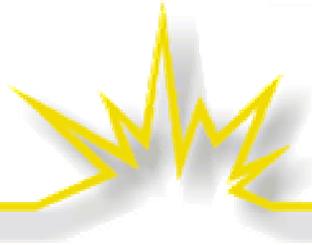


Introduction to (Wholesale) Electric Restructuring

Energy Regulation and the Environment
Vermont Law School
Richard Sedano
March 30, 2005



The Regulatory Assistance Project

*50 State Street, Suite 3
Montpelier, Vermont USA 05602
Tel: 802.223.8199
Fax: 802.223.8172*

*177 Water St.
Gardiner, Maine USA 04345
Tel: 207.582.1135
Fax: 207.582.1176*

Website:
<http://www.raonline.org>

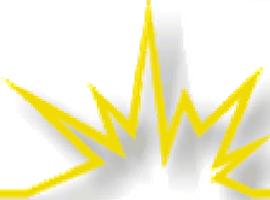


Introduction

Regulatory Assistance Project

RAP is a non-profit organization, formed in 1992, that provides workshops and education assistance to state government officials on electric utility regulation. RAP is funded by the Energy Foundation and the US DOE.

Richard Sedano was Commissioner of the Vermont Department of Public Service, 1991-2001, and presently serves on the Montpelier Planning Commission

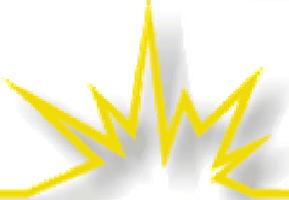


For Today

➤ Wholesale Market Restructuring

- ❖ Pre-history
- ❖ Many facets and causes
- ❖ Beginnings
- ❖ Tee up questions
- ❖ It's not “deregulation”

Remember: You can't store much electricity (beyond hydroelectric) so markets must balance the system all the time. This is hard.

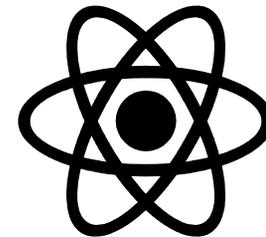
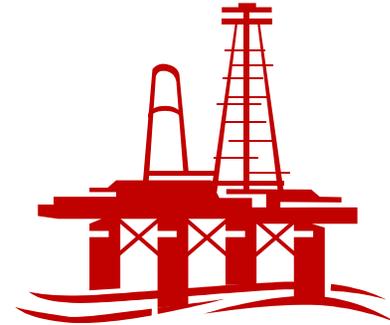


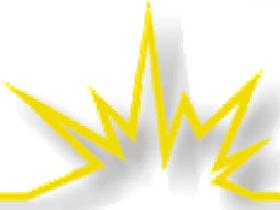
Security

1. Consumers

2. The US Utility Industry

Stable or Declining Costs





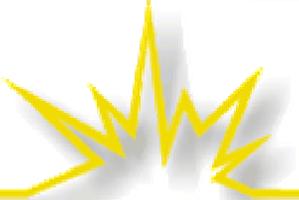
Precursors to restructuring: The 1965 Blackout

- Effecting much of the Northeast US!
 - ❖ Where were you when the lights went out?
- How did this happen?
 - ❖ Lack of utility coordination a key reason
 - ❖ Single utility “**control areas**”
 - ❖ Major concerns: small, transmission dependent utilities not taken advantage of by larger, vertically integrated utilities

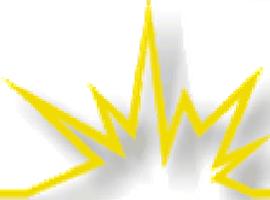
US Control Areas



Midwest is becoming one control area

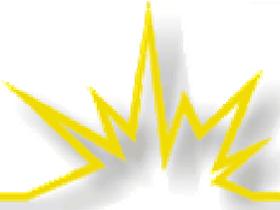


Paternalism



(Tight) Power Pools

- PJM already in place
- NEPOOL and NYPOOL created
 - ❖ New game
 - ❖ Utilities still in charge
 - ❖ Reliability is key, new tools
 - ❖ Controlled markets develop
- Rest of the country: no change

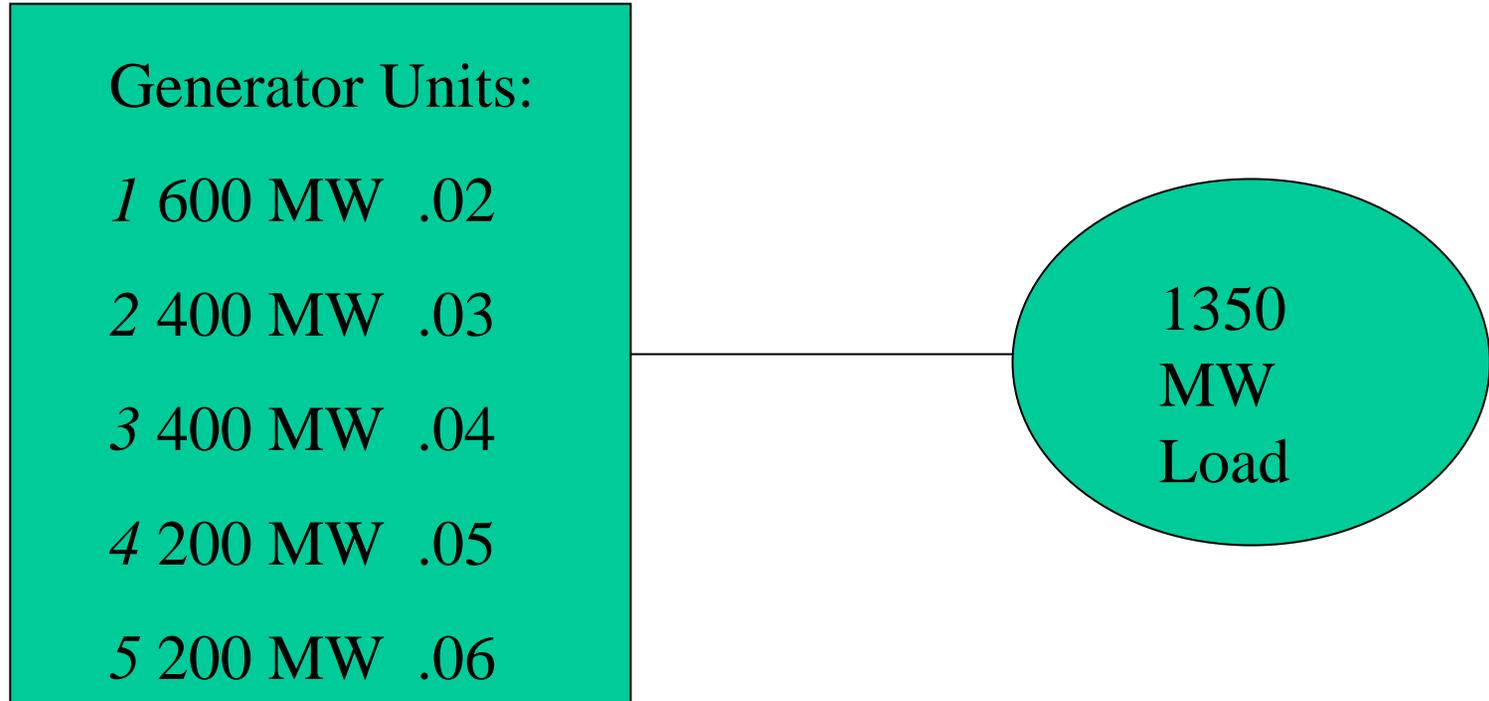


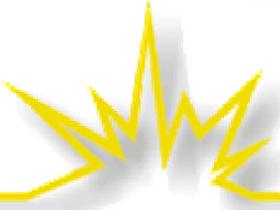
Controlled Markets

- All resources pooled
 - ❖ All information about costs are shared with pool and everyone else (not much anti-trust concern)
- Resource Adequacy
 - ❖ Self-supply
 - ❖ Joint ownership of generation
 - ❖ Bi-lateral contracts (long term)
 - ❖ Daily settlement of excess and shortages
 - ❖ Savings shares: split savings from shared resources
 - ◆ Total savings divided by total energy = \$2-4/MWh
- Economic Dispatch
 - ❖ Generators used, lowest running cost first

From Last Time: Generators dispatched in cost order

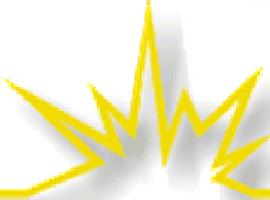
Utility A: portfolio of generators ready. What is the clearing price?





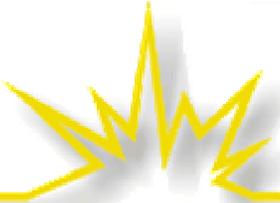
More Precursors: Supply Problems of the 70s

- Clean Air Act (1970) interrupts coal
- Oil Prices, Supply disruption, plus clean air
- Natural gas: reserve for direct end use
- Nuclear safety, cost overruns, spent fuel
- Hydro licensing, new criteria
- Utilities (and regulators) confused, next moves not easy or obvious
 - ❖ Efficiency?



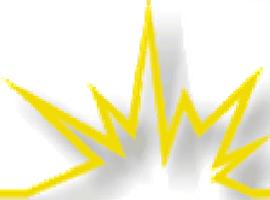
Utility Response

- Do more of what doesn't work
- Innovation? Why?
 - ❖ Take no risks
- Sales are good. More sales are better.



Government Response

- Alternative energy incentives in late 70s, eliminated in the 80s
- PURPA 1979
 - ❖ Congress says utilities are not doing the job (efficiency)
 - ❖ Enables others to generate
 - ❖ Enables access to the power grid
 - ❖ Implementation delegated to states
 - ◆ Figure out right compensation: **Avoided Cost**
- Other industries “deregulating” (telecom, airlines)



1980s

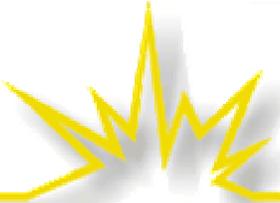
➤ Cost based Wholesale Market

❖ PURPA projects on the edges

- ◆ VT gets around 7% of energy from these projects
- ◆ They are “must run” in the cost-based dispatch
- ◆ Developing group of independent power producer businesses – The PURPA Machine Game

➤ With failed nuclear power plants

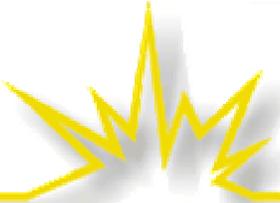
- ❖ Reliability concerns
- ❖ Utility bankruptcies
- ❖ More attention to efficiency and planning



Energy Policy Act: The Rise of Restructuring

➤ EPACT 1992

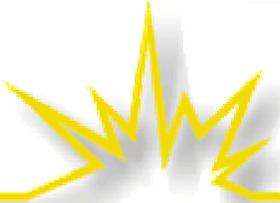
- ❖ More competitive wholesale markets
 - ◆ Still too prone to Seabrooks and high-priced power
- ❖ Utilities hope diversification will increase earnings by avoiding regulation of high part of their business
- ❖ Exempt Wholesale Generators (merchants)
- ❖ Market Based Rates
- ❖ Open Access Transmission Tariffs



Early 1990s: Meanwhile Out in the Real World

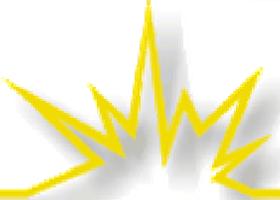
- Cheaper power was available
 - ❖ Combined cycle technology became less expensive, transforming natural gas into THE ANSWER
 - ❖ IPPs begin to grow and utilities cede the generation field
 - ◆ Some utilities get back through affiliates
 - ◆ Investment groups appear (Morgan Stanley, Goldman Sachs) as owners with new tactics >>
- Yet utilities did not need power due to economic slowdown



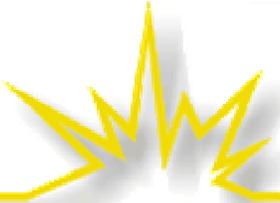


And from the Customer Perspective

- Confusing differences in the cost of power from place to place (due to fixed costs and contracts – bad luck and bad management)
- Industrial customers taking unprecedented measures to downsize and restructure
 - ❖ Electric rates seem beyond their control
 - ◆ Efficiency?
- Advantages of integration questioned
 - ❖ Potential value of specialists



What happened to Dad?



Implementing EPACK

➤ Independent System Operator

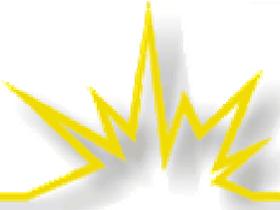
- ❖ Assure reliability

- ❖ Make markets work, favoring no market participant

➤ Rights of native load to use of transmission and generation in its territory

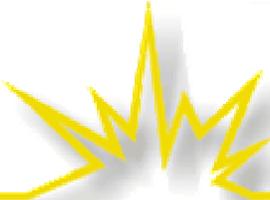
- ❖ “Everyone is someone’s native load” Martin Allday, FERC Chair

Sounds like natural gas: separated pipelines from retail gas companies

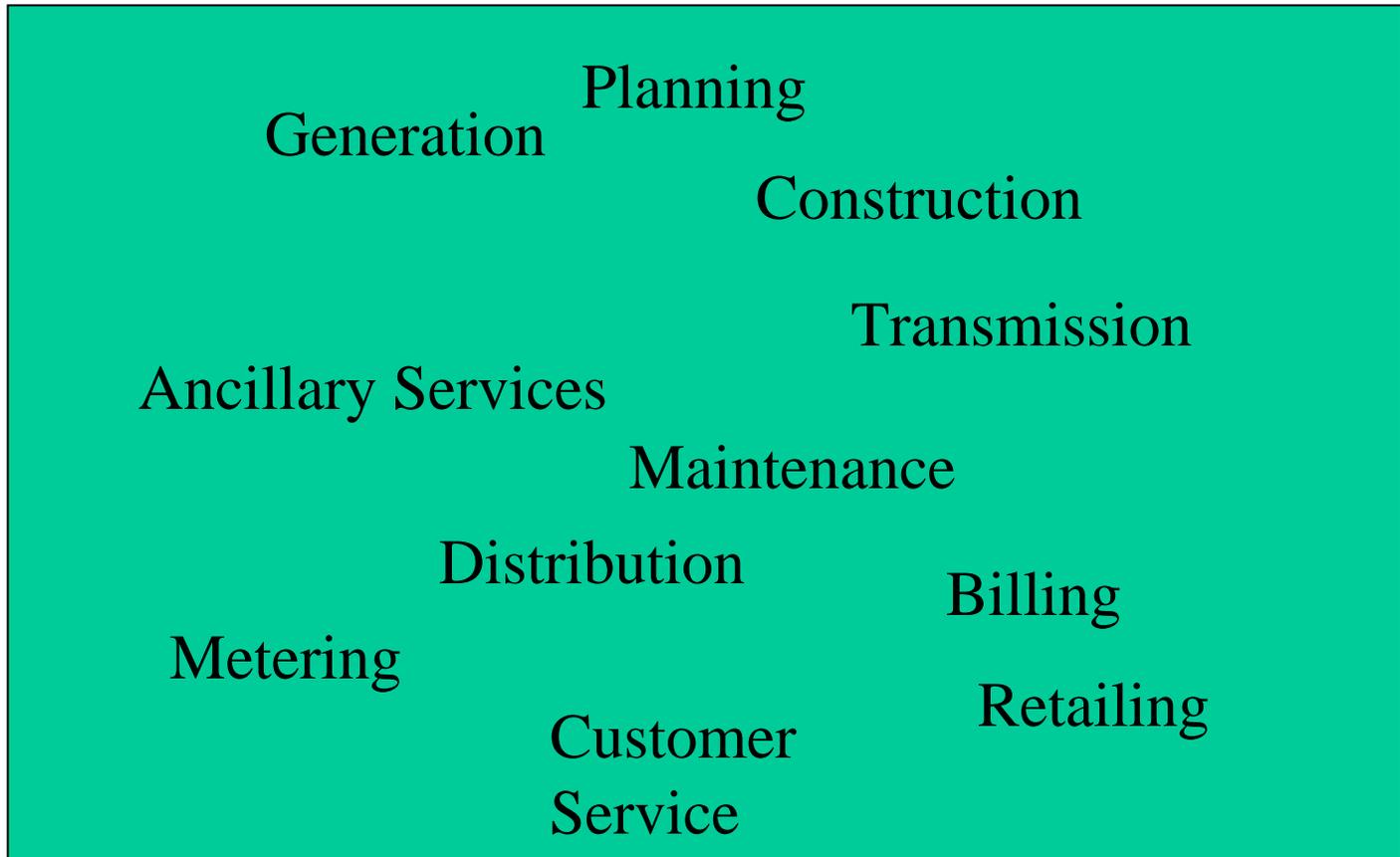


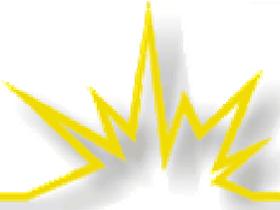
Retail Competition: The Popular Face of Restructuring

- California led the way
 - ❖ The Blue Book, led to legislation
 - ❖ Required divestiture of some generation
 - ◆ And creation of affiliates with rules to handle retained generation
 - ❖ Dealt with costs in long term contracts that exceeded current forecasts of long term power costs: **Stranded Costs**
 - ❖ California utilities still **Provider of Last Resort**
- Examine for the first time the details of what an integrated utility does



Utility Tasks: It was hard to think about disaggregating





Retail and Wholesale Restructuring are Related

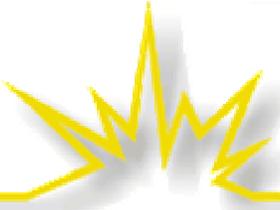
➤ But how?

- ❖ Demands on wholesale restructuring were more insistent and urgent due to urgency of retail restructuring.
 - ◆ Conventional wisdom: competitive wholesale market are needed to support retail competition, and vice versa
 - ◆ Opinion: There is some truth here, but it is not as trivial as setting up both and assuming they will work and each can tolerate many deficiencies in the other.

FERC

Orders 888 and 889

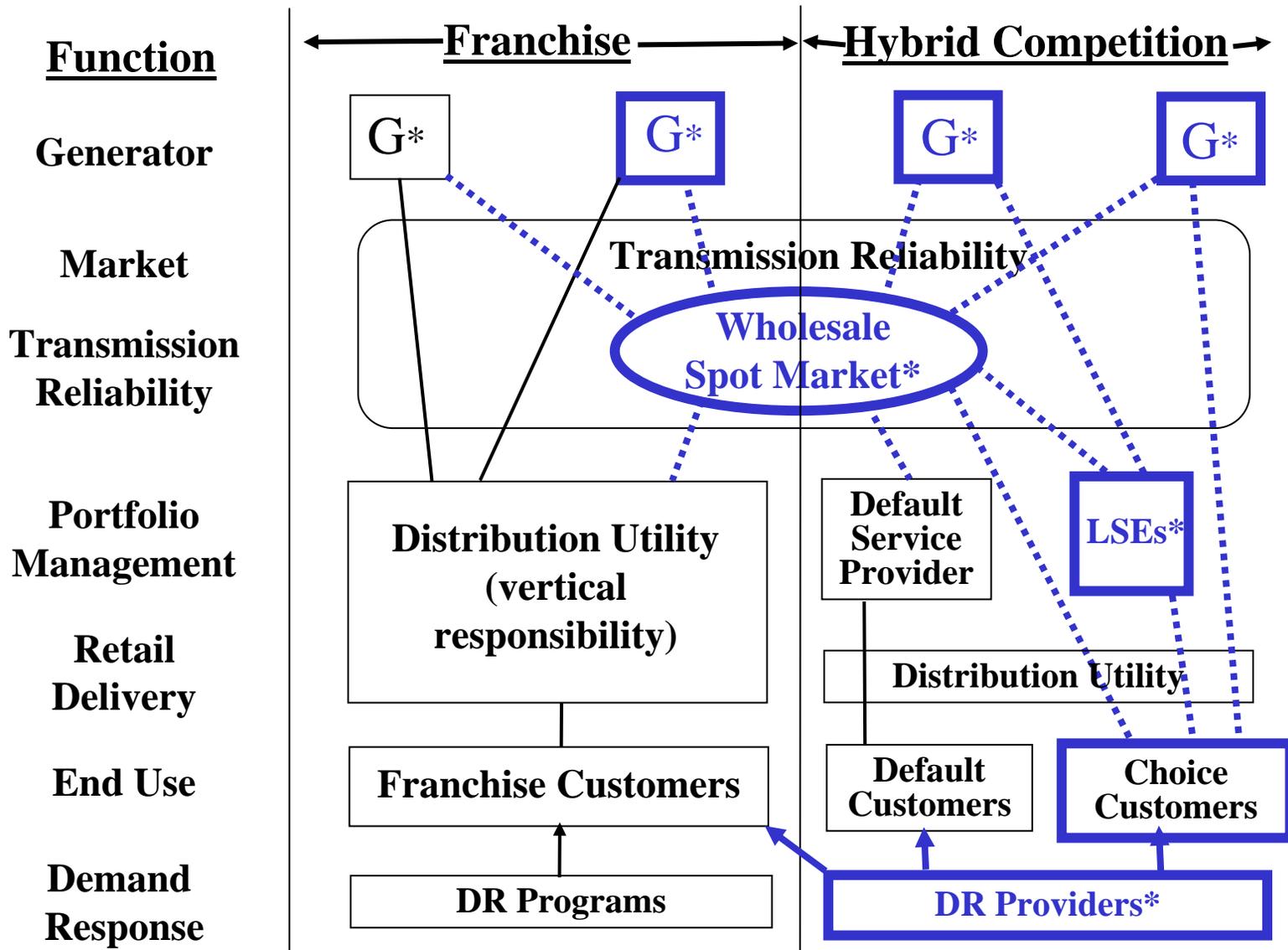
- Lay out details of FERC's vision of how reliable wholesale markets will be set up
 - ❖ What does an Independent System Operator do? Can transmission owners do it as well?
 - ❖ What markets should we have?
 - ◆ Energy, capacity, ancillary services (RECs?)
 - ❖ Access to market based rates
 - ❖ Transparency of prices and low access barriers
 - ❖ Structure of companies to promote competition



One more slide on 888

- Functional or structural unbundling for utilities?
 - ❖ Affiliate transactions rules
 - ❖ Measuring market power
 - ❖ Mergers and acquisitions
- Industry cooperation (“the club”) strained
- **BIG MARKETS!**
- Role (jurisdiction) of the states? (the last inch)
- The I in ISO: is independence achievable?
 - ❖ Control, Seams

**The Objective (cure) sounds good, but
the Transition (operation) might kill us.**

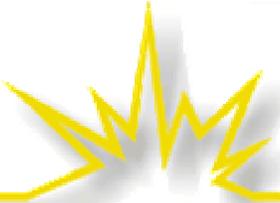


* Bold objects and lines designate activities functioning in a competitive environment.



Last Word

- Wholesale markets are not working right yet
 - ❖ Business for new generation still unresolved – bankruptcies
 - ❖ Problems with governance, planning
 - ❖ Demand side not sufficiently engaged
 - ❖ Many places resisting new markets
- Yet consumers are still protected from new Seabrooks (for now)



Thanks for your attention

❖ rapsedano@aol.com

❖ <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.*