

Utility & Regulatory Reform in the U.S.: The Changing Landscape

Sue Tierney

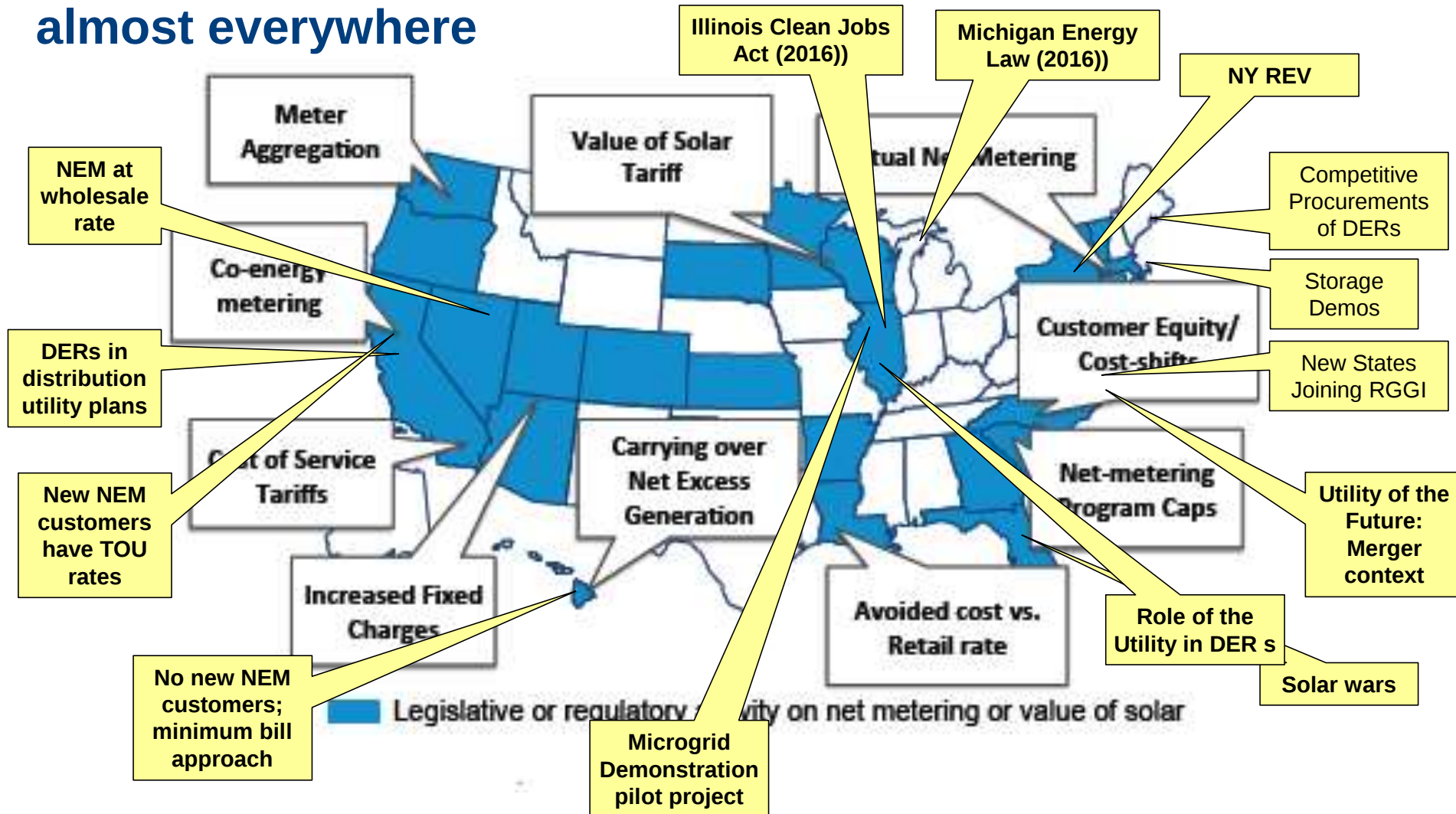
2018 e21 Forum #1 - Toward a 21st C. Electric System in Minnesota
March 20, 2018 - Minneapolis

The landscape of electric utility and regulatory reform

Transitions in the early 21st Century:

- What's happening across the U.S.
- Examples of activities and outcomes in other states and regions (outside of Minnesota)
 - Policy pull
 - Demand push
 - Hybrid conditions

Something is happening regarding the 21st-Century utility almost everywhere



Original Figure from Carl Linvill, "Utility Solar Business Models in a Time of Transition," Utah Governor's Energy Development Summit, June 4, 2014, with updated information by Tierney

Common approaches in many places – e.g.,

Energy efficiency

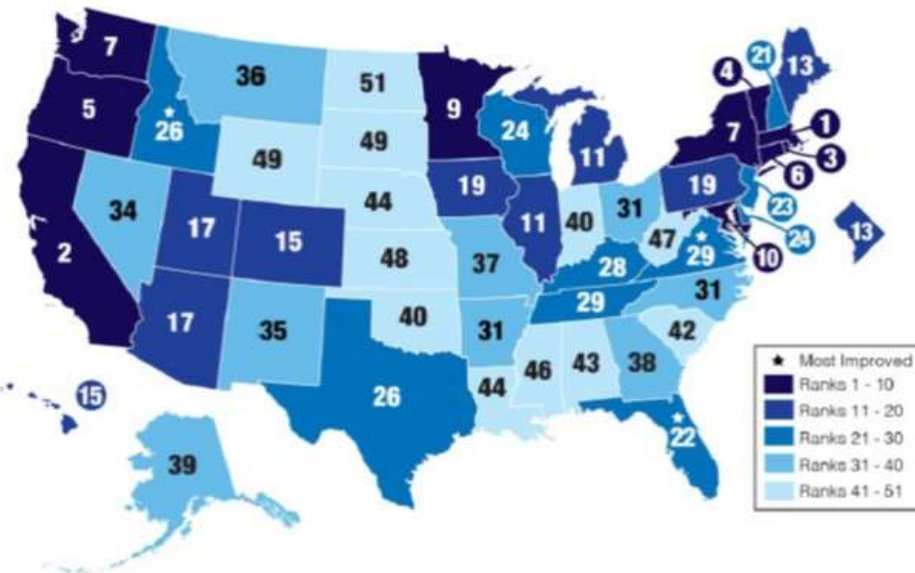
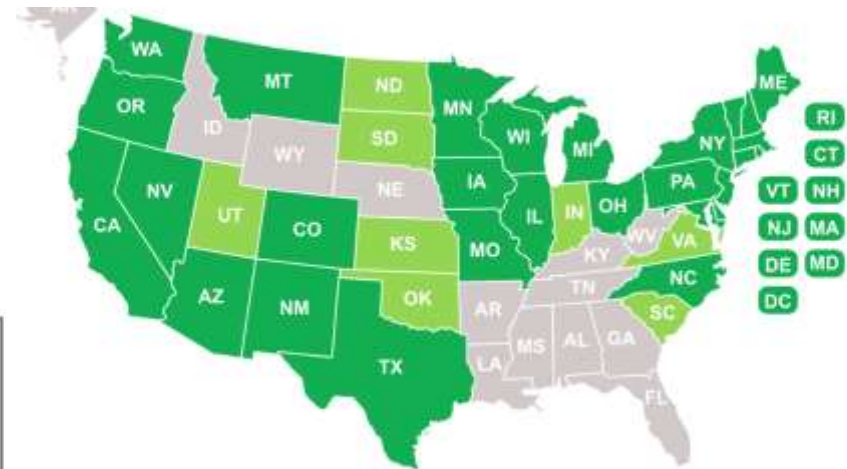
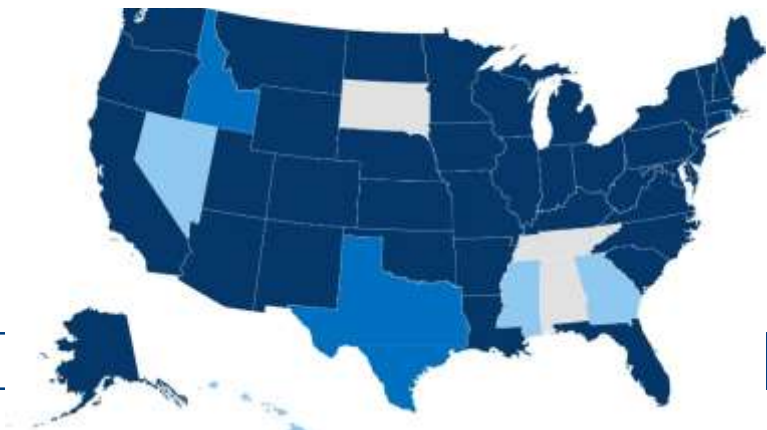


Figure 1. 2017 State Scorecard rankings

Renewable portfolio standards

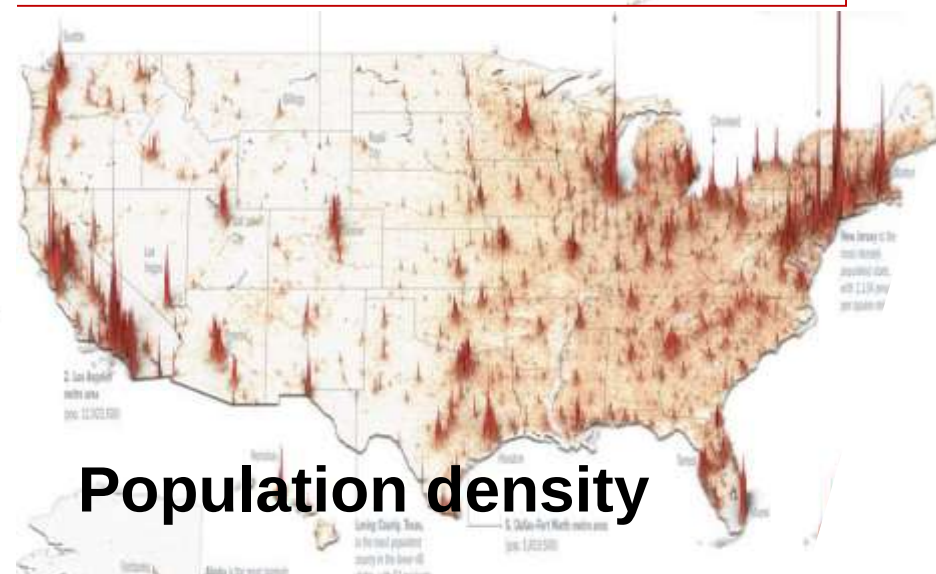
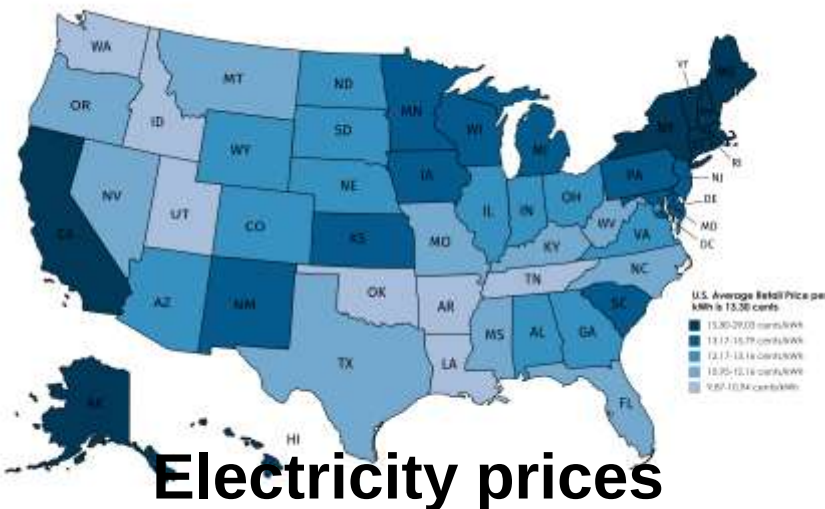
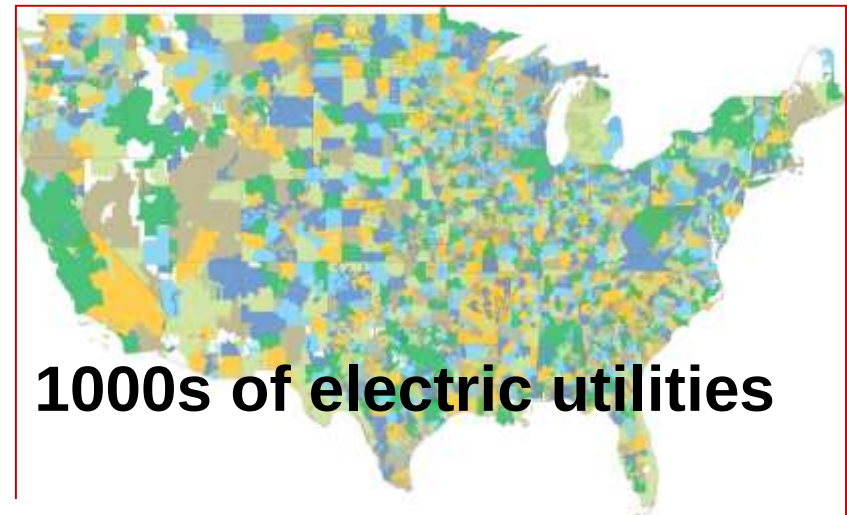


Net metering



<http://sites.nicholas.duke.edu/oceanenergy/offshore-wind-incentives-and-the-rp/>;
ACEEE efficiency scorecard; DSIRE 50 States of Solar

But different drivers, conditions, goals, pace of change = Lots of versions of the 21st Century utility



Looking ahead.....

What happens to the utility?

- ...continuing need for a healthy grid – with larger (not smaller) investment**
- ...continuing need for increasingly sophisticated local grid operator**
- ...interest in using the utility balance sheet for financing options**
- ...importance of changes in utility rate design to assure health of the grid**
- ...more sophisticated customers see more sophisticated price signals**
- ...new ways to assure universal access to basic electricity service**

Approaches for transitioning to a 21st electric system

Policy pull:

- **government action leading changes**

Market push:

- **non-governmental action leading changes**

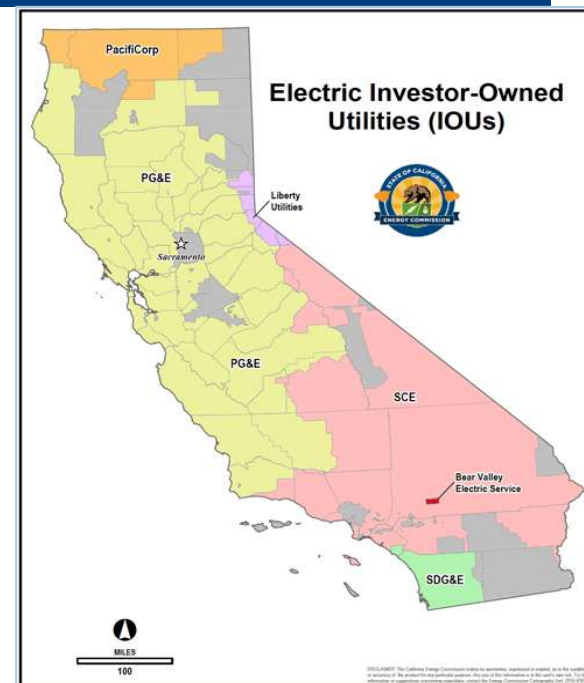
Hybrid pulls & pushes:

- **policy and market actions leading to change**

Policy Pull example: CALIFORNIA

Context:

- Hybrid market structure
- 3 large IOUs, many large & small public utilities
- Single-state RTO with energy and ancillary services markets (but no capacity market)
- Electricity crisis of 2001/2002
- High electricity rates, low electricity bills



Policy Pull example: CALIFORNIA

Policies for 21st Utility and Grid

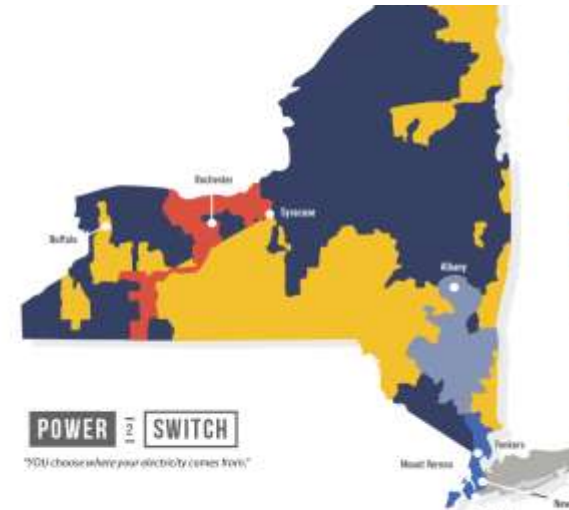
- State's reliance on IOUs for policy
- Portfolio of policies:
 - “Loading order” = energy efficiency, renewables, storage, others
 - Renewables goal = 50% by 2030
 - Economy-wide GHG reductions from 1990: 30% by 2020, 80% by 2050
 - Delivery infrastructure and energy-resource policies:
 - Revenue decoupling
 - Net-energy metering transitioning to alternative rate design
 - Transmission investment for renewables
 - Electricity storage procurements in key regions
 - Distributed energy resources as part of distribution plans

Policy Pull example: NEW YORK

Context:

- Strong organic authority of the NY PSC
- Restructured/competitive electric market structure
- 5 IOUs, plus one large & many small public utilities
- Single-state RTO with capacity markets
- High electricity rates, low electricity bills

NY State electric service territories



NYISO: zones in the statewide RTO



Policy Pull example: NEW YORK

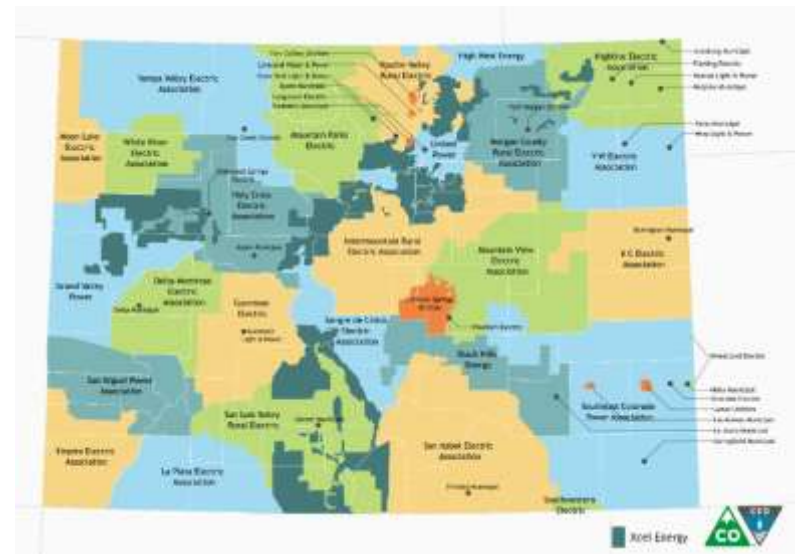
Policies for 21st Utility and Grid

- **Strong organic statutory authority of the NY Public Service Commission**
- **Portfolio of policies:**
 - **Restructuring of the industry (with distribution utilities = wires only)**
 - **Revenue decoupling**
 - **Renewables goal = 50% by 2030**
 - **GHG reductions: 40% below 1990 levels**
 - **REV: Reforming the Energy Vision – since 2013**
 - **Delivery infrastructure and policies to animate customer markets**
 - **Net-energy metering transitions: compensation for DER attributes**
 - **Distributed energy resources as part of distribution plans**
 - **Utility compensation for value-added services**

Policy Pull example: COLORADO

Context:

- Vertically integrated electric market structure
- Mixture of IOUs and public power
- No RTO – yet.....
- Below-average electricity rates
- Municipalization pressure



Policy Pull example: COLORADO

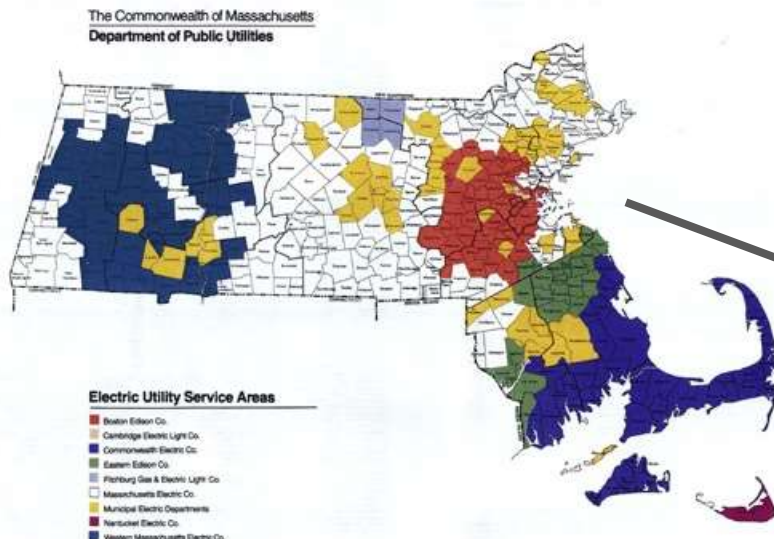
Policies for 21st Utility and Grid

- **Clean Energy Clean Jobs Act (2010)**
- **RPS policy**
- **3rd party solar power-purchase agreements**
- **Xcel Colorado Energy Plan settlement (e.g., competitive procurement of renewables, gas-fired generation, storage)**

Policy Pull example: MASSACHUSETTS

Context:

- Restructured/competitive electric market structure
- 2 IOUs plus many small public utilities
- Six-state RTO with capacity market
- High electricity rates, low electricity bills



Policy Pull example: MASSACHUSETTS

Policies for 21st Utility and Grid

- Energy Efficiency investments
- Green Communities Act (2008)
- Global Warming Solutions Act (2008)
- Comprehensive Energy Diversity Act (2017), with storage procurement
- Electric/Natural Gas Investment Policy

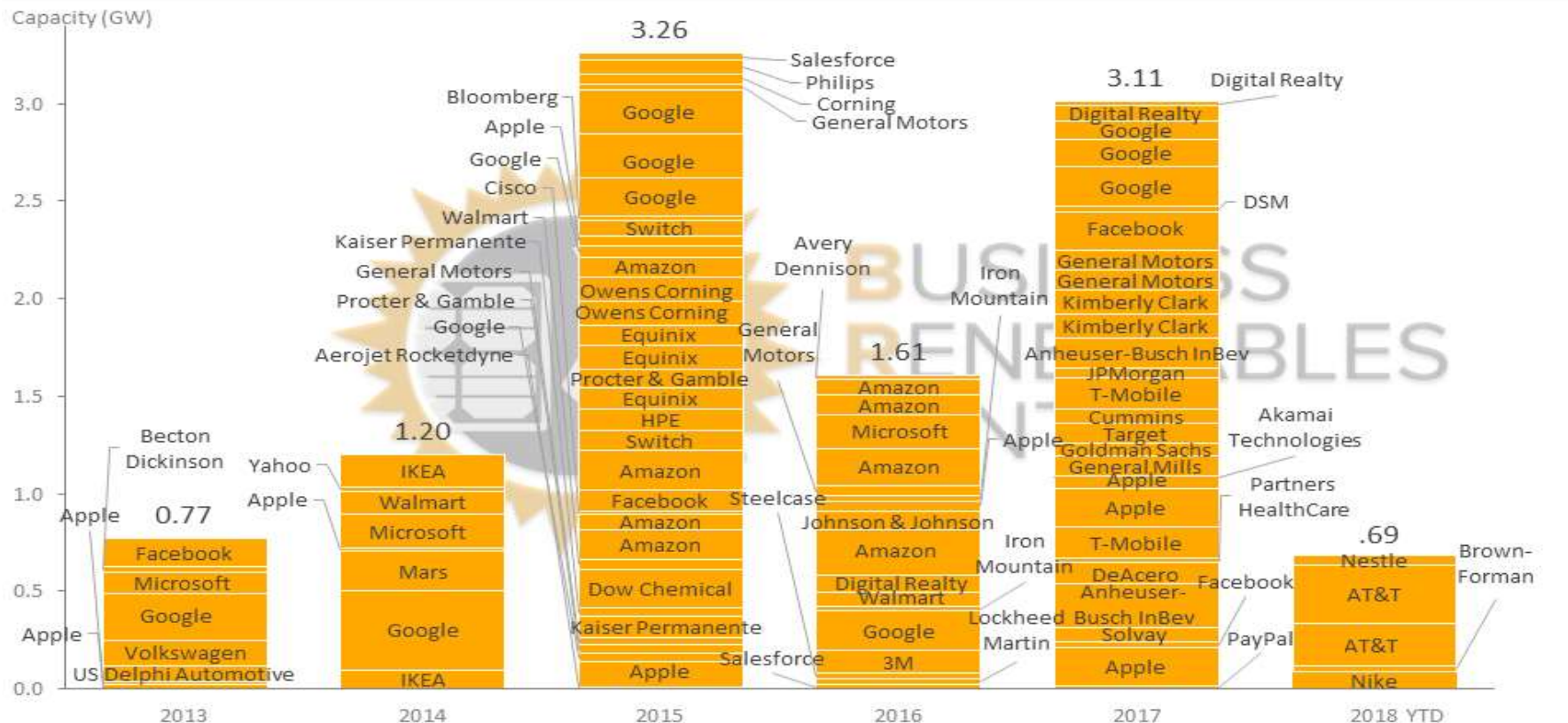
Market push example: Corporate clean energy buying groups



Corporate Buyers Group: Commitments/Contracts



Corporate Renewable Deals 2013 – 2018 YTD



Publicly announced contracted capacity of corporate Power Purchase Agreements, Green Power Purchases, Green Tariffs, and Outright Project Ownership in the US and Mexico, 2012-2018 (YTD). Excludes on-site generation (e.g., rooftop solar PV) and deals with operating plants. Last updated: February 13, 2018.

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For more information, please visit <http://www.businessrenewables.org/> or contact BRC@RMI.org

Market push example: Advanced energy companies



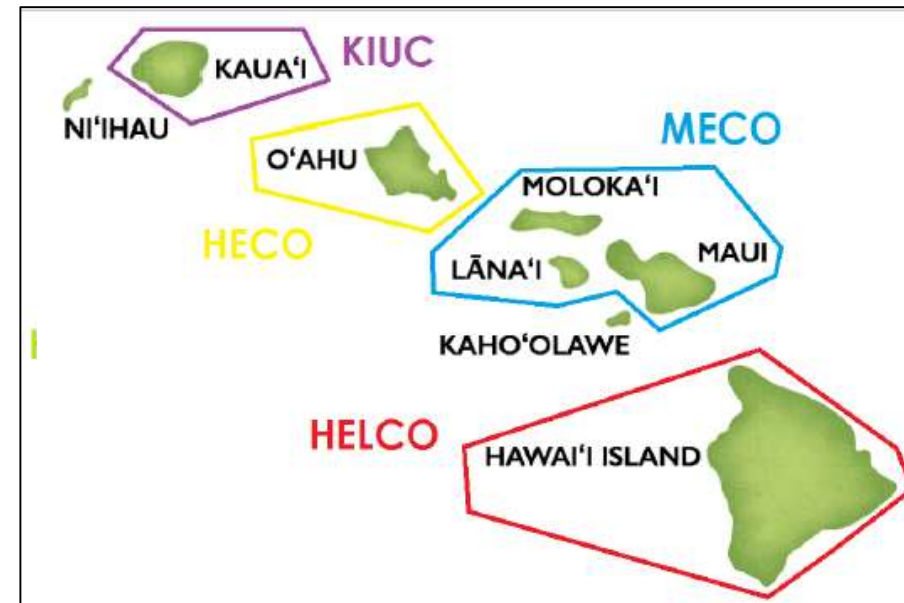
Hybrid example: Hawaii electric system transformation

Context:

- Vertically integrated electric utilities
- Historical fossil dependency
- High rates, high bills
- Aggressive additions of rooftop PV

Policies for 21st Utility and Grid

- 100% renewables by 2050
- Strong regulatory oversight over utility resource & distribution plans
- Merger review tied to clean-energy and competitive commitments



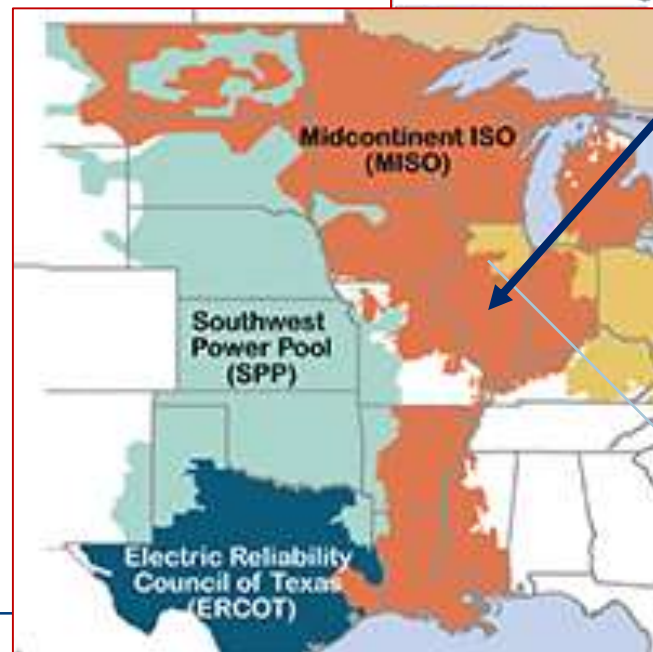
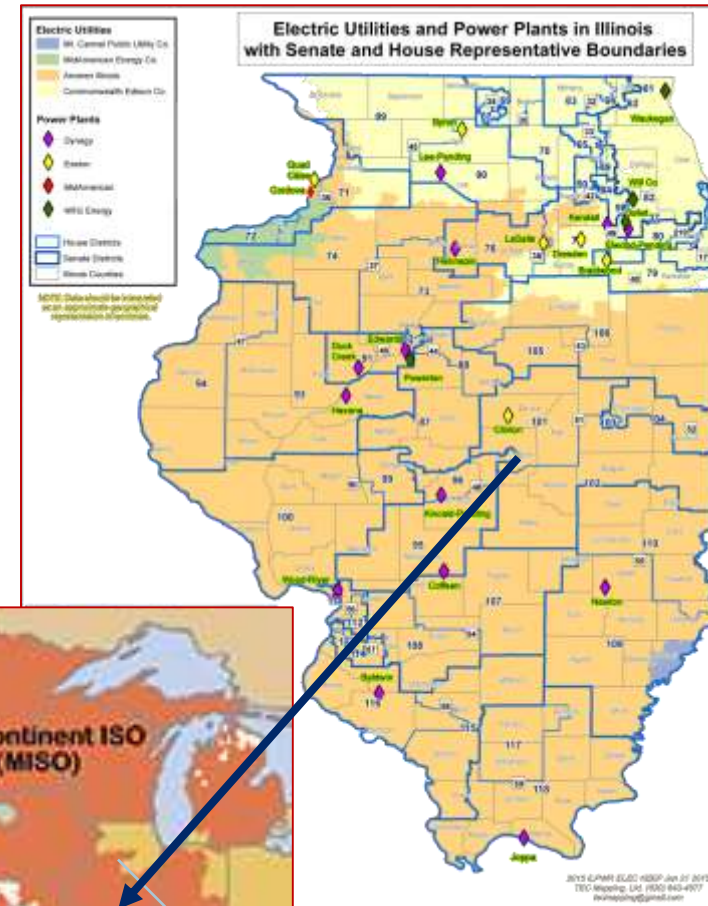
Hybrid example: Illinois grid mod

Context:

- Restructured/competitive electric industry
- Mainly IOUs (ComEd, Ameren, MidAmerican)
- Part of PJM and MISO
- Electricity rates ~ slightly above average

Policies for 21st Utility and Grid

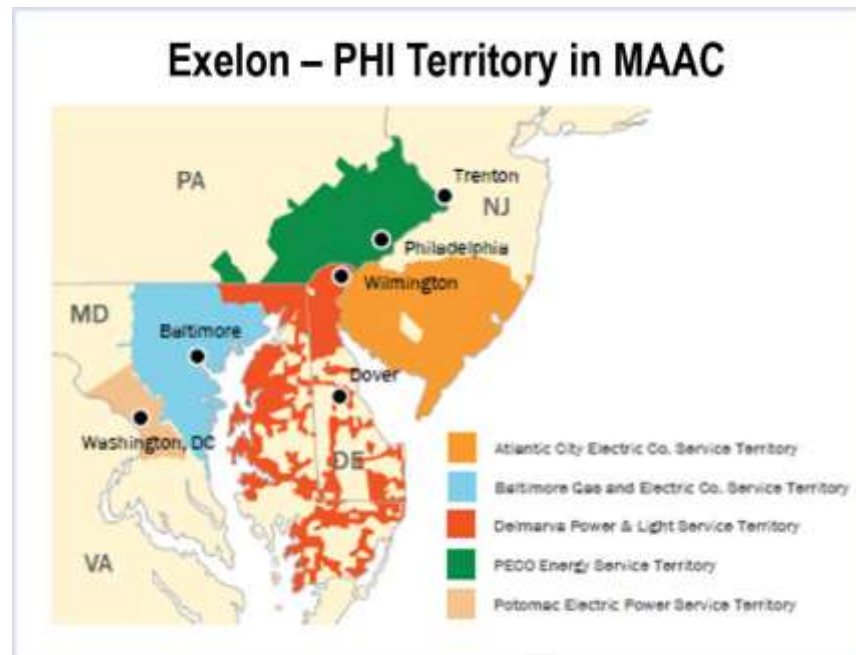
- Clean Jobs Act (2017)
- NextGrid Initiative
- Microgrid demonstration



Hybrid examples: Electric merger commitments

E.g.: Exelon / Pepco merger commitments

- Washington DC
- Maryland
- Delaware
- New Jersey

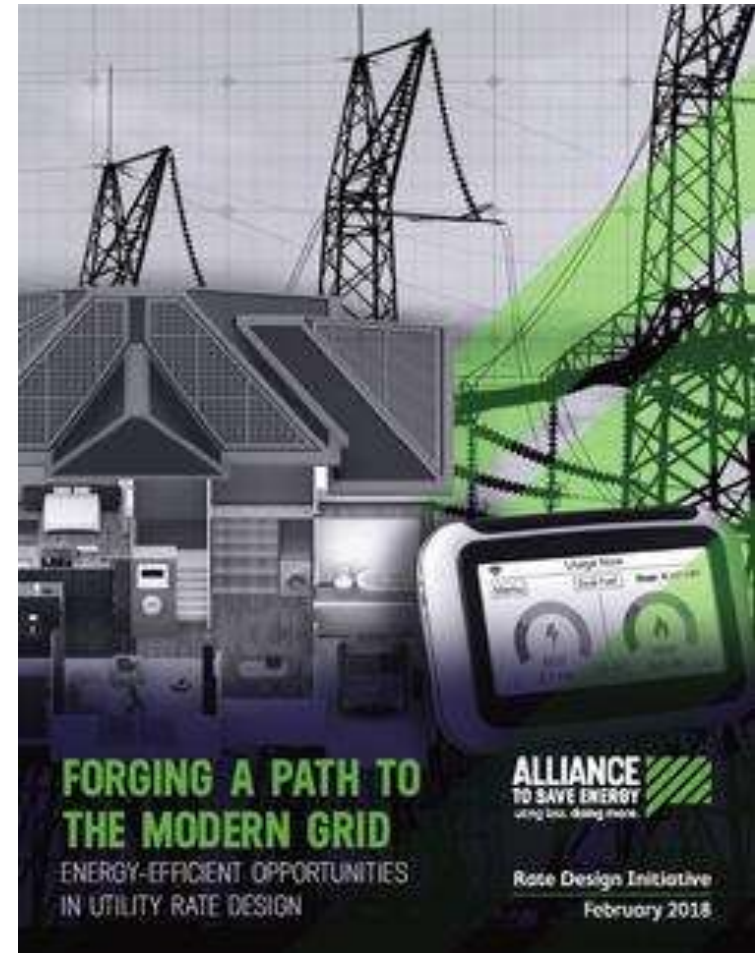


Source: Exelon

Hybrid examples: Retail rate design

E.g.: Alliance to Save Energy:

- Addressing the implications of the transitioning energy mix for rate design



Emerging trends: Core functions of Utility 2.0

Grid operations

Grid planning (both transmission and distribution)

Grid investment (including DERs as part of plans and resources)

Distribution market administration

Provision of access to distribution

Grid service restoration

Emerging trends: Core functions of Utility 2.0

Lots of variations beyond those core functions, depending upon the local appetite for competition and/or monopoly:

- utility-scale distributed energy investment (including solar, microgrids, metering)**
- other generation and transmission investment**

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