New York's Reforming the Energy Vision Initiative

Virginia Lacy | June 7th, 2016

Overview for Midwestern Governors Association

Topics for Today

- What REV is
- Why it's happening
- Key Decisions
  - Key Track 1 decisions
  - Key Track 2 decisions
- Where to From Here

What is REV?

The NY Public Service Commission's Reforming the Energy Vision (REV) regulatory proceeding is about…

Empowering customers to better manage energy…

…by animating markets for distributed energy resources…

…in order to drive higher efficiency, lower environmental impacts and increased affordability.

Why REV?

Challenges:

- Aging infrastructure
- Poor system efficiency
- Flat load growth
- Climate change

Opportunities:

- Rapidly falling technology costs
- Rise of the digital economy and new capabilities from IT
- Proliferation of new business models to create customer value

Historical regulatory approach and utility business models are not well adapted to address challenges and capture opportunities in an unstable energy environment

Initiating REV, the NY PSC declared business-as-usual is no longer an acceptable option for New Yorkers

"Utilities, and this Commission, could respond to [the challenges facing the industry] by clinging to the traditional business model for as long as possible, relying on protective tariffs, regulatory delay, and other defenses against innovation.

Alternatively, we can identify and build regulatory, utility, and market models that create new value for consumers and support market entrants and this new form of intermodal competition—in other words, embrace the changes that are shaking the traditional system and turn them to New York's economic and environmental advantage.

We decisively take the latter approach."

—REV Regulatory Policy Order

The Commission is taking a comprehensive approach to meeting 6 core objectives

Objectives

- Enhanced customer knowledge and tools to support bill management
- Market animation and leverage of customer contributions
- System wide efficiency
- Fuel and resource diversity
- System reliability and resiliency
- Reduction of carbon emissions

Achieved By

- Reorienting the ratemaking paradigm toward a ***customer-centered approach***
- Modernizing the operations and planning of the distribution grid to optimally ***integrate distributed energy resources***
- Establishing ***robust markets*** at the distribution system level to tap value of customers can provide
- Empowering utilities to serve as distributed system platform providers to ***ensure reliability*** while providing a seamless interface for the exchange of goods and services

REV has been proceeding along two complementary tracks

Track 1 (2014-2015)

Consideration of regulatory policy issues and implementation plan development

Track 2 (2015-2016)

Consideration of utility business model, rate-making, and rate design reform

Key Track 1 Decisions (Released February 2015)

Key Decisions in Order	Follow-On Activities
Establish the Distributed System Platform (DSP) & put utility in role of DSP Provider	• Market Design & Platform Tech Group (MDPT) • Benefit-Cost Analysis Framework Development • Distributed System Implementation Plans (DSIPs)
Pursue early wins to engage customers & animate the market	• Demand Response tariffs • Demonstration projects
Address environmental objectives, including new direction for energy efficiency	• Utility filings of Efficiency Transition Implementation Plans (ETIPs)

Key Track 2 Decisions (Released May 2016)

Utility Business Model

- **Establishes new outcome-based incentives,** "earning adjustment mechanisms" (EAMs), to align utility financial incentives with priority near-term outcomes (e.g. peak reduction, energy efficiency, improved data access, etc.)
- **Takes steps to align capital and operating expenditures**
- Invites utilities to propose "platform service revenues" (PSRs), which **provide new earning opportunities for utilities'** role as a platform business that integrates DERs and encourage new value-added services

Rate Design & DER Compensation

- Moves New York toward **more granular rate design** including:
  - Changes to improve customer adoption of time-based pricing on an opt-in basis
  - Testing improved price signals that encourage and reward customers for the value they can provide to the broader grid system

Where to from here

Value of DER	Develop interim DER valuation methodology	Interim methodology approved before yearend 2016
Planning	Utilities to develop Distributed System Implementation Plans	DSIPs to be filed June 2016
Rate Cases	Integrate REV ideas and recommendations into utility rate cases	On-going
Customer engagement	Continue demonstration projects; design and build digital marketplace	On-going

Thank you

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THE MINNESOTA E21 INITIATIVE

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Technical Research


Programs & Engineering
HOME ENERGY SQUAD
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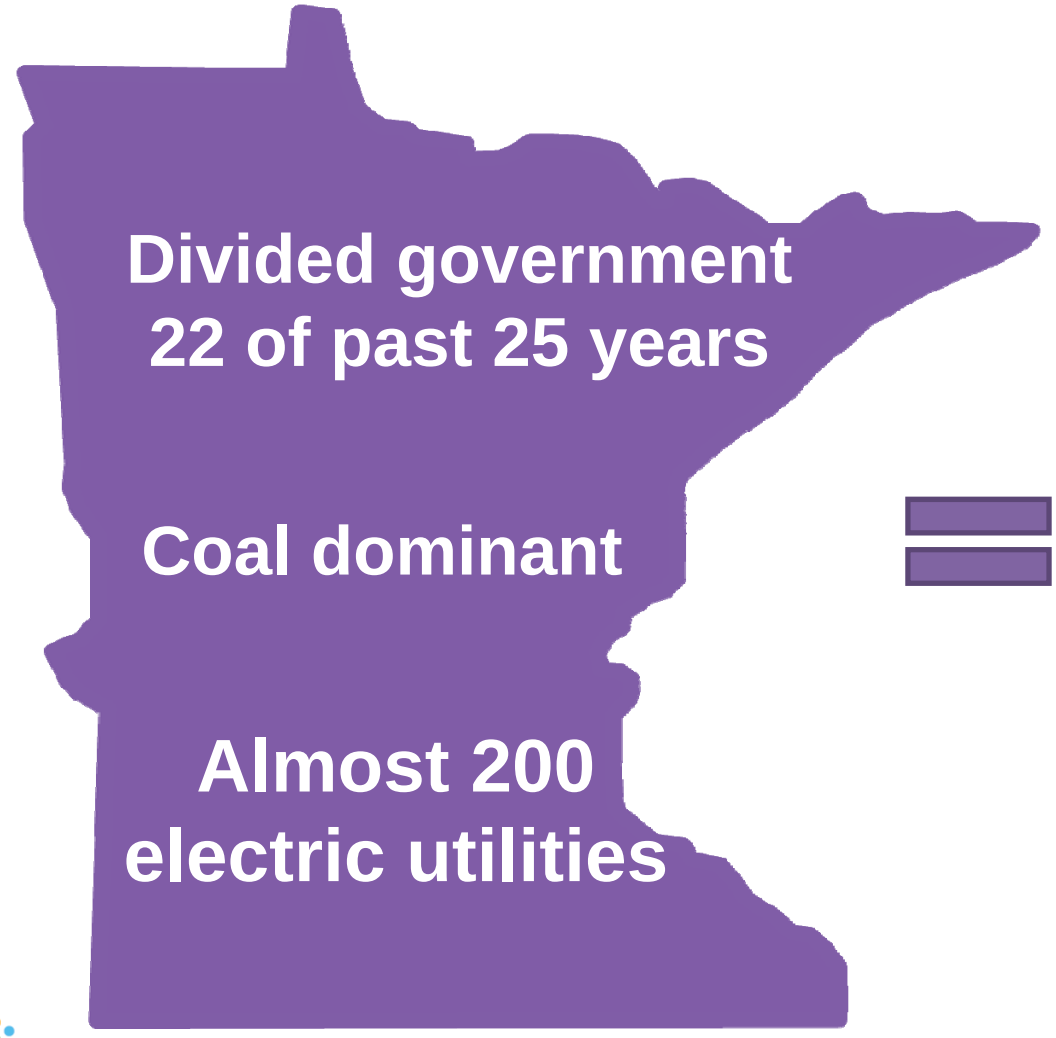
Community Energy Planning


Clean Energy Financing

Minnesota Energy Politics



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National Clean Energy Leader?

You bet.

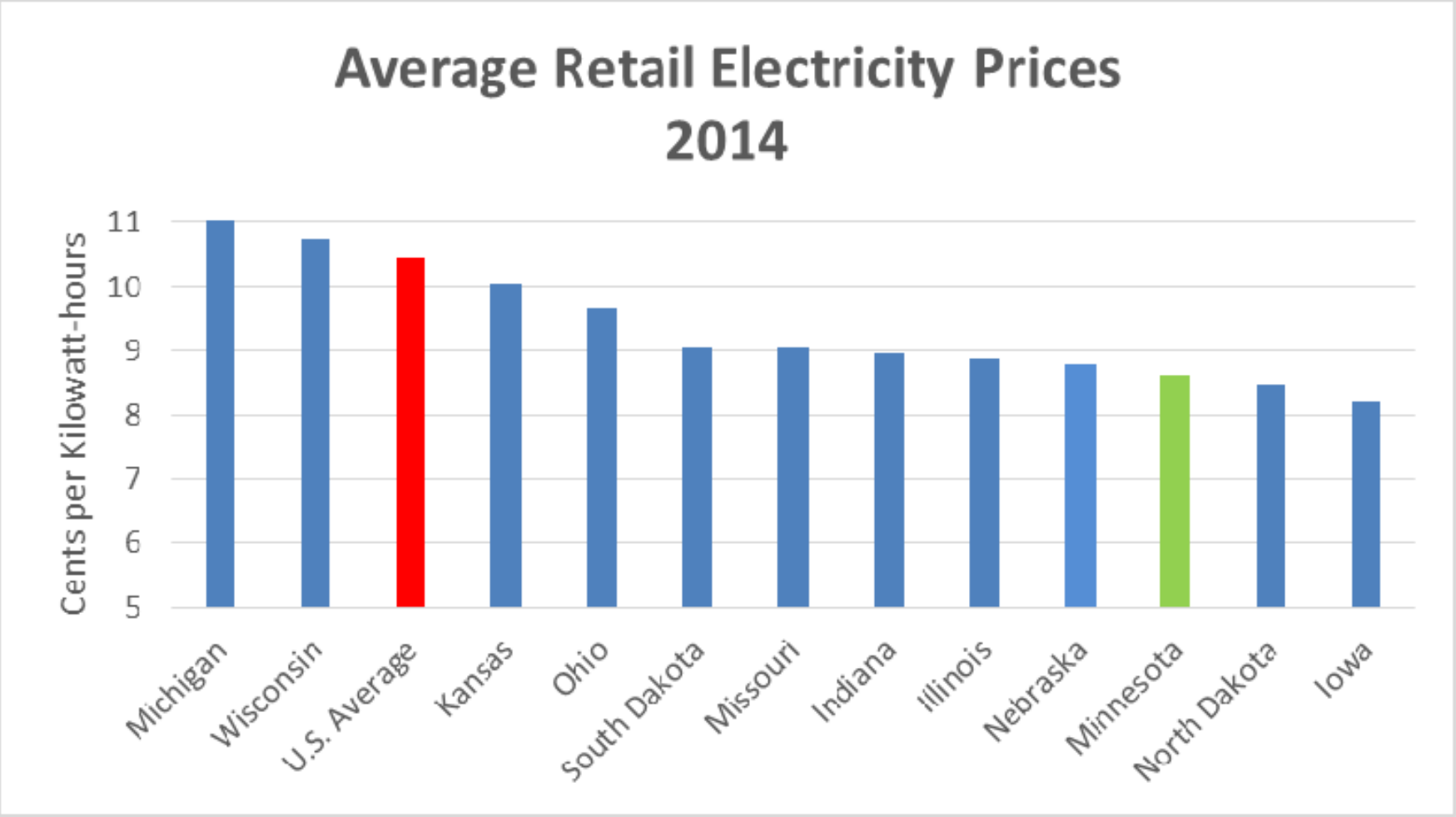

Saved Minnesotans over $6 Billion
Energy Efficiency


Developed over 3,600 MW's of Wind Energy
Renewable Energy


Reduced from just under 75% to less than 50%
Coal Generation


Reduced by almost 20% from 2005 baseline
CO2 Emissions

Electricity Price Comparison



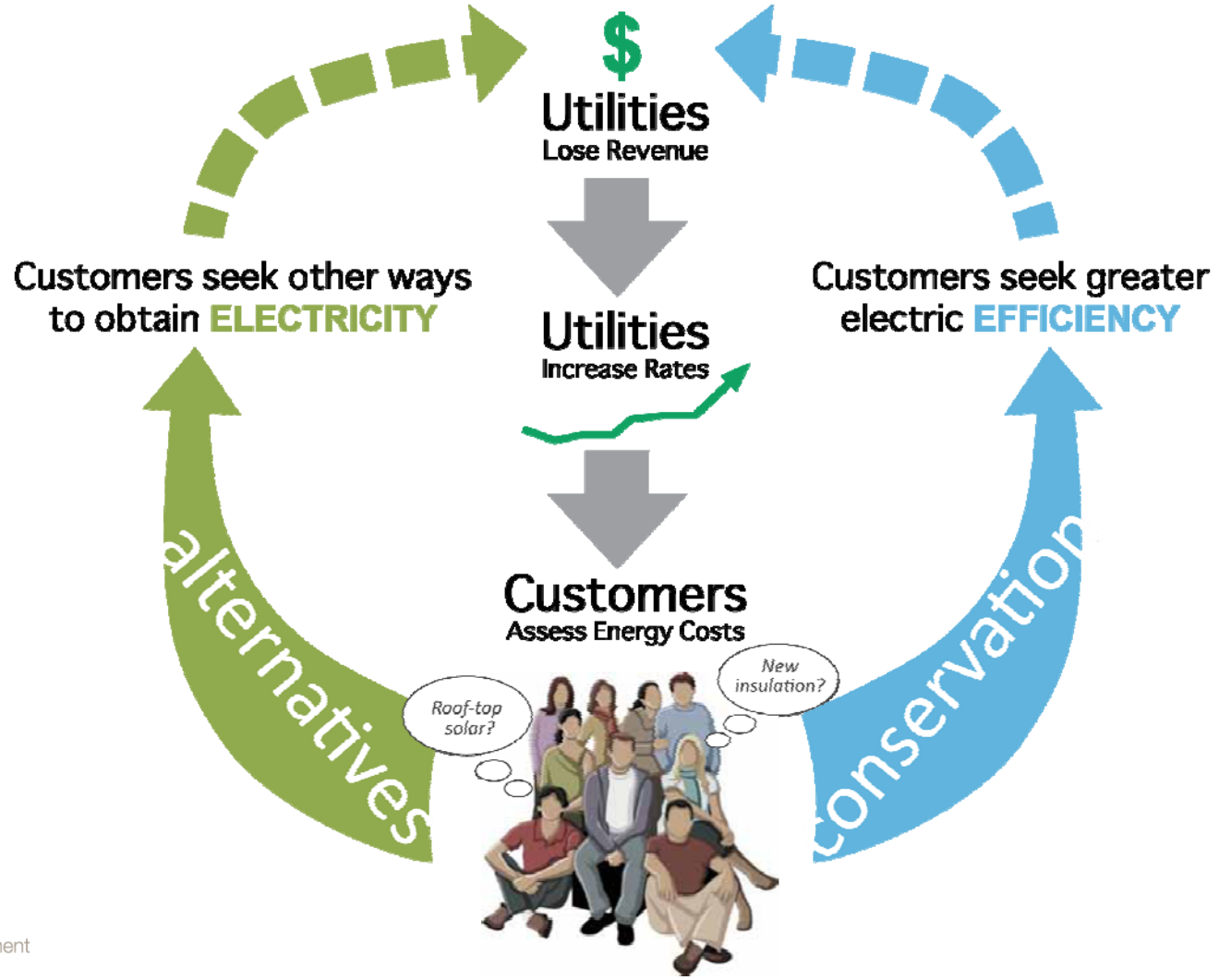
Center for Energy and Environment

Source: Energy Information Agency

Current Business Model

- Designed to Electrify the Country
  - Bulk Power, Central Station
  - Exclusive Service Territories
  - Keep Rates Low by Encouraging Sales

But… the industry is changing



Current model not just a problem for utilities

Regulators	• Traditional rates and resource planning need updating to reflect industry changes & protect the public interest
Consumer Advocates	• Consumers that aren't able to make choices about their energy supply may be stuck with increasing bills
Environmental Advocates	• Current business model may increasingly be at odds with additional significant advances in clean energy.

Electricity for the **Twenty First** Century

A regulatory framework that better aligns how utilities earn revenue with customer demands and public policy goals.

Project Team

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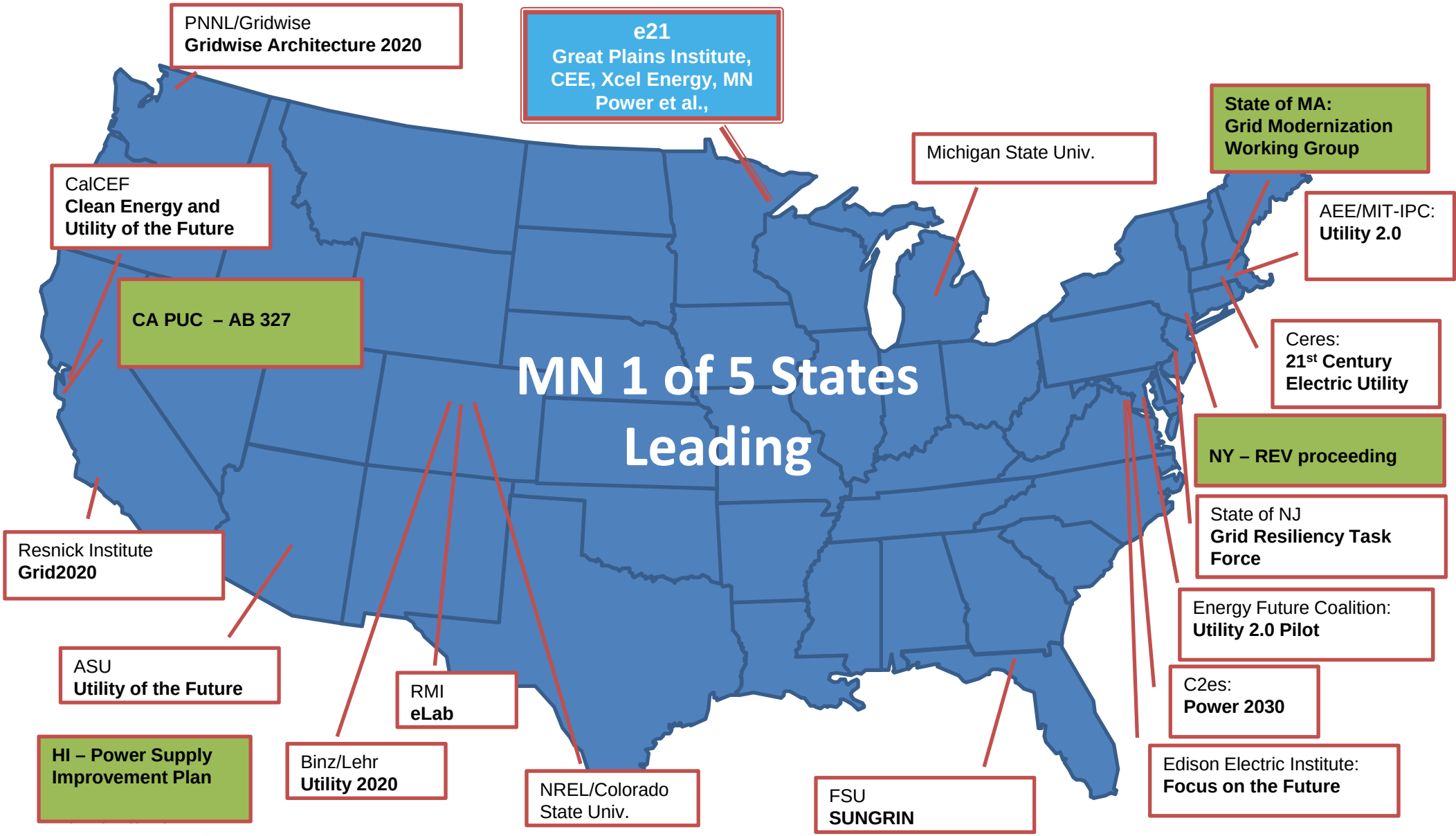

The Energy Foundation
Toward a sustainable energy future

According to GreenTech Media

Broad Stakeholder Involvement

e21 Initiative Phase I Report

Dec 2014

After a year of effort:

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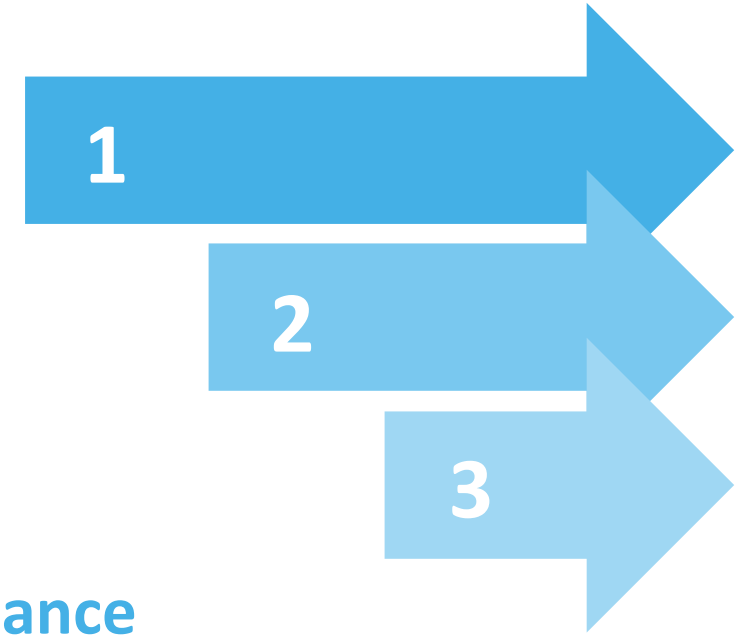
Phase I: Toward a Customer-Centric Framework

BEFORE

- "Build More, Sell More"
- Few customer choices



AFTER

- Revenue tied to performance
- More customer options

Phase II: Putting Meat on the Bones

- Improve Integrated Resource Planning
- Move Toward Performance Based, Multi-Year Revenue Model
- Modernize the Distribution Grid

Resource Planning to Integrated System Planning

Build on current process for identifying resource needs to:

- Reduce costs and improve system efficiency
- Better align planning decisions with rates
- Increased focus on planning for growth in distributed energy resources

Resource Planning to Integrated System Planning

New Utility Revenue Model

Multi-year Business Plan that aligns revenue recovery with…

- Public Policy
- System Needs
- Customer Demands
- Utility performance

Resource Planning to Integrated System Planning

New Utility Revenue Model

Grid Modernization

As the industry becomes increasingly decentralized

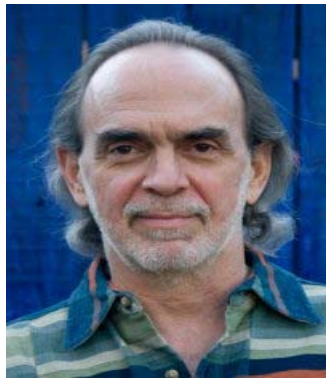
- What investments in the distribution grid should be made?
- Two way power flows, many more actors
- Increased communication capabilities
- Must maintain security, reliability

Phase II: Featured National Experts

Melissa Whited
Synapse

Sonia Aggarwal
Energy Innovation

Jim Lazar
RAP



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Paul De Martini
ICF International

Arne Olson
E3

THANK you!

Mike Bull | CEE
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California's Approach to Distributed Energy Resources and "Utility 2.0"

Midwestern Governor's Association Webinar
June 7, 2016

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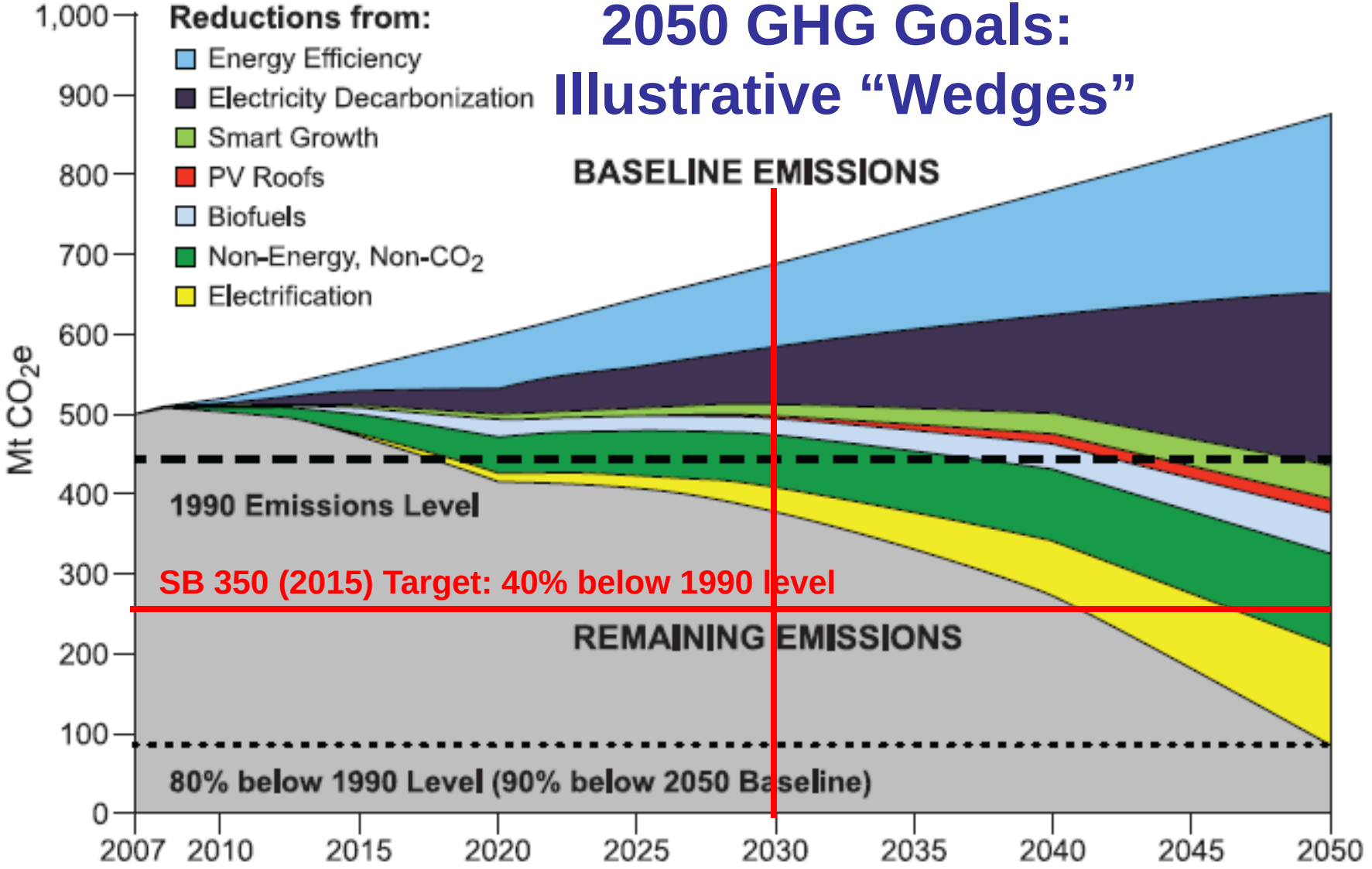
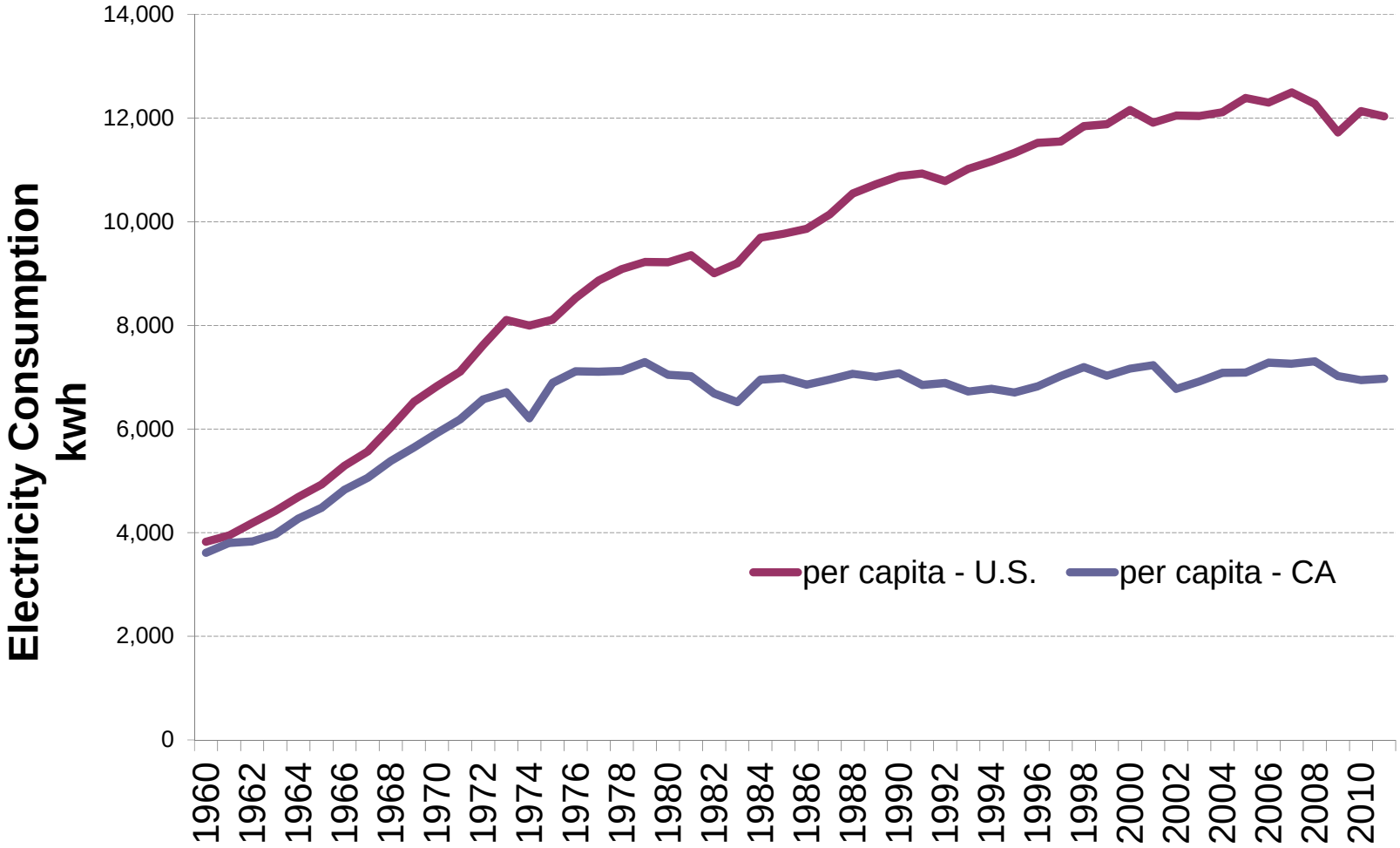
2050 GHG Goals: Illustrative "Wedges"

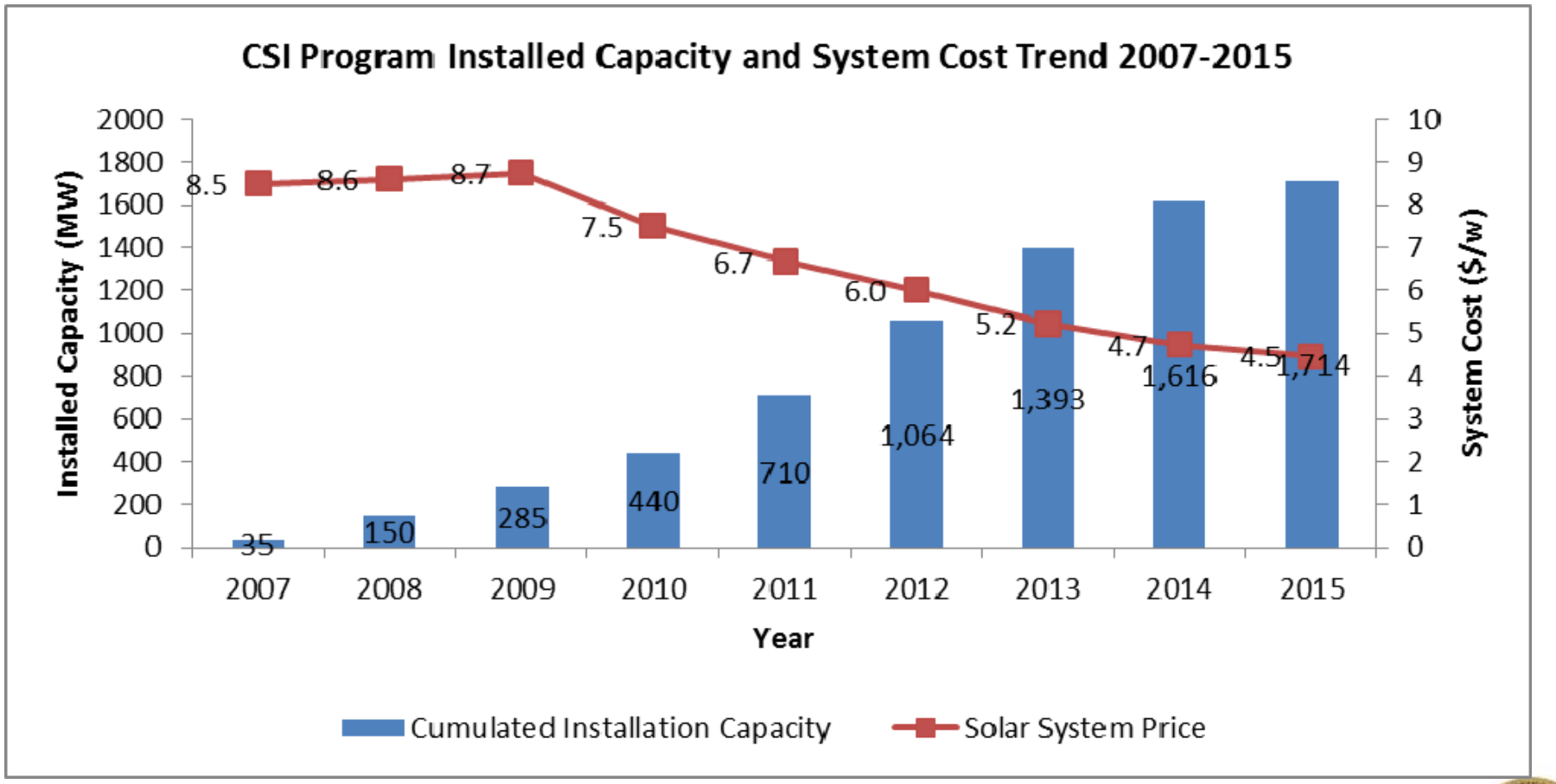


Source: James H. Williams et al (2012) "The Technology Path to Deep Greenhouse Gas Emissions Cuts by 2050: The Pivotal Role of Electricity"

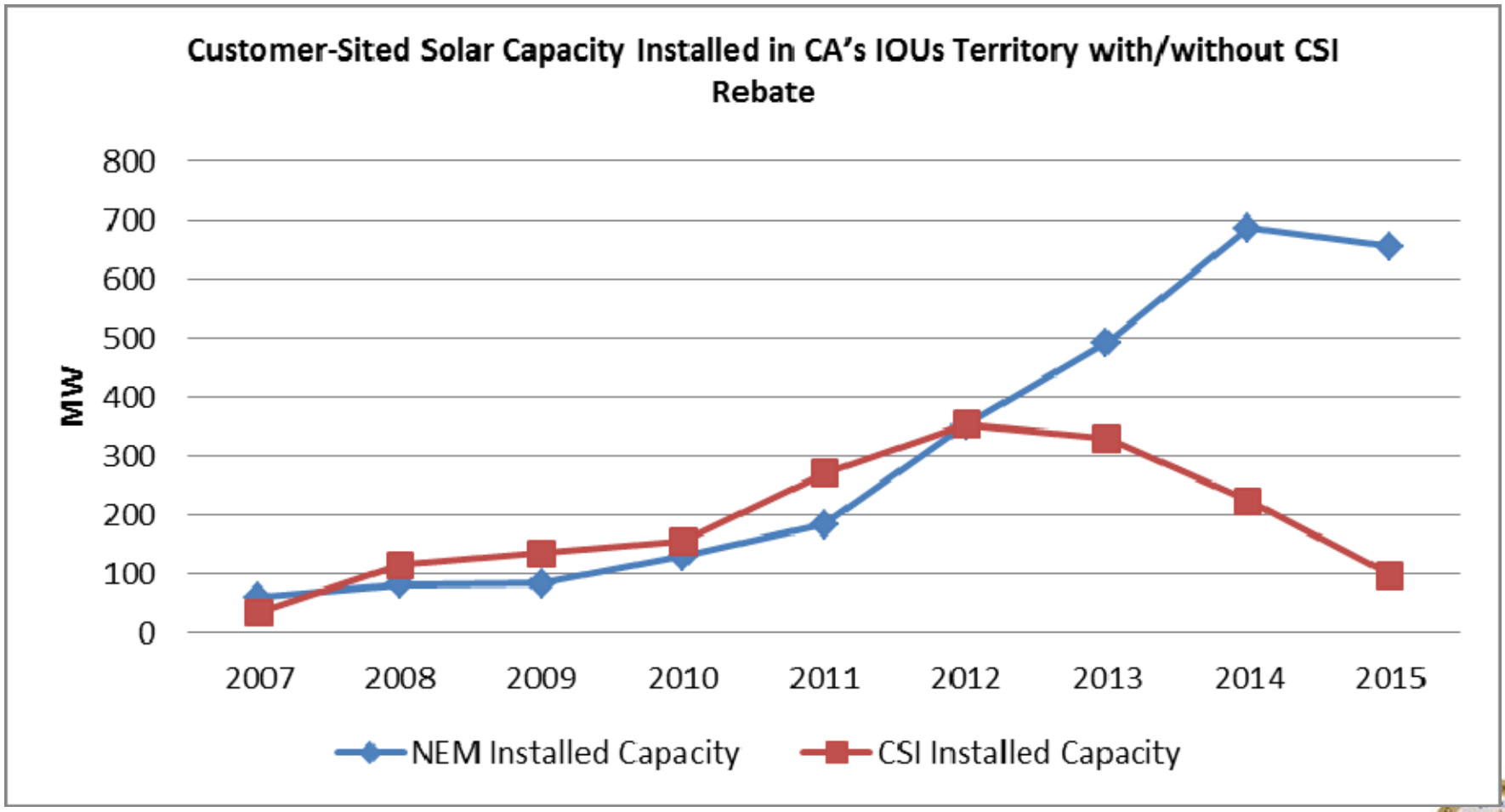
California's EE Legacy



Solar Market Transformation



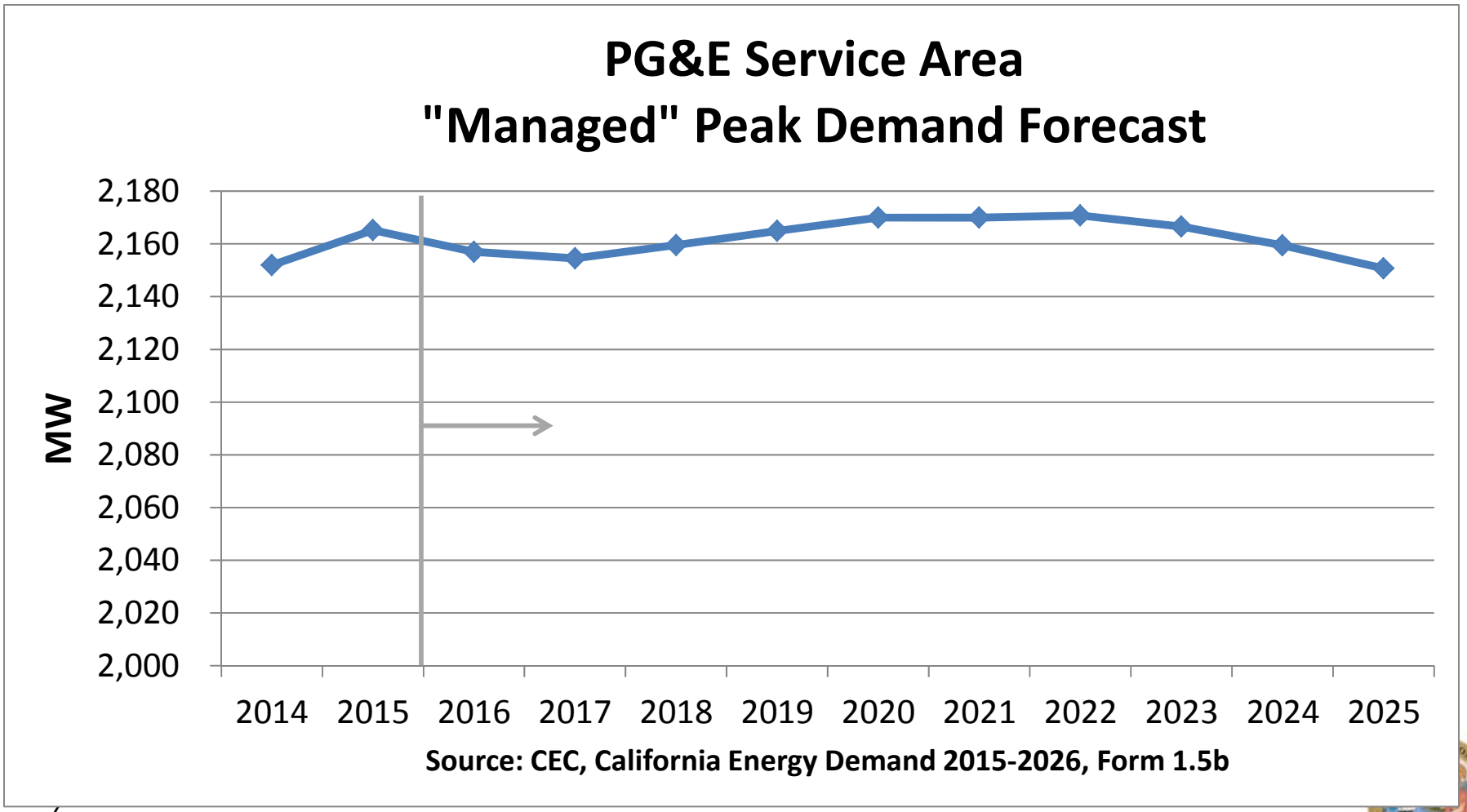
Solar Market Transformation



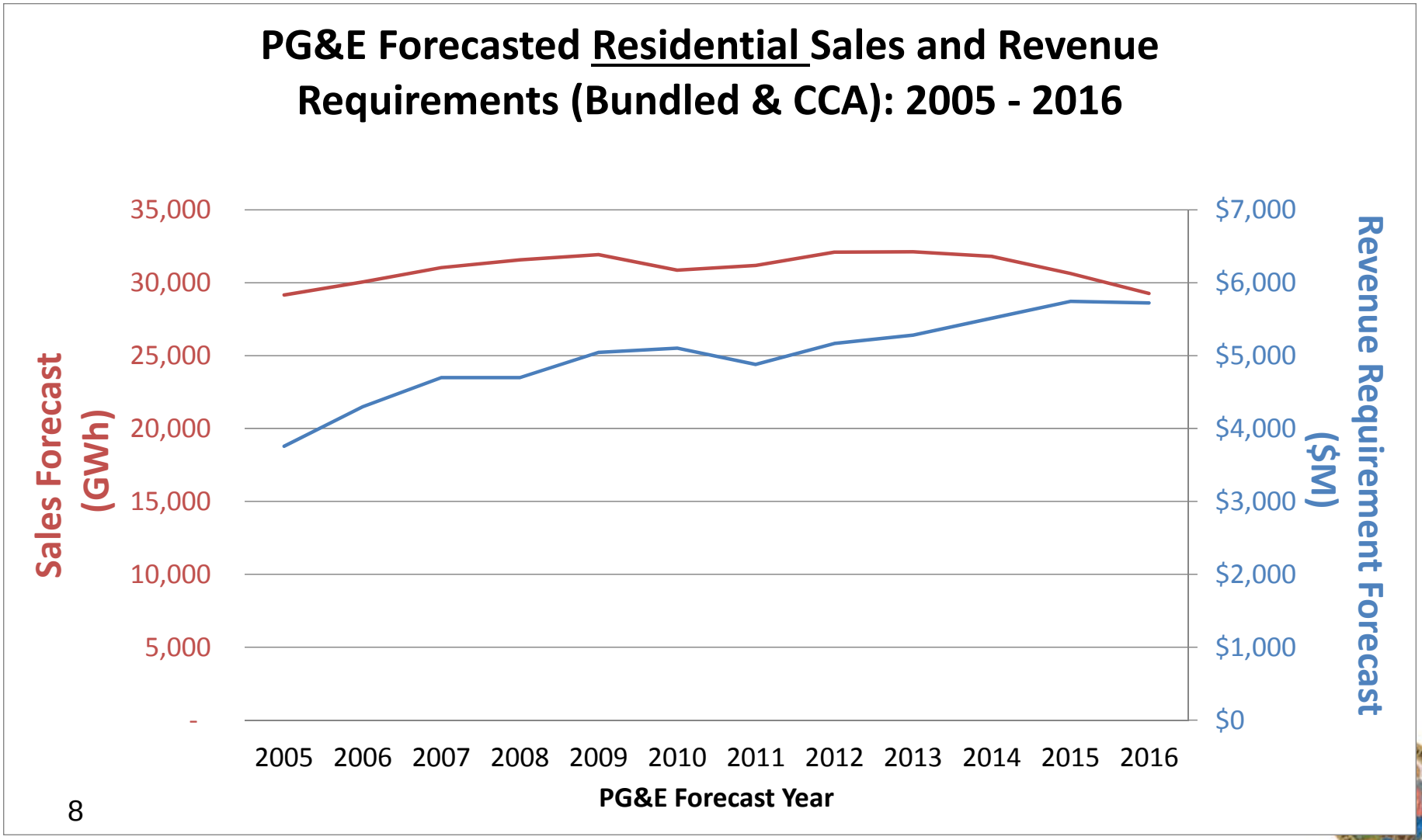
NEM 2.0 Decision
"Realigned NEM"

- Continues basic NEM structure
- Aligns the costs of NEM 2.0 customers more closely with those of non-NEM customers
  - Must pay Interconnection Fee (~$75-150)
  - Must pay Nonbypassable Charges for energy consumed from the grid (regardless of exports) (Approx. 2-3 cents / kWh)
  - Must be on TOU Rates
- Allows systems over 1 MW to participate
- Establishes warranty and equipment safety requirements
- Commission will revisit NEM Successor Tariff in 2019

Official State Forecasts Show Demand Flat or Declining (PG&E Example)



Utility "Death Spiral" in the Making?



Smart Meter Investment and Deployment

	Total	Pacific Gas & Electric	San Diego Gas & Electric	Southern California Edison
Costs Approved	**$5.6B**	$1.7B in 2006 $0.6B in 2009	$0.6B in 2007	$1.7B in 2008 + ($1B in 2011 for gas)
# of Electric Meters	**11.8M**	5.1M	1.4M	5.3M
# of Gas Meters	**9.5M**	4.2M (separate system)	0.9M (integrated)	4.4M by SCG (separate system & utility)

- Fully deployed except for opt-outs (~75,000, as of Oct 2015)
- Other accomplishments
  - Home Area Network (HAN) pilots
  - Smart Grid Deployment Plans
  - Customers and mobile app developers have access to energy usage data through energy data download (Green Button).

Note: Smart meters for large customers >200kW were already in place

Distributed Resource Plans

- AB 327 (2014) spawned DRP proceeding (R.14-08-003)
  - Identify optimal locations for deployment of DERs
  - Review GRC spending in conformance with approved plans
- Key elements (among many)
  - Locational net benefits analysis
  - Integrated capacity analysis (available “hosting capacity”)
  - Demonstration pilots (high DER penetration, operations, micro grids, etc)
  - Grid modernization (e.g., SCE $2B proposal)

Integrated Distributed Energy Resources

- IDER (R.14-10-003) is a companion proceeding to DRP
- Key elements:
  - "Sourcing" of cost-effective DERs, initially through competitive solicitations
  - Assigned Commissioner's pilot proposal on regulatory incentives for DER deployment
    - Would allow rate of return on DER (O&M) contracts, if cheaper than the alternative.

Broader "Ecosystem" of DER Enabling Platforms

- Smart Inverter Working Group
  - Phase 1 "good grid citizen" requirements
  - Phase 2-3 – Additional distribution grid services
- New wholesale DER markets (California ISO)
  - Proxy Demand Response (economically triggered)
  - Distributed Energy Resource Provider (DERP)
  - CPUC policy of DR "bifurcation;" 3P direct bidding
- Self Generation Incentive Program
  - Incentives for BTM energy storage
- Demand Response Auction Mechanism (DRAM)
  - Capacity payments for third-party bid DR integrated into wholesale markets

Utility “Plays” in the DER Space

- SoCalGas CHP services tariff (ratebased)
- Electric vehicle charging infrastructure
  - Initially prohibited utility ownership (policy preference for third-party, market competition)
  - Recent decisions allowed some utility ownership (with restrictions) until the 3P market stands up
- IOU affiliates in the DER space (e.g., Edison Energy, and Sempra has many affiliates)

Questions?

DER Growth Scenarios

Understanding of the pros and cons of sourcing mechanisms

IDER Outputs

- Enhancement of current cost-effectiveness framework
- Local values in cost-effectiveness framework
- Appropriate DER sourcing mechanisms

- Pilots and demonstrations
- Testing new tariffs, contracts, and RFO designs

DER procurement

- DER performance profiles
- ICA method and values
- LNBA method and values
- Optimal distribution locations

DRP Outputs

Understanding of how DERs interact and the specific distribution system benefits from integration

Smart Inverter Functions

Verification (metering, etc.) that DERs are providing the expected grid services