



RAP

Energy solutions
for a changing world

Transforming Power Systems: Mining Value

JISEA 2016 Annual Meeting
NREL, Golden CO

Presented by Richard Sedano

March 31, 2016

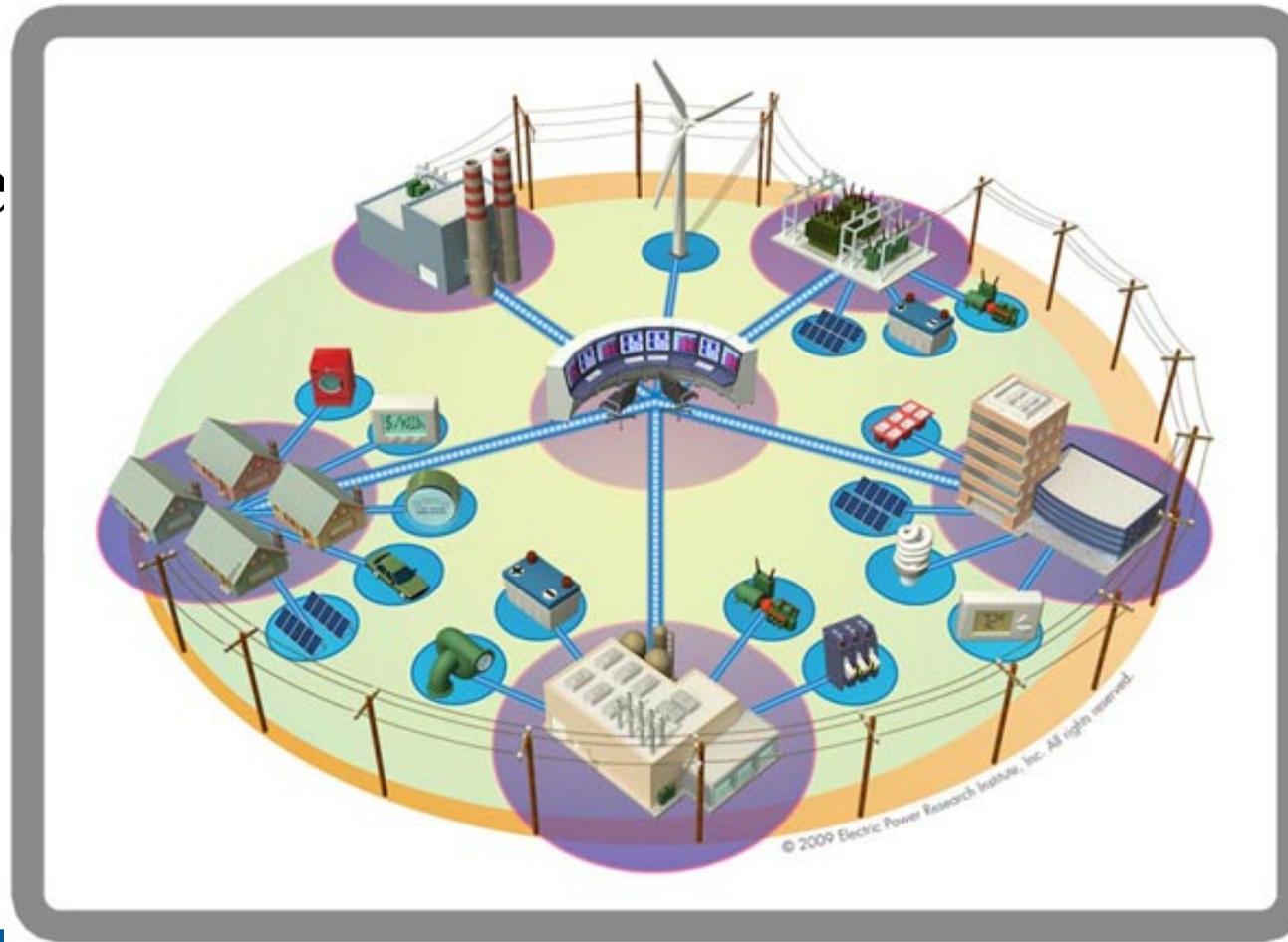
The Regulatory Assistance Project

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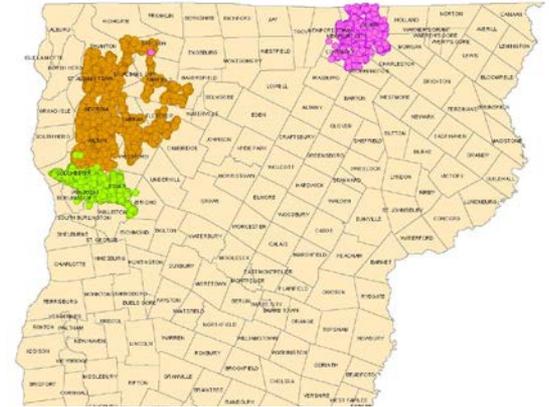
Common Thread in Transformation

- Value
- Everywhere

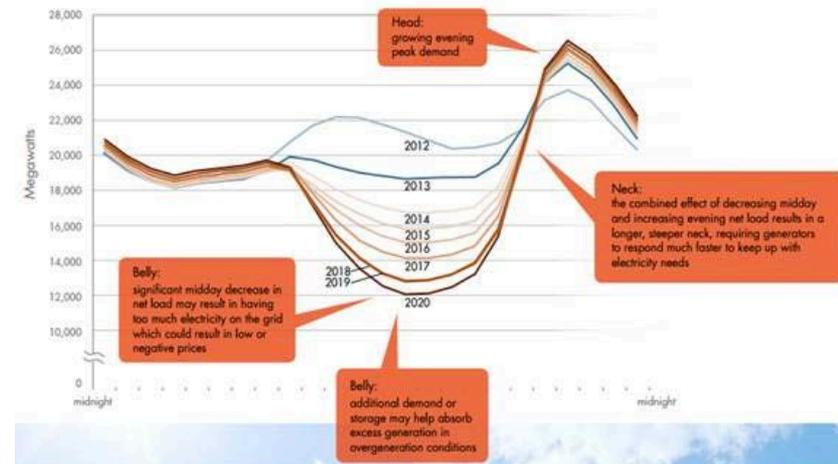


Define “Value”

- Grid value
 - Location on the system
 - Time (operating scale)
 - Time (investment scale)
- Externalities and non-energy benefits



The Duck: The California ISO's Flexibility Curve



(the ISO's Building A Sustainable Energy Future; 2014-2016 Strategic Plan)

Reward Value



- Utility Performance
 - On outcomes that matter
- Utility Earnings Flexibility
 - Will politics be a limiting factor?
 - Will added value to customers/society be rewarded
- Customers seeing opportunity to save, be better
 - Motivation depends on value for them
 - Depends on **rate design**
- Innovators
 - How they engage depends on the rules

Enable Value

- Valuable resources access the system
 - Interconnection
 - Programs, Planning, Data, etc.
 - Monetize what customers can produce same as for grid scale resources
- Customers get access to valuable resources
 - Design your **platform**, define your utility role
 - Full service utility – “we’ll take care of you”
 - Delivery only utility – “we’ll enable markets”

Safety Net is Part of Value

- Utility remains affected with the public interest
 - Vulnerable customers are valuable and can be protected and engaged in distinct ways



NY reform is about value

- Balance of regulation and markets
- Value-based prices
- Value-based investment (planning)
- Value-based operations (outcome based regulation,  w/ ISO)
- Value-based government interventions
 - protections (TBD)

Preservation is not Value

- How to avoid zombie institutions,
- While opening the path for investment in innovation?
- Glide path
 - Assist transition
- Process matters
 - Innovation
 - Collaboration



About RAP

The Regulatory Assistance Project (RAP) is a global, non-profit team of experts that focuses on the long-term economic and environmental sustainability of the power and natural gas sectors. RAP has deep expertise in regulatory and market policies that:

- Promote economic efficiency
- Protect the environment
- Ensure system reliability
- Allocate system benefits fairly among all consumers

Learn more about RAP at www.raonline.org

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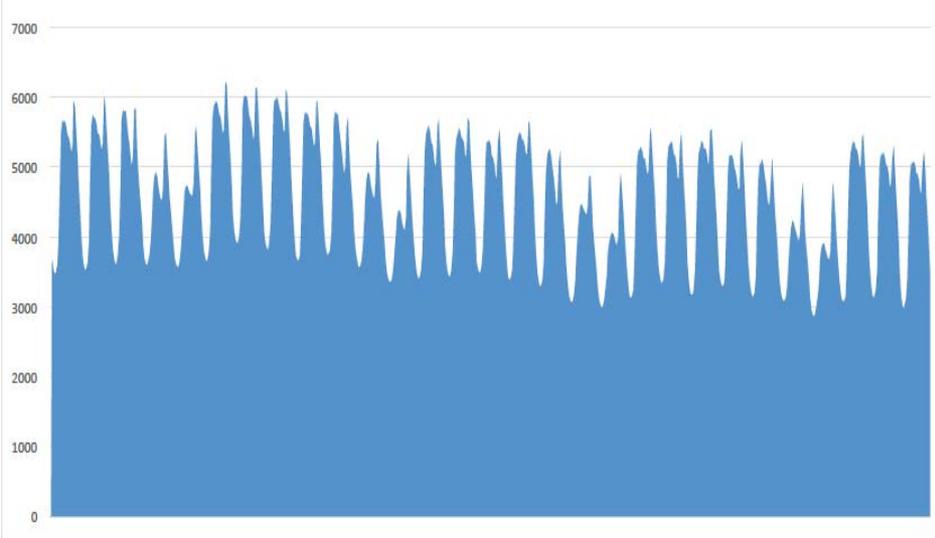
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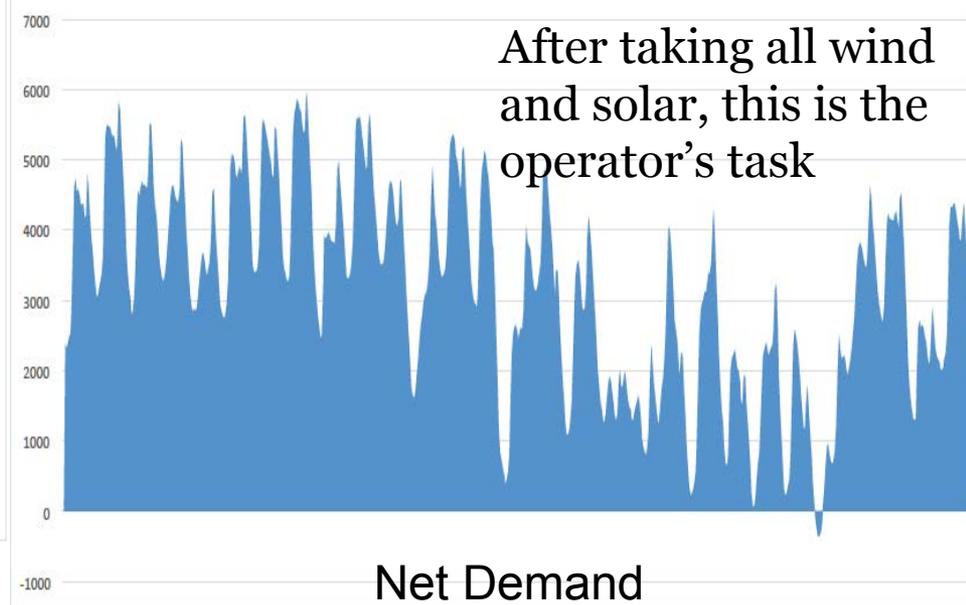
Gross/net demand comparison

FIGURE 1: Denmark - Total Demand- First 8 weeks 2012



Gross Demand

FIGURE 2: Denmark - Total Demand Minus Wind Power



Net Demand

Little demand for baseload, big demand for mid-merit, demand for peaking pretty much unchanged