

# Remaking the Regulatory Compact for Hawaii

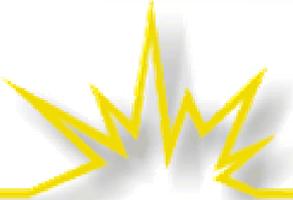
Presentation to Hawaii PUC  
December 4, 2003  
Richard Sedano



## *The Regulatory Assistance Project*

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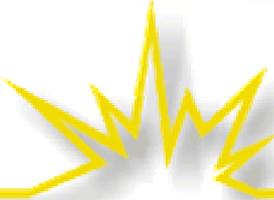
# Introduction

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## ➤ 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



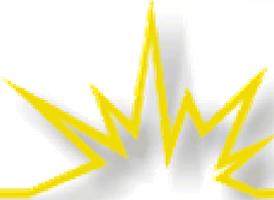
# What Do Consumers and Citizens Really Want?

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- Reliable electric service
- Stable, affordable bills
- Environmental improvement with a sustainable energy future
- Less reliance on fossil fuels
- **A Sound Economy**

Needed: Profitable utility with incentives aligned with customer and public goals

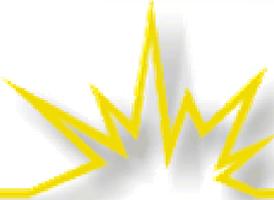
Note: **Risk management** common to all these<sub>3</sub>



# Regulatory Participants: What Do They Want?

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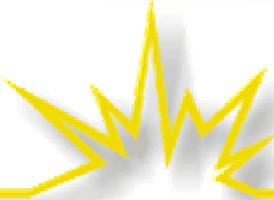
- Certainty
- Timely Decisions
- Respect and Fairness
- Vision (consistent with law)
- Communication
- Decisions that create value through innovation, economic efficiency, etc.



# Many Good Ideas – Why Don't They Just Happen?

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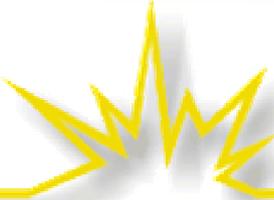
- Barriers persist throughout regulation
- Analysis of barriers to satisfactory outcomes is an efficient way to develop focused solutions
- Ask: why in specific is some good result not happening?
  - ❖ Hearings are excellent times to ask



# Help Wanted: Strategic Management

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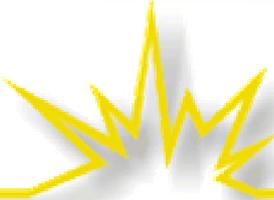
- Strategic Management needed to
  - ❖ See vision, derived from statute
  - ❖ See several moves ahead
  - ❖ See barriers
  - ❖ See possible solutions
  - ❖ Manage process and resources to navigate toward vision and objectives
- Leadership is hard



# Remaking the Regulatory Compact

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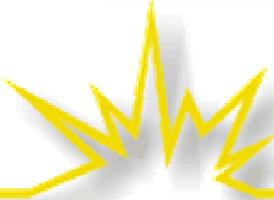
- Utility Performance
- Incentives
- Integrated Resource Planning
- All Source Bidding
- Distributed Resources
- Distributed Utility Planning (connection to IRP?)
- Competition and market forces
- PUC actions
- Ways forward



# Utility Performance (How are we doing?)

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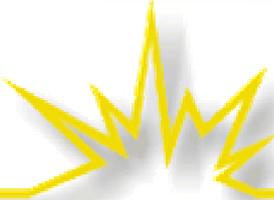
- Identify public priorities
  - ❖ Rates and Total Cost
  - ❖ Service
  - ❖ System performance
  - ❖ Energy efficiency
  - ❖ Others
- Measurable indicators
- Targets that stretch the company
- Incentives
- Independent of resolution of throughput issue



# Incentives for Meeting Performance Goals

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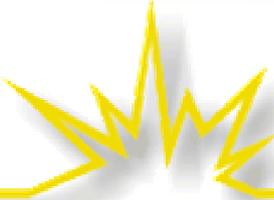
- Depends on the issue
- Depends on whether throughput incentive remains
  - ❖ For Energy efficiency, carve out a small percentage of funds dedicated for energy efficiency; then enable company to win those funds for shareholders if stretch goals are met.
  - ❖ Other targets may work best in PBR
- Sometimes, positive public recognition is all the incentive that is needed



# More Incentives: Customers and Utilities

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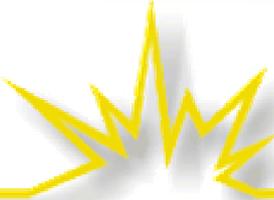
- Rate design
  - Objective: Cost-based rates: No Subsidies
  - Time sensitive options
  - Interruptible rates
  - Special tariffs (green pricing, DG, demand response)



# More Incentives: Customers and Utilities

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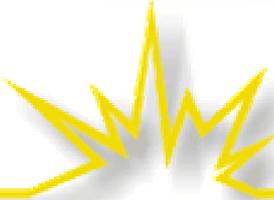
- Markets: use them when appropriate
  - Resource acquisition: reveal low cost producers
  - Utilities want to dish it out; can they take it?
  - Throughput incentive
    - Revenue cap-based regulation addresses reality of the utility bottom line



# Utility Practices

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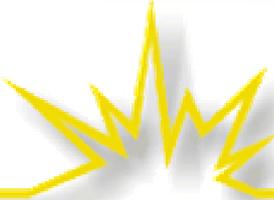
- Integrated Resource Planning
  - ❖ Use to develop renewable energy capacity
  - ❖ Externalities and risk
- All Source Bidding
  - ❖ Demand sources too, especially concerning system stability and congestion relief
- Distributed Generation
  - ❖ Considering open docket, any questions?
- Distributed Utility Planning



# Integrated Resource Planning

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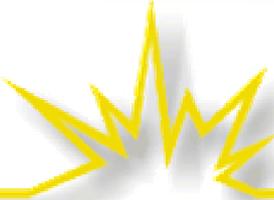
- Important opportunity to invite public into discussion of commitments utilities will make on their behalf, for which they will pay
- Consider a standing collaborative to monitor progress and development



# Integrated Resource Planning

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- Time to assess risks faced by company and its customers: a “portfolio” approach
  - ❖ Vary variables like contract term, variable cost driver, fixed-variable weighting, etc.
- Objective: decision principles designed to provide good results regardless of outcomes of key drivers (i.e. oil prices)
- A powerful process if planning is explicitly connected to resource acquisition decisions and avoids bias

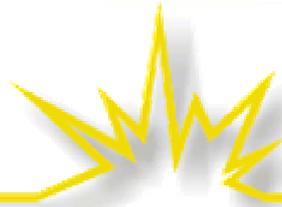


# Integrated Resource Planning: A Utility View

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- **"Reducing our reliance on purchasing power from potentially volatile markets is an imperative in returning to more stable and predictable prices for our customers," said Michael Yackira, executive vice president of strategy and policy for Sierra Pacific Resources. "This plan provides the framework through additional owned generation as well as the combination of conservation and energy efficiency programs."**

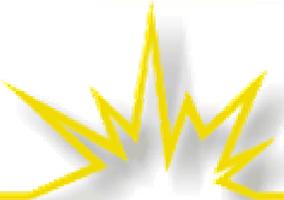
(This utility was hit hard by Western price spikes in 2000.) 15



# Risk Management: Whose?

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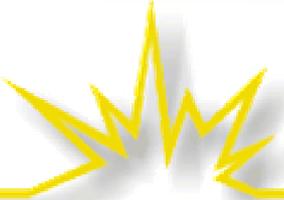
- The Fuel Adjustment Clause allows the utility to pass all risk of volatile fuel prices to its customers
- The utility has the capacity to manage fuel price risk (many states do not permit a fuel clause)
- Customers have little ability to manage the risk, aside from conserving
- While the clause may be a legacy that is well embedded, the PUC can direct the utility to plan as if it must fully manage the fuel risk



# Cost Tests

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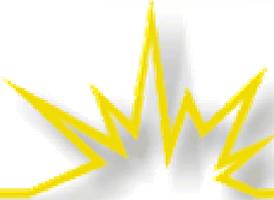
- Societal Cost appears to address statutory directive in Hawaii to count qualitative and quantitative factors in resource evaluation
- Perfection is enemy of good
  - ❖ Can use rough adders or multipliers for environmental externalities and risk mitigation factors
- Total Resource Test is second best
- Rate Impact Test does not consider social effects (+ or -) of a resource



# Energy Efficiency

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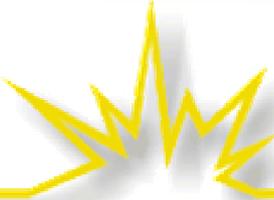
- Big opportunities everywhere for consumer funded efficiency
  - ❖ Lights
  - ❖ Air conditioning
  - ❖ Solar hot water heating
  - ❖ Appliances
  - ❖ Building design
- Target Barriers



# Energy Efficiency Customer Barriers

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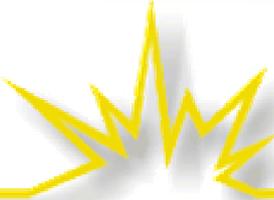
- Information
- Capital (payback periods)
- Cash Flow
- Split Incentives



# Energy Efficiency

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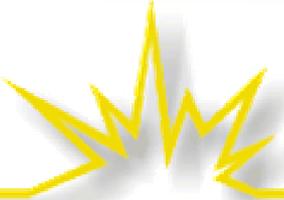
- Powerful Risk Management Tool
  - ❖ Reliability
  - ❖ Long term cost control
  - ❖ Commodity prices
  - ❖ Shortage driven price spikes
    - ◆ Competitive generation markets also concerned with market power
  - ❖ Environmental effects and regulation
  - ❖ Siting problems
- Manage and Target Deployment (if planning identifies valuable places)



# Energy Efficiency

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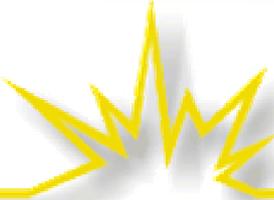
- Costs less than supply resources
  - ❖ Externalities, risks avoided are values added
- Generally under-utilized
  - ❖ Resource acquisition often biased
- Utilities have “love – hate” relationship
  - ❖ Great for customer relations
  - ❖ Diversion to growth
  - ❖ Regulatory tension



# Energy Efficiency: Sample Objectives

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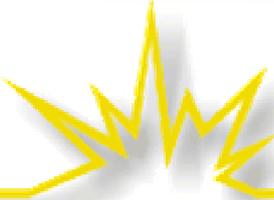
- Sustained base level of energy efficiency investment (1-5% of gross utility revenues)
- Prioritize (i.e. new construction, low income, farms)
- Additional deployment based on system stability planning by the utility
- Solid appliance, equipment and building standards and codes to augment consumer-funded programs
- Piggy-back on programs like: Energy Star, Home Energy Ratings, Energy Efficient Mortgages
- Further develop an efficiency “culture”



# Energy Efficiency

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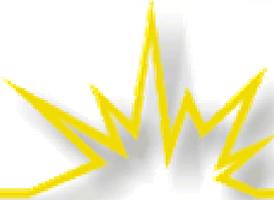
- Most important resource
  - ❖ Especially for consuming states
- Performance Incentives: Yes
- Lost revenue recovery: No
  - ❖ But these two can be a similar magnitude
- Choose energy efficiency program delivery



# Energy Efficiency Administration Options

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- Incumbent Utility
- Utility with performance measures (RI, MA)
- Utility, with public “board” (Connecticut)
- Sole purpose utility (Vermont)
- Non-profit created by PUC (Oregon)
- State PUC (Maine)
- State agency (Wisconsin)

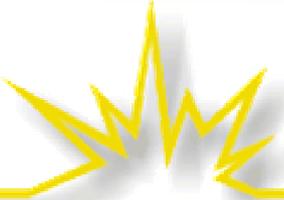


# Sample Energy Efficiency Performance Indicators (RI)

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- Total energy saved
- Energy Star Clothes Washer penetration
- Energy Star Home penetration
- Building Operation Certification Trainings
- High Performance Schools
- Comprehensive Small Business Installations

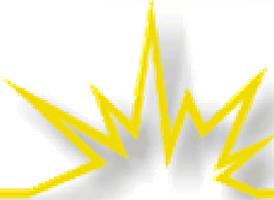
Note range of customer class, and savings/market transformations



# Competition

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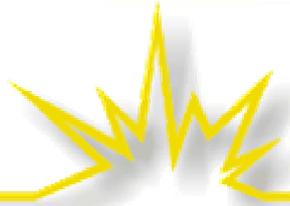
- Use Market Forces where they provide value to customers
- Where utility business plans are in competition with private sector
  - ❖ Protect ratepayer interest
  - ❖ Use of affiliates
  - ❖ Development of affiliate transaction rules and codes of conduct



# Efficiency and All Source Bidding

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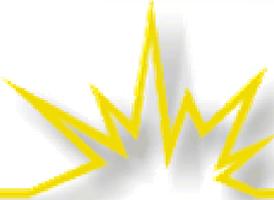
- For adequacy
  - ❖ Maintain stable energy efficiency program support
  - ❖ Bid for supply needed to meet efficiency-adjusted demand forecast (plus reserves)
- For stability
  - ❖ All sources, including efficiency and other DER, should compete in an unbiased process



# Sources of Bias

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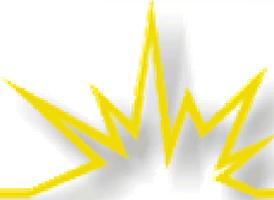
- The planning process that considers “all resources” may not
  - ❖ The process may simply ignore all but generation and transmission alternatives
  - ❖ The process may have an inadequate horizon to consider alternatives that require time to accumulate
  - ❖ Demand resources may be an afterthought
  - ❖ Generation effects on transmission may be ignored



# DOE National Transmission Grid Study (2002)

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- *“Enabling customers to reduce load on the transmission system through voluntary load reduction or through targeted energy efficiency and reliance on distributed generation are important but currently underutilized approaches that could do much to address transmission bottlenecks today and delay the need for new transmission facilities.”*



# Other Distributed Resources

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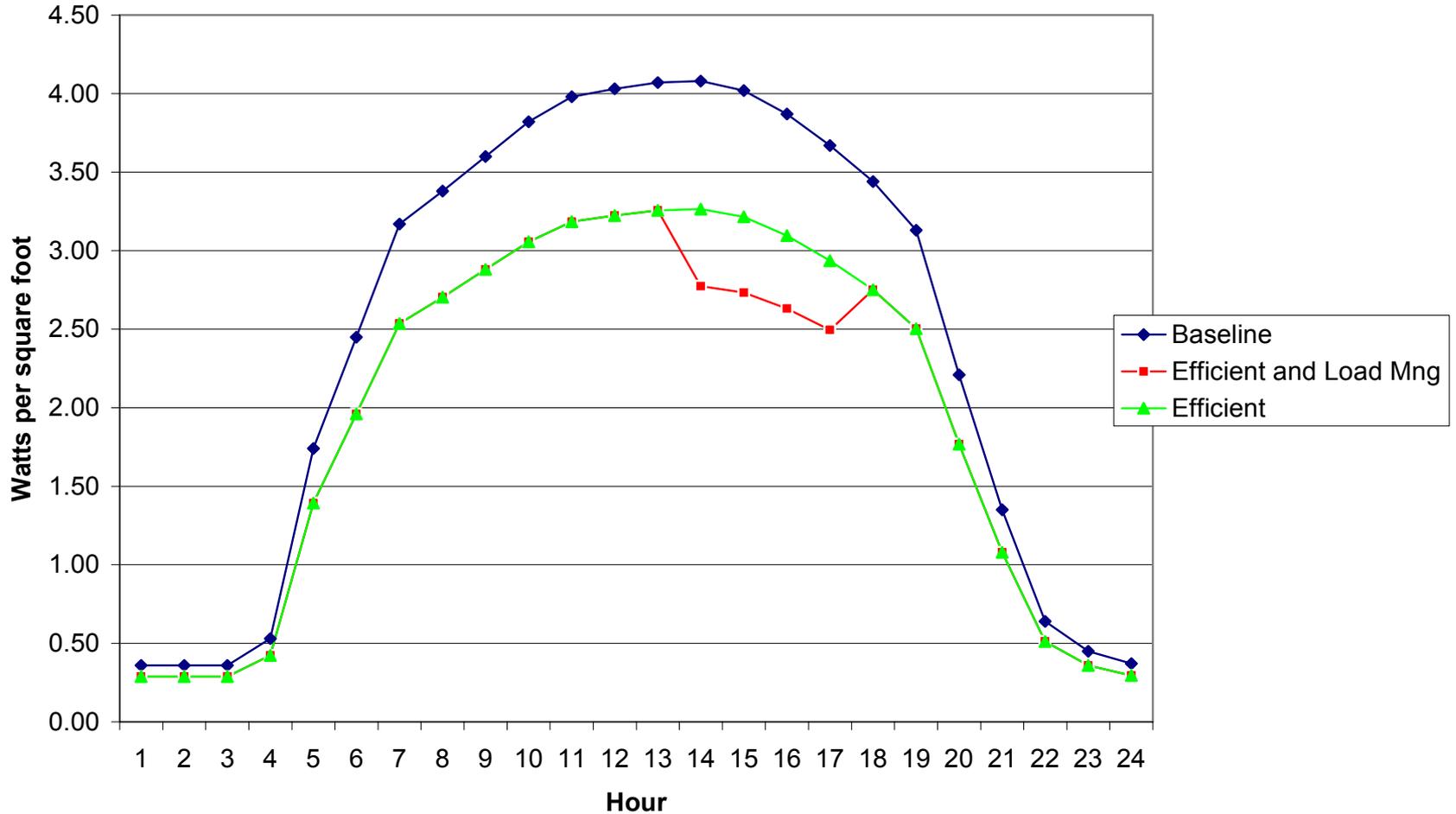
## ➤ Distributed Generation

- ❖ Considering open docket, any questions?
- ❖ Guard against creating a new air quality problem: screen for clean DG
- ❖ Interconnection, Stand by rates

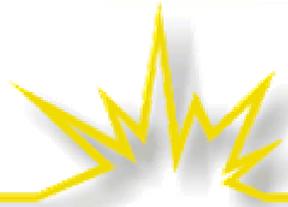
## ➤ Demand Response

- ❖ Can make a huge difference for sys operator
  - ◆ Avoid highest cost resource, eases black start, more
- ❖ Learning process with customers

## Combined Commercial Cooling and Lighting Loadshape with Efficiency and Load Management (Four-Hour Curtailment by 15%)



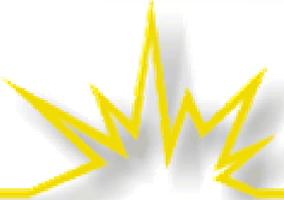
Source: Optimal Energy



# Distributed Utility Planning

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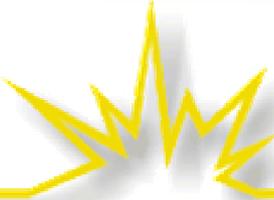
- Least cost assessment of distribution system
- Identify valuable locations for
  - ❖ Demand side resources
  - ❖ Rate options
- Intent: defer or avoid more expensive, risky, or disruptive resource investments
  - ❖ Big developments hanging off radials: likely



# Renewable Energy

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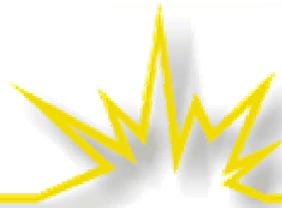
- Risk mitigation through diversity
- National policy support
- Environmental benefits (sometimes)
- Local economic benefits
- Small scale
- Often popular
  - Premium prices, especially with smaller scale
    - Traditional sources seem “safer”



# Renewable Energy

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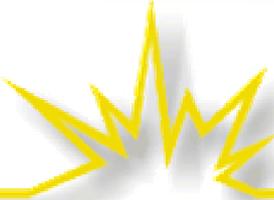
- Renewable goal in place
- Green choice tariff
- Wires charge to support deployment, R&D
- Policies should promote cost-based deployment
- PUC: consider monitoring progress toward goal
  - ❖ Report to legislature if present policies are likely or unlikely to meet goal
- Consider risk management value of renewable energy (see [LBNL-53587](#))



# PUC Practices: Engagement

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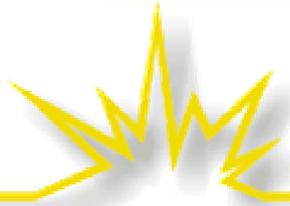
- Full capability to evaluate all evidence
- Workshops
- Collaboratives
- Generic Policy Investigations
- Active engagement by PUC in discovery
- Timely actions
- Teach the Public
  - ❖ Web site +



# Ways Forward

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- Use Goodwill
- Balance patience with seizing opportunities
- More ways to communicate with the public
- Develop staff
- Pilots to test promising policies
  - ❖ Incentive plans, distributed utility planning, time sensitive prices, etc.
- Market forces
- Efficiency potential
  - ❖ Regard electric growth as the enemy



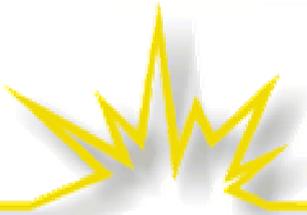
# Traditional Lessons

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- Productivity and environmental quality still count
- Market barriers to efficiency are still real
- Demand side resource reservoir is large and under-valued
- Renewable resources underused
- Regulatory policies are crucial

# A Sampling of the Library of The Regulatory Assistance Project

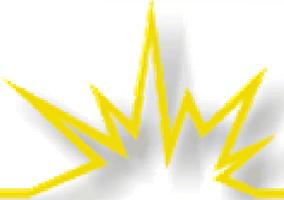
<http://www.raonline.org>



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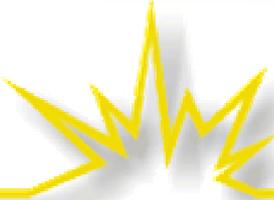
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# RAP Library

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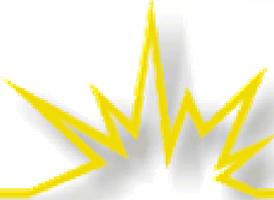
- Demand Response
- The New England Demand Response Initiative
- 16 month collaborative process to improve design of demand response programs and to place them in context with other resources
- <http://www.raponline.org/Pubs/General/FinalNEDRIREPORTJuly2003.pdf>



# RAP Library

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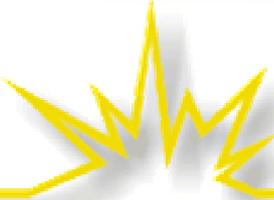
- Portfolio Management
- In regulated or competitive retail market, acquiring resources is about managing risk
- Two reports identify a gap left by the attention to retail competition
- <http://www.raonline.org/Pubs/PortfolioManagement/SynapsePMpaper.pdf>
- <http://www.raonline.org/Pubs/PortfolioManagement/PortfolioMgmtReport.pdf>



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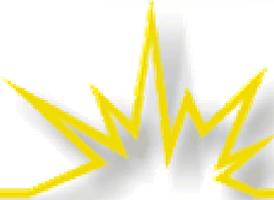
- Energy Efficiency Service Delivery
- Organizing energy efficiency can work either by creating an organization outside the utility or inside the utility
- Who Should Deliver Ratepayer Funded Energy Efficiency? A Survey and Discussion Paper
- <http://www.raonline.org/Pages/WhoShouldDeliver.htm>



# RAP Library

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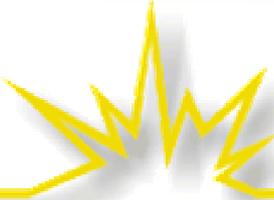
- To achieve long run least cost results, utilities should consider all resources when addressing reliability needs of the grid.
- Efficient Reliability: The Critical Role of Demand Resources in Power Systems and Markets
  - ❖ Prepared for NARUC
- <http://www.raponline.org/Pubs/General/EffReli.pdf>



# RAP Library

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- Performance Based Regulation through a Revenue Cap
- Address throughput incentive by breaking link between sales and utility net income
- Profits and Progress through Distributed Resources
- [http://www.raonline.org/Slides/DR\\_P2P/PrfPrgDR.pdf](http://www.raonline.org/Slides/DR_P2P/PrfPrgDR.pdf)

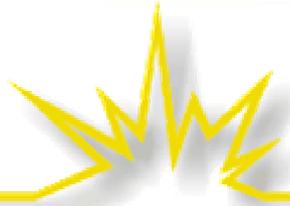


# RAP Library

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- Transmission Siting process can be improved in both utility and siting authority
- National Transmission Grid Study: Issue Paper 5: Transmission Siting and Permitting
- [http://www.eh.doe.gov/ntgs/issuepapers/ISSUE\\_5.PDF](http://www.eh.doe.gov/ntgs/issuepapers/ISSUE_5.PDF)

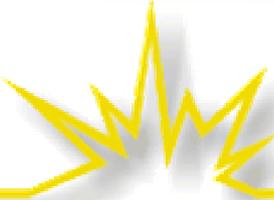
# More Depth on Selected Topics



# Lost Profits Math

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- From Profits and Progress:
- Utility with \$284 million rate base
- ROE at 11%, allowed earnings: \$15.6 million
- Power costs: 4¢/kWh; retail rate avg: 8¢/kWh;  
Sales 1.776 TWh
- At margin, each saved kWh cuts profits  
4¢/kWh
- Sales drop 5% >> \$3.5 million drop in profit  
❖ -23%!



# Decoupling Basics: De-link Profits and Sales

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- Goal: recover utility's costs and return on rate base, not more, not less
  - ❖ Calculate revenue needed to cover costs
  - ❖ Calculate rates needed to collect revenue *based on projected sales*
  - ❖ Annually adjust rates to account for sales variance
  - ❖ Permit increases in total dollars to reflect growth in customer base (not sales)