

A Clean First Approach to New Grid Investments

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The Regulatory Assistance Project

Offices: Vermont ♦ Maine ♦ New Mexico ♦ California ♦ Illinois ♦ China ♦ EU ♦ India



About the Regulatory Assistance Project

- RAP is a non-profit organization providing technical and educational assistance to government officials on energy and environmental issues. RAP Principals all have extensive utility regulatory experience.
 - Richard Sedano was commissioner of the Vermont Department of Public Service from 1991-2001 and is an engineer.
- Funded by foundations and the US Department Of Energy. We have worked in nearly every state and many nations.
- Also provides educational assistance to stakeholders, utilities, advocates.



Topics for this Panel

- Incentives for beneficial investments:
 - Smart grid, storage, PHV
 - Renewables and supporting Transmission
 - Energy Efficiency
 - Disincentives for wrong investments?
- In view of climate change emergence
- Regulatory risks vis a vis beneficiaries



Clean First

- Energy and environment inextricably linked
 - Leading to recognition in regulation(?)
- Environmental imperatives are guiding and limiting energy investment choices
 - Smart grid can help the environment if deployed with the environment in mind
- “Enough” capacity at low cost is not enough
 - Don’t we also want the “right” capacity?



Momentum for Clean First

- Resource Portfolio Standards
- Energy Efficiency Targets
- Smart Grid Design Principles
 - Connection, operation of renewable supply
 - Promote demand response, end use efficiency
- Other market mechanisms
 - Energy efficiency in capacity markets
- Climate Change Mitigation



Policy into Action

- If public policy leads to preferences, these preferences should overlay our practice to avoid “undue discrimination”
 - Due discrimination is OK, even desirable
 - Pressure on the regulators but informed by policy
 - Clarity of purpose



Utilities are Public Interest Entities

- US Society has always used utilities to deliver public interest
 - Common goods that no ECON will support
 - Econ term used in *Nudge* by Thaler and Sunstein
- Recent decades: move to markets
 - Public interest purpose sometimes submerged in the great experiment
 - Markets fail to reflect a chunk of public interest




Public Service Companies

- Have a special responsibility
 - To make investments (incur costs) that may produce gains for others
 - Smart grid
 - Transmission
 - DG policies
- Because the service area will benefit
 - So utility costs and rates may rise to create societal value



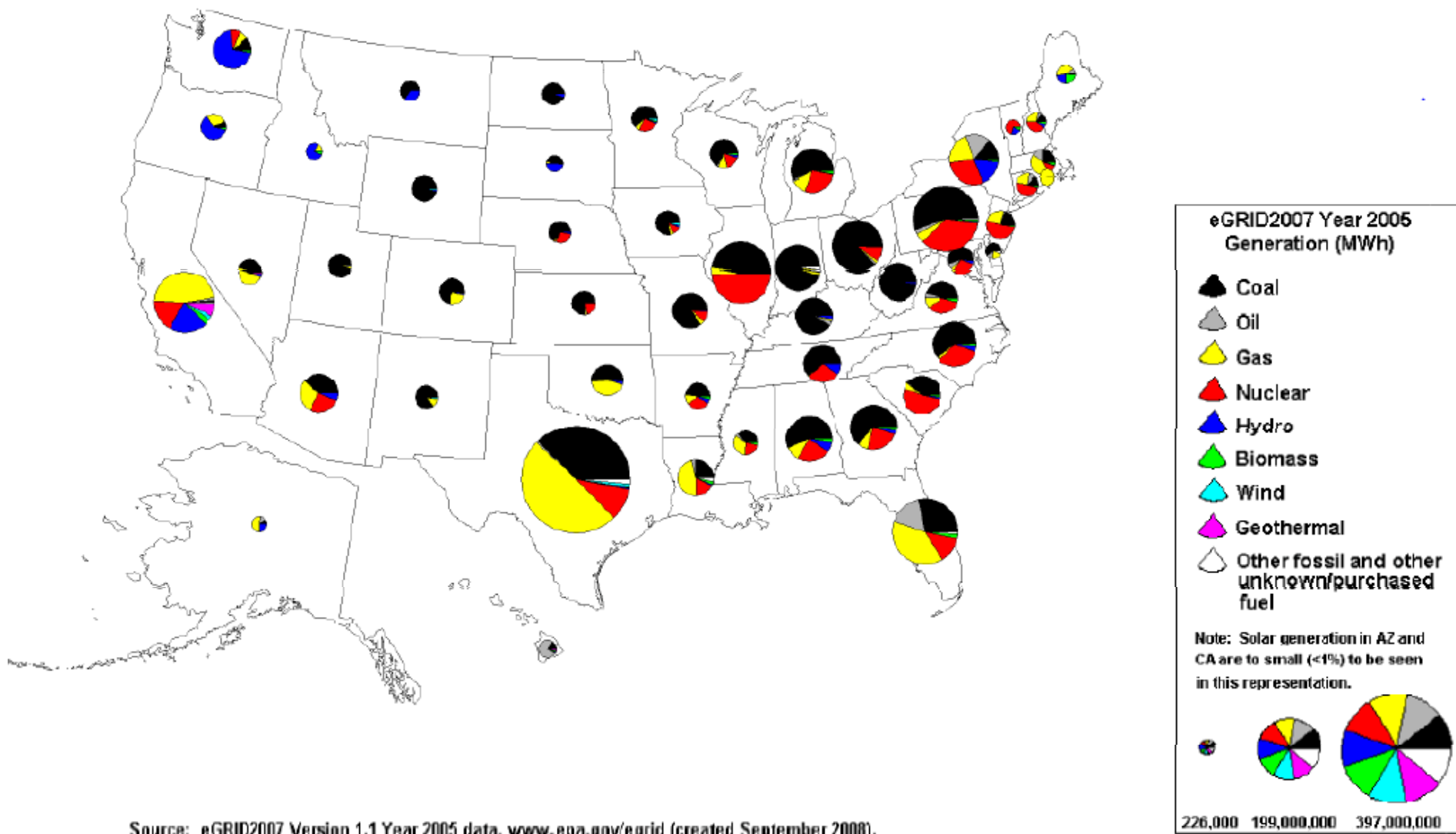
Regulators

- Faced with new tasks
 - How many commissions are ready for smart grid?
 - How many commissions ready to consider national clean energy goals?
 - How many commissions are ready for massive deployment of electric vehicles?
 - How many commissions ready to justify cost/rate increases for these public purposes

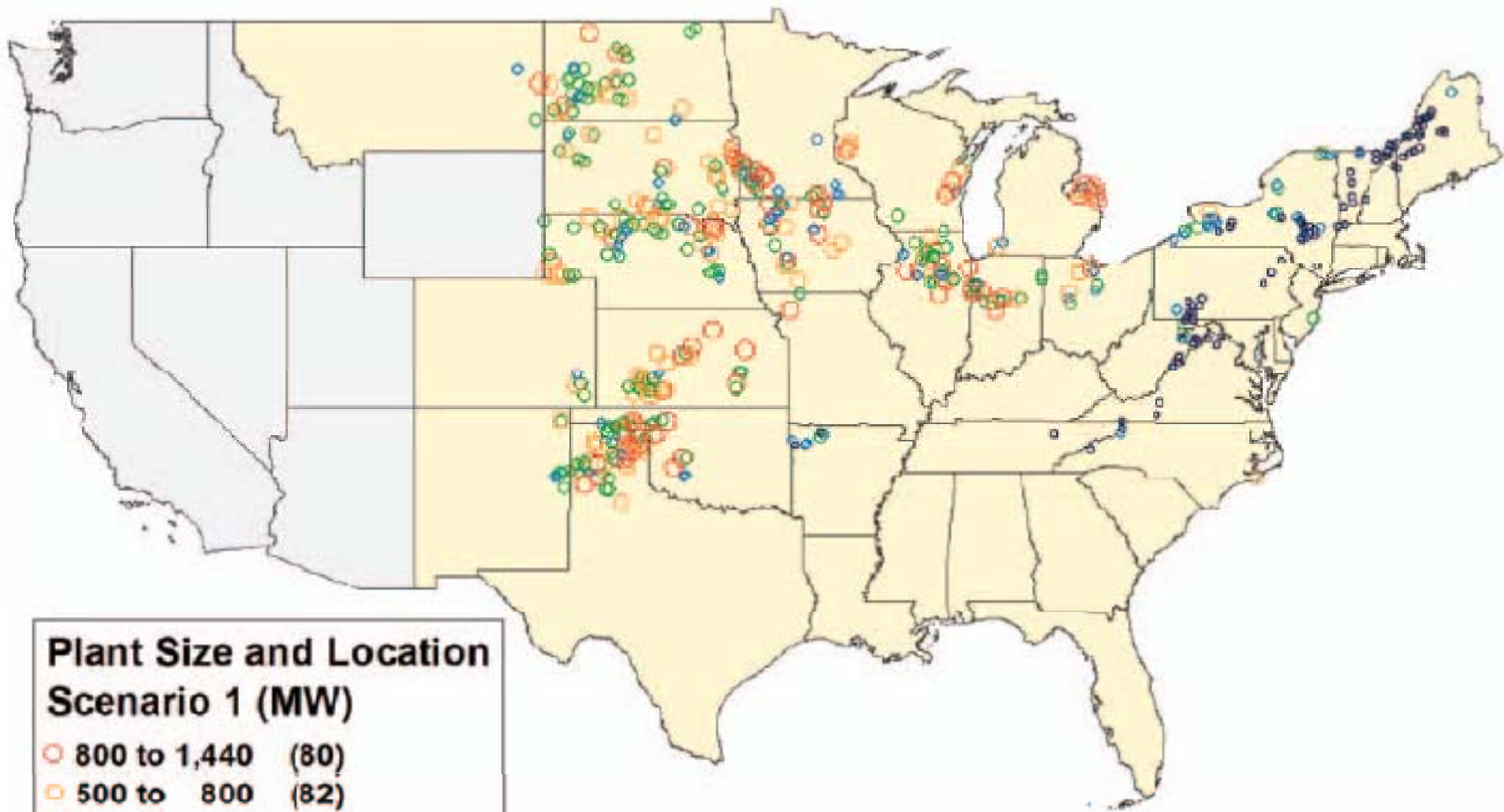


If we want to get to 20%
wind, how would we do it?

Starting Point



Source: eGRID2007 Version 1.1 Year 2005 data, www.epa.gov/eGRID (created September 2008).

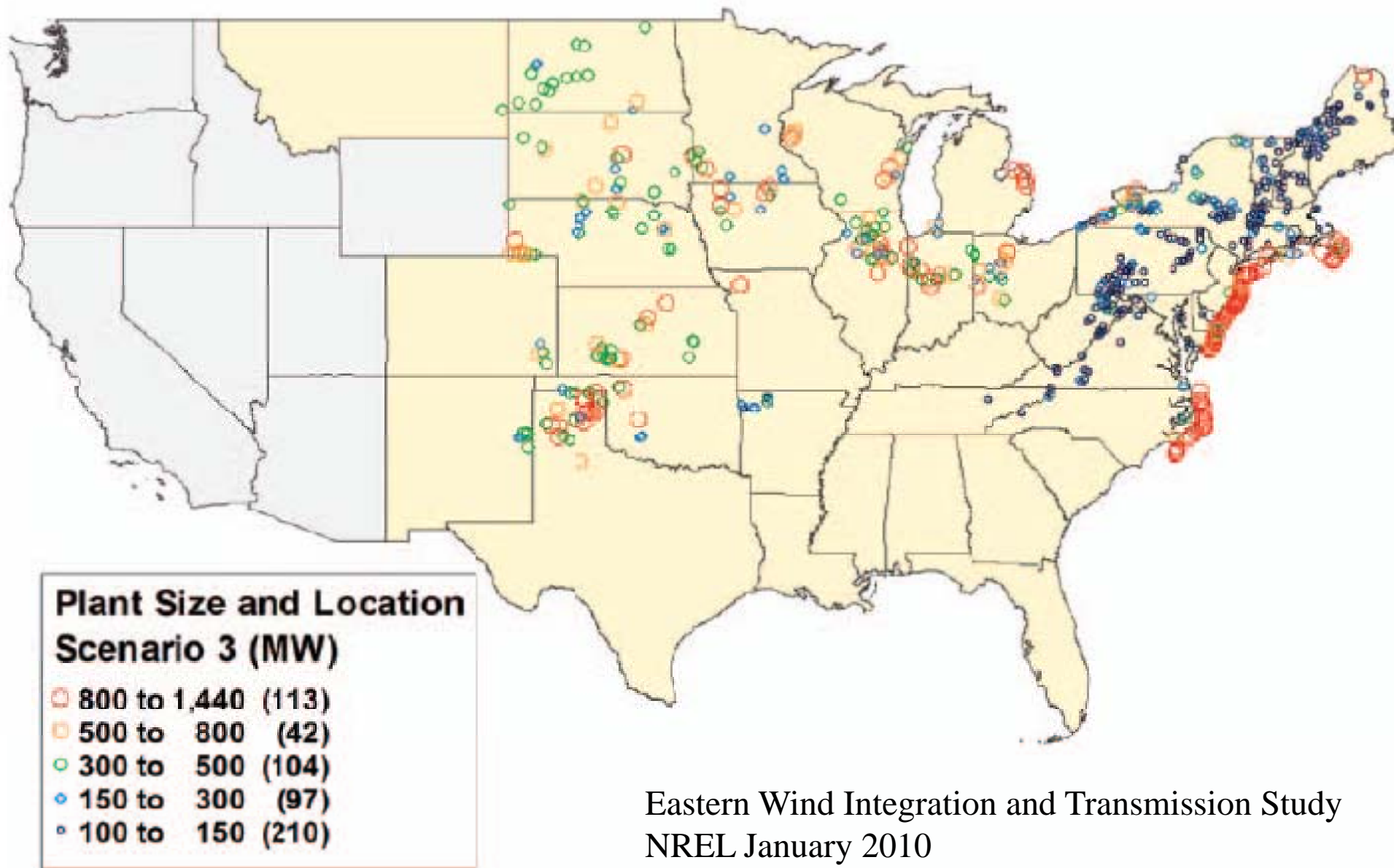


**Plant Size and Location
Scenario 1 (MW)**

○ 800 to 1,440	(80)
○ 500 to 800	(82)
○ 300 to 500	(152)
○ 150 to 300	(79)
○ 100 to 150	(82)

Eastern Wind Integration and Transmission Study
 NREL January 2010
 Low Busbar Cost Wind

Figure 2-8. Installed capacity—Scenario 1



Eastern Wind Integration and Transmission Study
 NREL January 2010
 Maximum Offshore Wind

Figure 2-12. Installed capacity—Scenario 3



Where Does Clean First Lead?

- Designated transmission for the purpose of integrating renewables owing to national interest
- Giving it distinct treatment in planning queues and cost allocation
- Operating rules for these lines would have as a priority the production of wind
 - Ancillary service markets would be redefined



Clean First Promotes Efficiency

➤ Energy Efficiency

- Available at low cost, strategic, multiple values
 - Loading order, as in California, all cost-effective
- Earning opportunity for administrator

➤ Economic Efficiency

- Pricing supports programs, reflects long run costs
 - Very high customer charges in conflict with both




Will Prices Lead Consumers to the Right Choices?

- No, not by themselves
- Prices that reflect production and societal costs are useful
 - Though the public will squeal if their expectations are disrupted
- Policy, programs, education, technical assistance, are necessary to reflect big picture values and influence choices



There Are Customers “Out There”

- History: large customers get specific attention, mass market customers treated en masse
- Recently: Energy efficiency forces attention to specific customers, episodically
- Future: Smart grid and price responsive demand means customers are engaged with utility system all the time



Now comes: Electrification of Transportation

- Necessary to meet climate goals
 - Can you say “decarbonization of electricity?”
- Need all of this working in concert:
 - renewables,
 - efficiency, and public messages
 - pricing, wholesale/ancillary service market rules
 - utility incentives,
 - clear regulatory direction
 - Or else...



Disconnection Policy

- Absence of federal law that conforms with climate science a handicap
 - Reducing carbon by 80% economy wide by 2050
 - And meeting intermediate goals
 - And electrifying transportation
- The US is not on track, and the longer it takes to get on track, the more pain will be required
- Clean First approximates the structure the US will need



Recommendations

- Utility Incentives that match public interest
 - Consumer education ratcheted up
- Market rules that match public interest
- Regulation not in conflict with itself
- Regulatory process that gets to the bottom of complex and **new** challenges and is not slave to contested cases



Thanks for your attention

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- <http://www.raponline.org>
- RAP Mission: *RAP is committed to fostering regulatory policies for the electric industry that encourage economic efficiency, protect environmental quality, assure system reliability, and allocate system benefits fairly to all customers.*