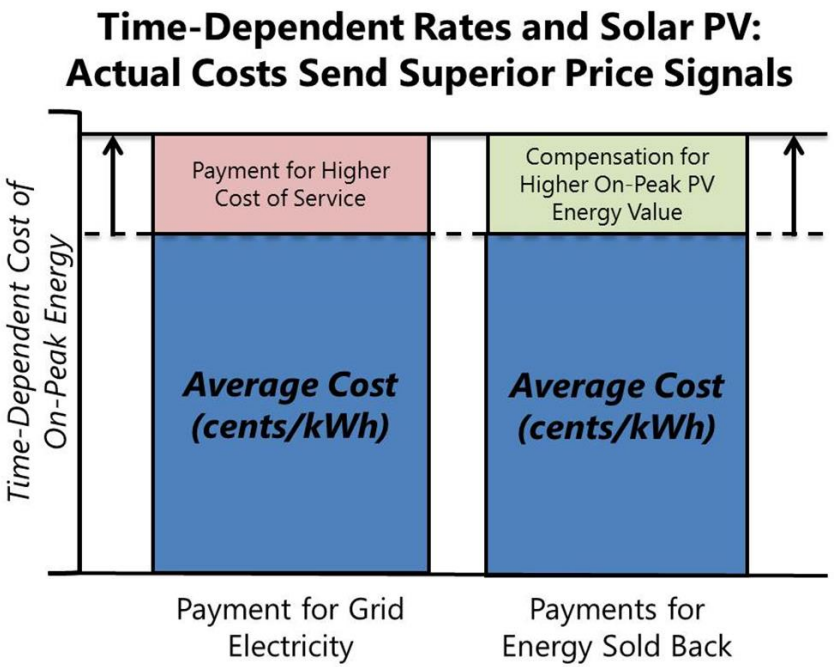
Step Three: *Default* (& Volumetric) Time of Use Pricing

- Many customers who use electricity more evenly than others can create cost shifts
- Instead of using demand-based charges, utilities can design energy (kWh) charges that reflect time of use pricing that capture **demand and energy-related costs of service.**
- Thus, utilities can then pay an appropriate price for solar entering its system, while charging an appropriate price for the energy the customer cannot self-generate



Source: Upcoming Poster Presentation at Solar Power International 2014, 22 October 2014

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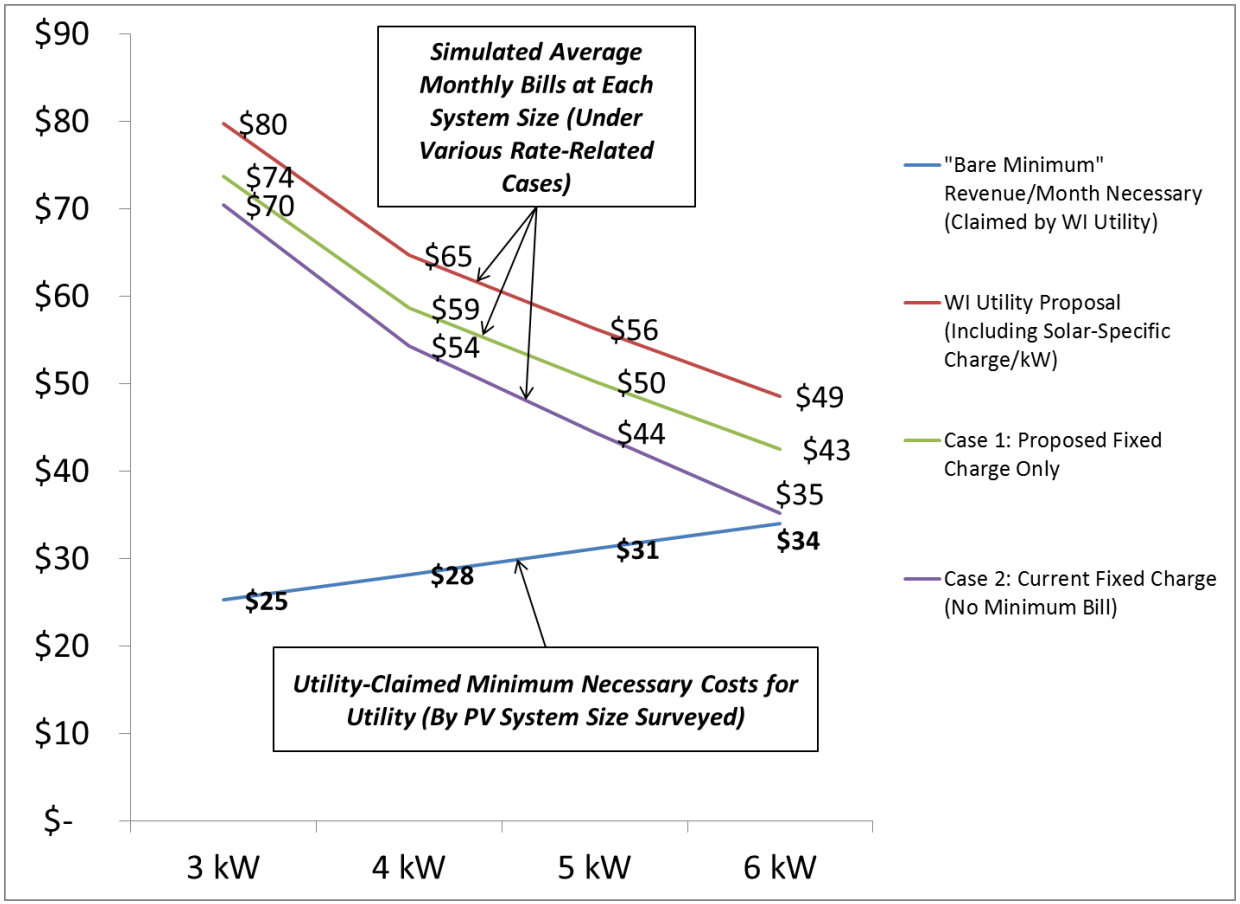
Matching Three-Step Approach to Utility Costs

Aspect of Proposed Cost Recovery Approach	Utility Costs Recoverable	Potential Residential "Billing Determinants"	Applicable Customers
Revenue Decoupling	Demand, Energy & Customer-Related	$/kWh, $/Customer/Month)	**All solar and non-solar customers**
Minimum Monthly Contribution/Bill	Customer-Related (or Demand-Related also, depending on design)	$/Customer/Month	
Default Time-of-Use Pricing	Demand-Related (or Energy-Related, if on-peak "energy" costs exceed retail rates)	$/kWh	

How Applying Fixed Charges Can Go Terribly Wrong…

- Certain Wisconsin utilities are now:
  - Increasing the fixed charge all customers pay
  - Apply added fixed cost charges to residential NEM customers, claiming that these customers do not pay their "bare minimum" costs, *and* disallow use of third-party owned systems for NEM customers
- However…
  - Our modeling of average (simulated) Milwaukee customers shows that a higher fixed charge was unnecessary to recover this utility's stated minimum necessary revenue.
  - In fact, the same non-solar customer using the same amount of energy would pay much less per month *than a solar customer*!
    - Principle: If purpose is to ensure PV customers pay their "fair share", they should not pay significantly more than a customer with a similar usage pattern.

How Applying Fixed Charges Can Go Terribly Wrong…



Source: NCCETC Case study to come. Analysis utilizes simulated load data and NREL's System Advisor Model

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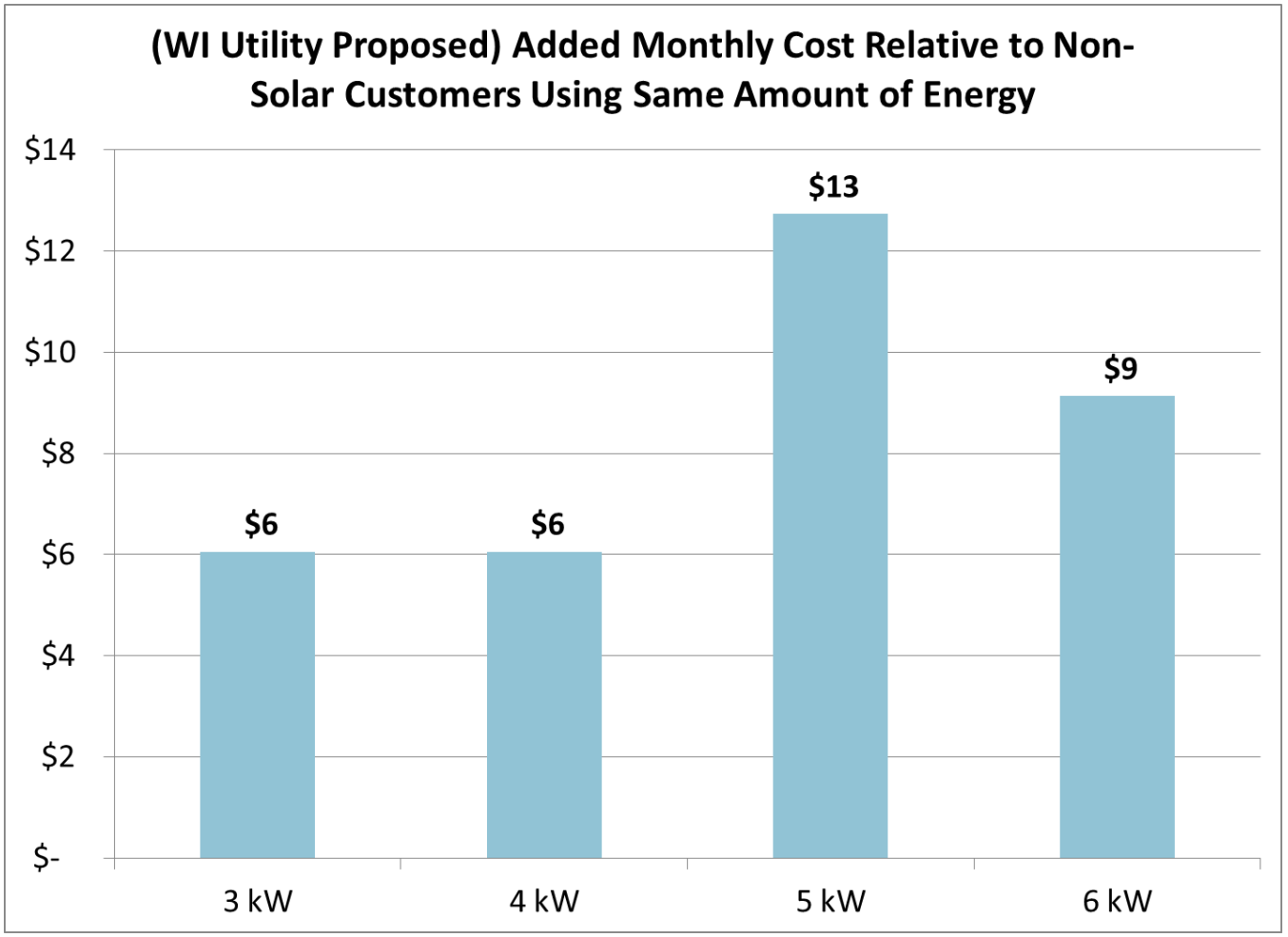

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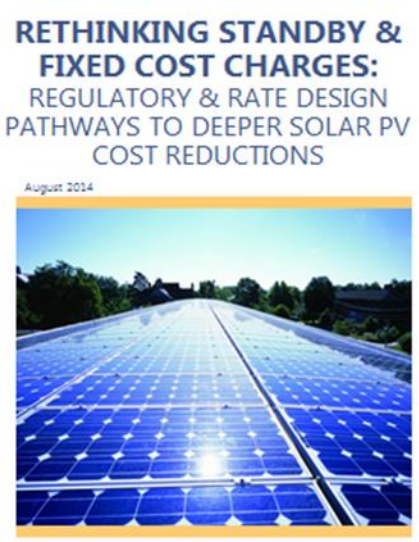
Avoiding Pitfalls: Some Suggested Best Practices

- Reform all rates, not just solar customer rates.
  - Important to look holistically at all of the cost shifts "baked in" to customer rates (since many are much larger than NEM);
- Ensure that actual customer billing data backs up requests to change net metering rules;
- Develop many rate options for solar customers, rather than forcing them onto specific rate schedules; and
- Develop an approach that matches with utility & PV interests.

Our Solar Outreach Partnership (SolarOPs) Report



SOLAR OUTREACH PARTNERSHIP

Powered by SunShot U.S. Department of Energy

Rethinking Standby and Fixed Cost Charges: Regulatory and Rate Design Pathways to Deeper Solar PV Cost Reductions

Available here

A Very Special Thanks To Kathryn Wright, My Coauthor at Boston-Based

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Minimum Bills: A Path to Common Ground

THE ALLIANCE FOR SOLAR CHOICE

MINIMUM BILLS

greentechsolar:

Why a Minimum Bill May Be a Solution to Net Metering Battles

GTM Research looks at the economic impact of a minimum bill versus fixed charges for solar customers.

Josh Cornfeld and Shayle Kann
July 24, 2014

The Boston Globe

Is the Massachusetts utility-solar compromise a model for the industry?

National Grid: "The changes will bring no less than half a billion dollars in savings to our customers over the 15-20 year program."

PVSolarReport

Could a Minimum Bill Bring an End to the Net Metering War?

THE ALLIANCE FOR SOLAR CHOICE

MASSACHUSETTS

S 2214 Passed July 31

- Sparked national conversation about minimum bills as path to common ground.
- Extended net metering cap.
- Established a Green Ribbon Commission to:
  - Evaluate a minimum bill to support the distribution system and
  - Examine an alternative incentive program to deploy 1600 MW of distributed solar by 2020.

The Boston Globe

Finding common ground on solar

By Lynn Jurich and Marcy Reed | JUNE 26, 2014

"A landmark bill in the Massachusetts Legislature is the first major example of our two sides finding comprehensive common ground on solar policy."

THE ALLIANCE FOR SOLAR CHOICE

NATIONAL PERSPECTIVE

In the last year, four new states have put minimum bills under consideration either by legislative or regulatory mandate:

- California – AB 327
- Kansas – HB 2101
- Oklahoma – Executive Order from Governor Mary Fallin
- Massachusetts – S 2214

States with existing minimum bills demonstrate success:

- In HECO's last earnings call, CEO highlighted that minimum bills are working.

Thank you for attending our webinar

Warren Leon
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