



Synapse  
Energy Economics, Inc.

# Implementing Net Metering to Meet Policy Objectives

---

*EUEC 2015*

February 16, 2015

Joseph Daniel & Dr. Tommy Vitolo, Synapse Energy Economics

*jdaniel@synapse-energy.com*

# Synapse Energy Economics

- Founded in 1996 by CEO Bruce Biewald
- Staff of 30 includes experts in energy and environmental economics and environmental compliance
- Leader for **public interest and government clients** in providing rigorous, independent analysis of the electric power sector

Consumer  
Advocates

Rural Affairs  
Advocates

Environmental  
Advocates

State Utility  
Commissions

State Agencies

Federal  
Agencies

## Where I've been active on distributed solar

---

California

Wisconsin

Maine

Hawaii

Massachusetts

New York

Mississippi

South Carolina

# What is net metering?

---

- A accounting method for tracking energy consumption and generation at a customer site on a “net basis”
- No two state net metering rules are the same
- Acts as a financial incentive to distributed energy resources
- Net metering is a tool that has been used to meet various policy objectives
  - Promoting distributed generation energy
  - Promoting solar and/or other renewables
  - Promoting electric resource choice
- Net metering rules impact, and are impacted by, other policies
- As states consider changes to net metering policies they should look at the big picture

## SOME states considering changes to net metering

---

California  
“Successor  
Tariff”

Mississippi  
Proposed Rule

Maine “VOS”

Hawaii DG 2.0

Massachusetts  
Bill. H3901

New York  
“REV”

**What are net metering's  
complicating factors?**

# Overview of presentation

---

## Three complicating factors

- Increased costs related integration
- Utility sales and cross subsidization
- Appropriate compensation of solar

## My approach to analyzing net metering

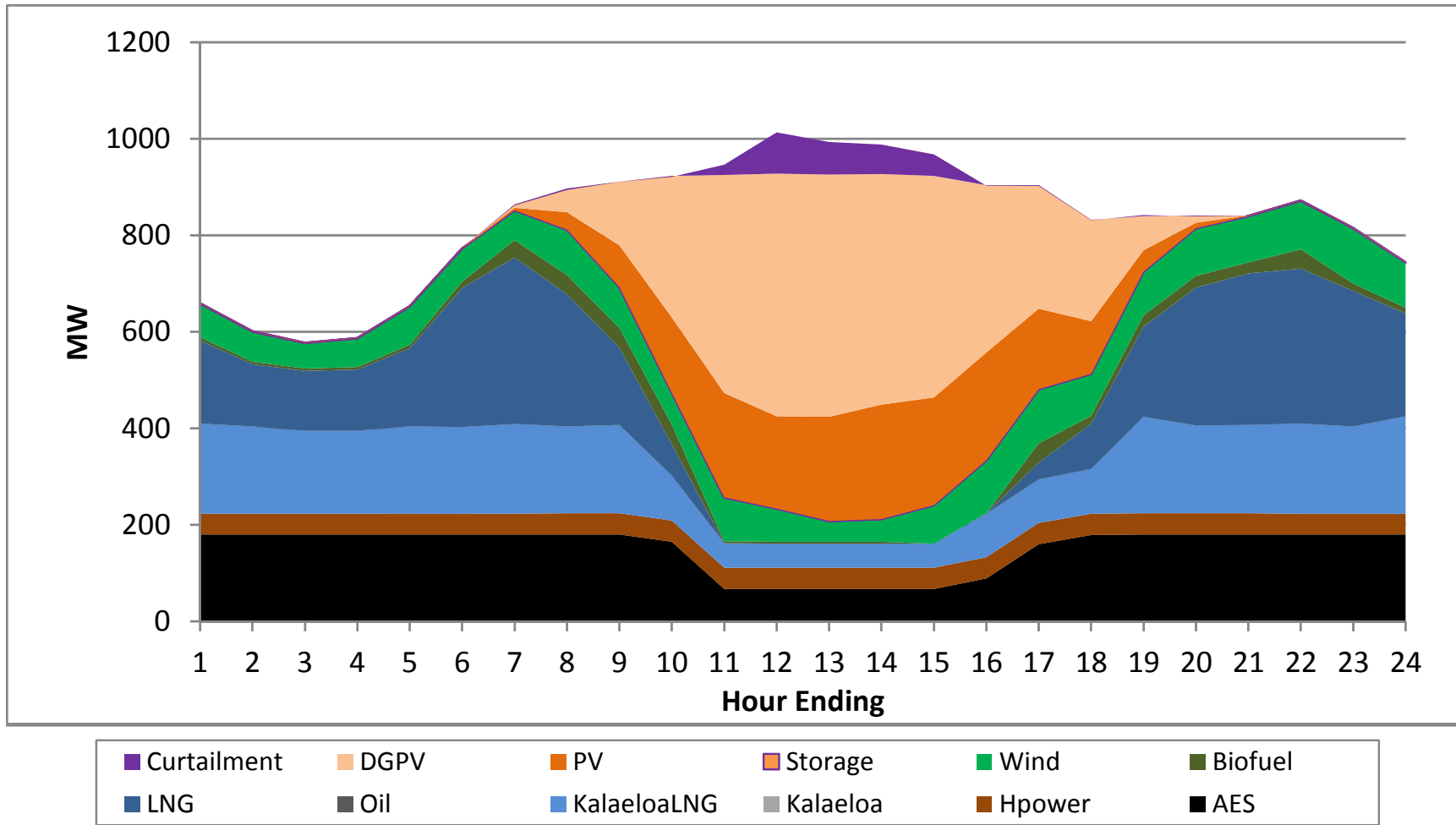
- Recognize net metering influences and is influenced by other policies
  - Other state policies
  - Federal policies
- Always compare costs and benefits side by side on equal footing

**What are the costs  
associated with  
integrating solar?**



# \$2 billion in T&D upgrades in Hawaii

July 9<sup>th</sup>: 2014 vs 2030



# Integrating distributed resources

---

## When is it a concern

- High penetrations on a state level: ramping, standby capacity
- High penetration on a circuit: distribution system costs

## Preventing increased T&D costs

- Caps to total net metered capacity penetration
- Caps to size of net metered installed at site
- Caps to amount of net metered capacity on a given circuit

## But don't forget:

Don't just look at the costs. Compare costs and benefits side by side. Maybe increasing net metered penetration will cost more, but it may also bring more benefits.

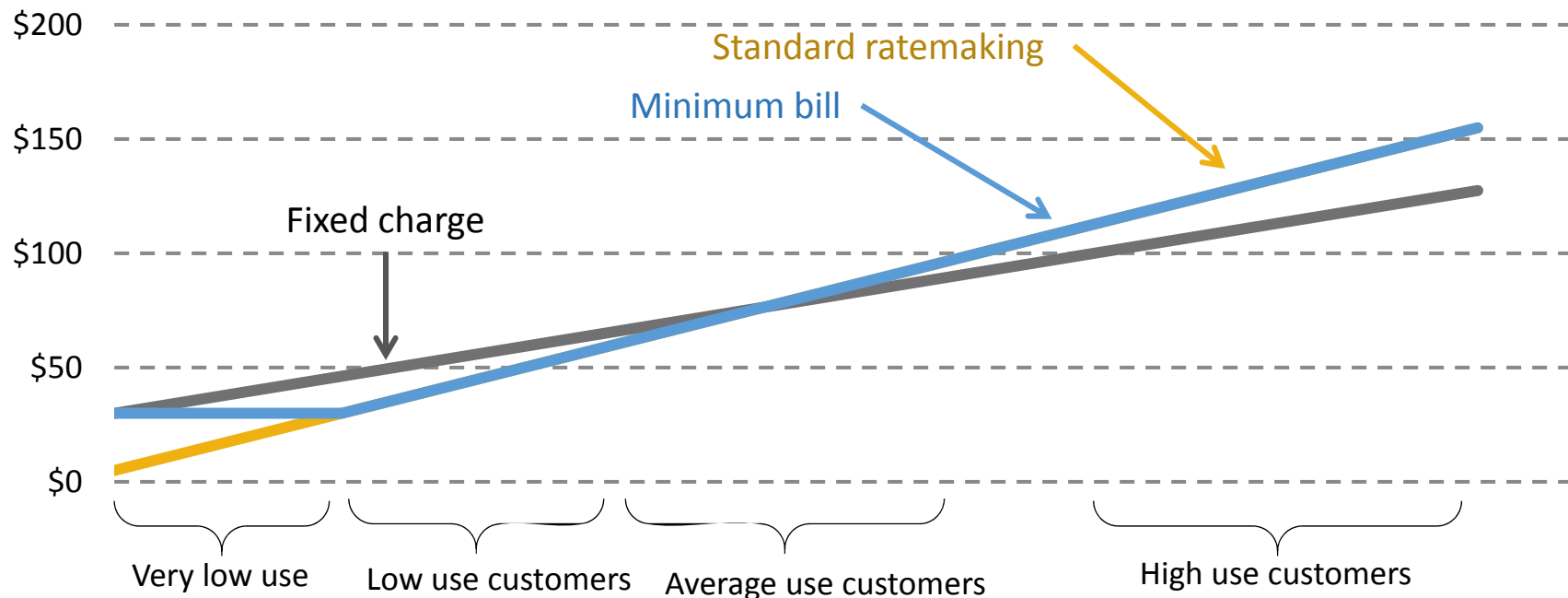
**What are common ways  
to address reduced utility  
revenues?**

# Fixed charges vs minimum bills: A solution?

Rate structure	Fixed Charge	Variable Charge	Minimum Bill
Standard	\$5 per month	\$0.10 / kWh	\$0
Fixed charge	\$30 per month	\$0.065 / kWh	\$0
Minimum bill	\$5 per month	\$0.10 / kWh	\$30

Structured so “average” customer’s bill doesn’t change

Change in monthly bill (assuming no change in consumption/generation)



# Cross-subsidization: An illustrative example

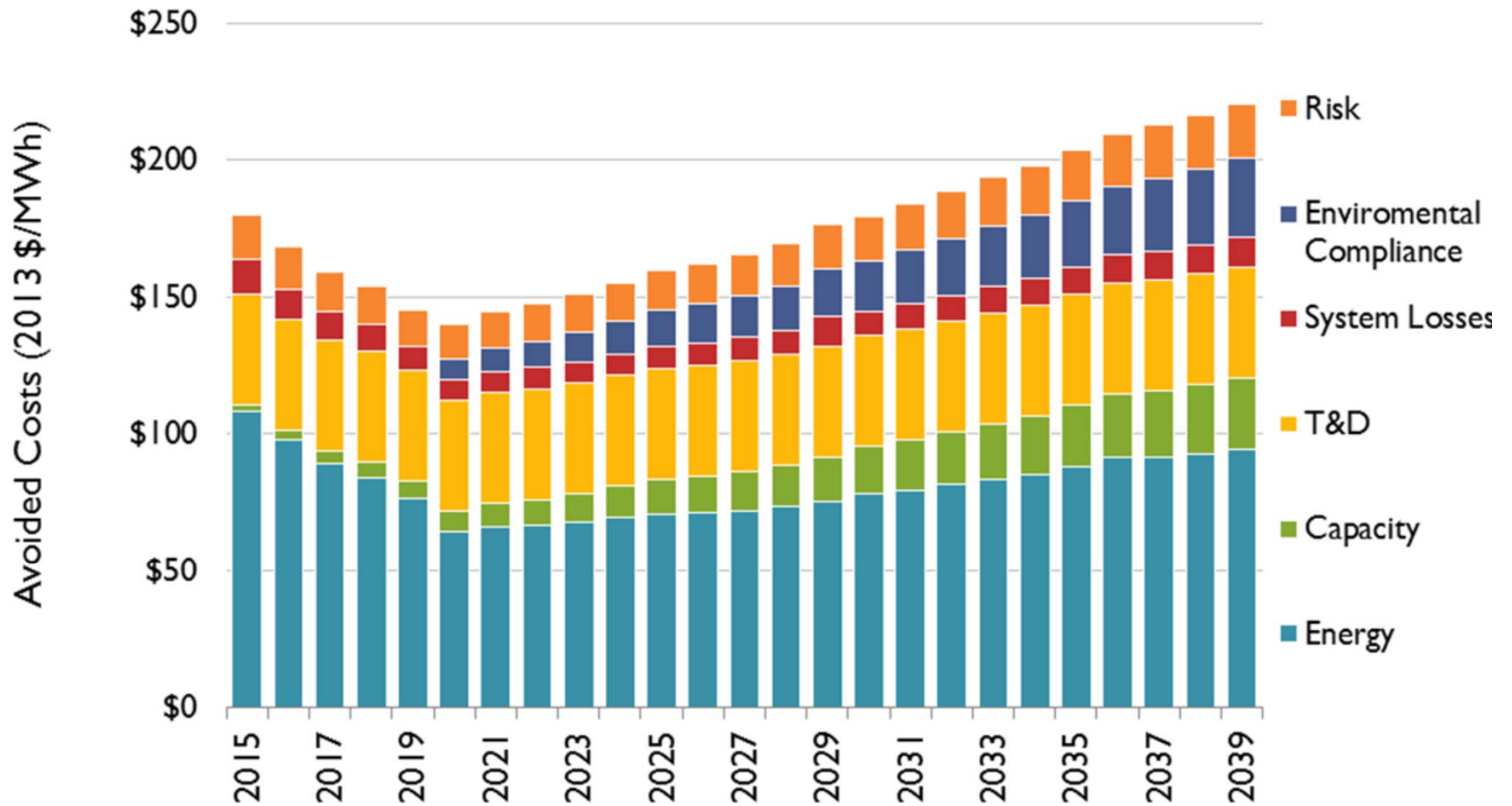
- 3% (by capacity) solar penetration
- 18% capacity factor for solar
- 50% load factor
- $\approx 0.6\%$  reduction in utility sales  $\rightarrow$  **only represents costs**

## What are the benefits?

1. If avoided cost ( $\$/kWh$ )  $>$  rate net metering customers are compensated  
*Net metered customers subsidize ratepayers over the long term*
2. If avoided costs = net metering credit  
*Customer impact  $\approx 0.00\%$  over the long term*
3. If no long term avoided costs: avoided costs  $\approx 40\%$  of volumetric rate  
*Customer impact  $\approx 0.24\%$  over the long term*

**How do you determine  
the avoided costs?**

# Value of solar tariff and avoided costs





# Why do an avoided cost study?

---

- Helps determine if/how much cross subsidization is occurring
- Avoided costs are generally well understood and part of existing regulatory structure
- Can help commissions, utilities, and other stakeholders determine the best rate structure
- Can prevent complex, confusing rate making proceedings
- Can be used to implement effective, simple, and fair rates

**Don't solve a problem  
that isn't there.**

## To recap:

---

Q: Is it costly to integrate solar?

A: It will depend on how much solar you are trying to integrate, but there are ways to avoid these costs.

Q: Are utility sales and cross subsidization a big concern?

A: Depends, but the only way to determine it is if you do an avoided cost study.

Q: How should you compensate solar?

A: There is no one size fits all method, but an avoided cost study is a good start.

## Contact Info

Joseph Daniel  
[jdaniel@synapse-energy.com](mailto:jdaniel@synapse-energy.com)  
617-453-7055