



**RAP**

Energy solutions  
for a changing world

# The Path to Carbon Capture: A Path through Utility Regulation

## CCS Roundtable Strategy Session

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# Introducing RAP and Rich

- RAP is a non-profit organization providing technical assistance to government officials on energy and environmental issues. RAP staff have extensive utility regulatory experience.
  - Richard Sedano directs RAP's US Program. He was commissioner of the Vermont Department of Public Service from 1991-2001 and is an engineer.

# Key Factors Blocking CCUS

- Cost
- Risk
  
- Lack of actionable long term vision

# Focus of State Regulators

- CCUS addresses a regional and national challenge
  - Individual states have distinct concerns
  - Will tend not to be heroic
- Single states may feel foolish to take undue financial burden and risk for others
  - Single utility feels the same
  - Even a coal-intensive state (so far)

# Addressing National Interest Investments

- National cost supports represent national interest (see China)
  - Subsidies from DOE
  - Subsidies from tax code
- Scale issue
  - National interest investments are large
  - Markets and regulation can't handle them without discounts or a substantial C price

# State Efforts

- State subsidies
  - Requires strong consensus, and
  - Strong financial position
- Weak signs for this
  - Fiscal interactions with power sector tend to be around the edges
    - Tax credits for small renewables, for example
  - State budgets are stressed now, most years

# Special Regulatory Efforts

- Get consumers to pay ahead of time
  - Construction work in progress (CWIP)
  - Allowance for Funds Used During Construction (AFUDC)
  - Seen as **unfair** to current customers not getting current benefits
  - Seen as **risky** to customers as project may be abandoned, or may cost more than expected (and customers get the bill)
  - Also risky to utility if government changes

# Power Markets Not Friendly to CCUS

- Significant cost advantages to consumers
  - “No more Seabrooks” (big investments lacking value are not tolerated)
- How to drive a (pricy) national interest, non-market solution into a market?
  - With regulators not interested in
    - Bleeding edge technology (inadequately subsidized)
    - Taking on undue burden compared with other states
  - With little or no price on Carbon

# Clean Energy Tactics

- Clean Energy Standard
- Feed in Tariff
- Both can be market based
  - Uncertain result if other resources in the standard are superior
  - Uncertain result if acceptable feed in tariff rate is still too low

# Private Sector and Public Sector

- If Public Sector can bring market cost down
  - Through subsidies of various kinds
- There is still the scale issue
  - Can a single entity handle the risk?
  - And cheaper alternatives to coal in short run
- And the “who goes first” issue remains

# Joint Ownership Agreements

- Utilities and Other Partners can join together to invest in a planned series of projects
- Model: the Yankee nuclear units of New England
  - Units planned for each NE state, most utilities
    - Only RI unit not built
    - Added units built in CT and MA
    - Benefitted from NEPOOL

# Cooperation on A Big Program



# Joint Ownership Manages Risk

- Many companies can cooperate in ownership and shared benefit from an investment
  - Can GHG Rule value shared benefit?
- Capital flow from many investors can be managed over many years and projects
  - A coordinated strategy justifying the federal investment in multiple states

# Regional GHG strategy

- To guide this convergence of markets and regulation
- Recognizes the critical role of electrification of transport and thermal
  - And future value of coal in this new portfolio
- What would it take to create a regional GHG strategy?
  - How can philanthropy cause the right conditions?

# Building the Base for Commitment

- Bring back long term state energy planning
  - Or perhaps a roadmap (EU Roadmap 2050)
  - To demonstrate long run value of alternatives
    - In a transformed energy sector
    - CCUS in apples to apples with vision in mind
  - In a time of change, government should want better vision to see unconventional opportunities

## 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](http://www.raonline.org)

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# China and EU

- China
  - 11 plants in development
  - Planned completions in 2016
- EU (see EC CCS Directive report Dec14)
  - Norway and UK most active
    - North Sea storage
  - Low Carbon price, reluctance to create an emission performance standard and market is weak