The Changing Face of Energy Supply in Florida (and the Southeast)

37th Annual PURC Conference

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February 2010
• Public utilities – government control over rates to protect public – *as consumers*

• 20th Century – universal service goal met

• Gradually, interests of customers more at odds with each other
Opening Comments

- 21st Century – technological opportunities for public to be *producers* of energy resources
- Florida has some success with accessing distributed (public produced) resources
- Other states and nations are using these resources much more effectively
- New public utility paradigm
Managing Affordability and Competitiveness

• Manage and balance:
  – Customer bills (Rates and avoiding waste)
  – Risk of rate spikes
  – Job creation
  – Use of in-state energy resources

• Ensure system reliability
Investor-Owned Utility Efficiency Impacts

Energy Savings as a Percent of Sales

Source: Analysis of data from Iowa Utilities Board, Florida Public Service Commission, and the US Energy Information Administration.
Pacific Northwest: Managing Cost and Risk

Plan Recommendation # 1:
Develop resources now that can reduce cost and risk to the region
- 700 average megawatts of conservation, 2005 - 2009
- 500 megawatts of demand response, 2005 - 2009
- Secure cost-effective cogeneration and renewable energy projects
- Develop cost-effective generating resources when needed

Source: The Fifth Northwest Electric Power and Conservation Plan, 2005
Jobs in Florida:
20% by 2020
Renewable Energy Standard

State Renewable Energy Target
Solar Jobs
Biopower Jobs
Other RE Jobs

In-State Energy Resources

Achievable Renewable Energy Potential

Source: Based on data published by Navigant Consulting, Inc. and using Florida PSC data.
Renewable and other variable energy generation cannot be stored, and impact system planning and operations because:

- Plant output **fluctuates** on all time scales, and
- The magnitude and timing of variable generation output is **less predictable** than for conventional generation.

Utility Earnings Affect System Management

- ROE drives investment choices
- Trust drives investment choices
- Rate structure drives investment choices
- Finances for renewable energy
- But . . . Leadership and organizational culture in utilities also matter
The Averch-Johnson effect: A firm has an incentive to acquire additional capital if the allowable rate of return exceeds the cost of capital.

“If a utility can raise capital at a cost rate of 9 percent, but is allowed to earn close to 11 percent returns on all invested capital, it can deliver gains to its present investors by adding capacity . . . even though the present investors supply none of the new capital . . .”

Trust Also Affects Investment Choices

• Good trust – professionalism and predictability

• Bad trust – cronyism and “how we’ve always done it”
Aligning Utility Interests with Efficiency and Distributed Generation

Change in Earnings ($)

Change in Achieved After-Tax Earnings from BAU No EE (SMR, PV)

Cost Capitalization

Shared Net Benefits

Performance Target

Decoupling Only

No Financial Incentive

Change in Achieved ROE from BAU No EE (Basis Points, PV)

Combining Decoupling and Efficiency Performance Incentives

Impact of Efficiency Rate Structures on Customers

Rate Increase (cents per kWh)

Customer Bill Savings ($ billions)

Represents about 3-6% savings

**Renewable Electricity Standard**

- **Regulated target** for renewable energy purchase
- Market sets additional cost of renewable energy
- Utility can affect success through contract requirements (schedule, interconnection, etc.)

**Feed-in Tariff**

- **Regulated price** of renewable energy purchase
- Market determines amount of renewable energy purchased
- Utility can affect success through contract requirements (schedule, interconnection, etc.)
- Clean Energy Standard Offer Contract (CESOP) is a variant
If it’s so cheap, why . . . ?

- Lack of information, awareness
- Lack of capital
- Utility financial regulation – disincentive to utility support
- Utility planning policy – energy efficiency not equal to supply resources
- Efficiency programs not up to date
- Transaction costs
- “Split-incentive” or “Principal-Agent” problem

Florida Climate Action Team Policies: Share of Potential Emission Reductions

<table>
<thead>
<tr>
<th>Policy Description</th>
<th>Percentage</th>
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<tbody>
<tr>
<td>Renewable energy in electric sector</td>
<td>36%</td>
</tr>
<tr>
<td>Energy efficiency in electric and natural gas sectors</td>
<td>24%</td>
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<tr>
<td>Lower emission generation in electric sector (CHP, nuclear, &amp; coal)</td>
<td>5%</td>
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Policies within Florida PSC jurisdiction: 65%

Policies outside Florida PSC jurisdiction: 35%

Also, consider:
- Electric or plug-in hybrid electric vehicles
- Sustainability of biopower fuels (affects environment, system reliability)
- Water use by power plants (affected by temperature, sea level, drought)