



**EDISON ELECTRIC  
INSTITUTE**

# *Utility Energy Efficiency: The CEO Perspective*

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**Eric Ackerman**  
Senior Manager, Regulatory Policy

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# *Overview*

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- Strategic context – urgent need for efficiency
- Role of the utility
- Building sustainable businesses
- Business models
- Conclusions

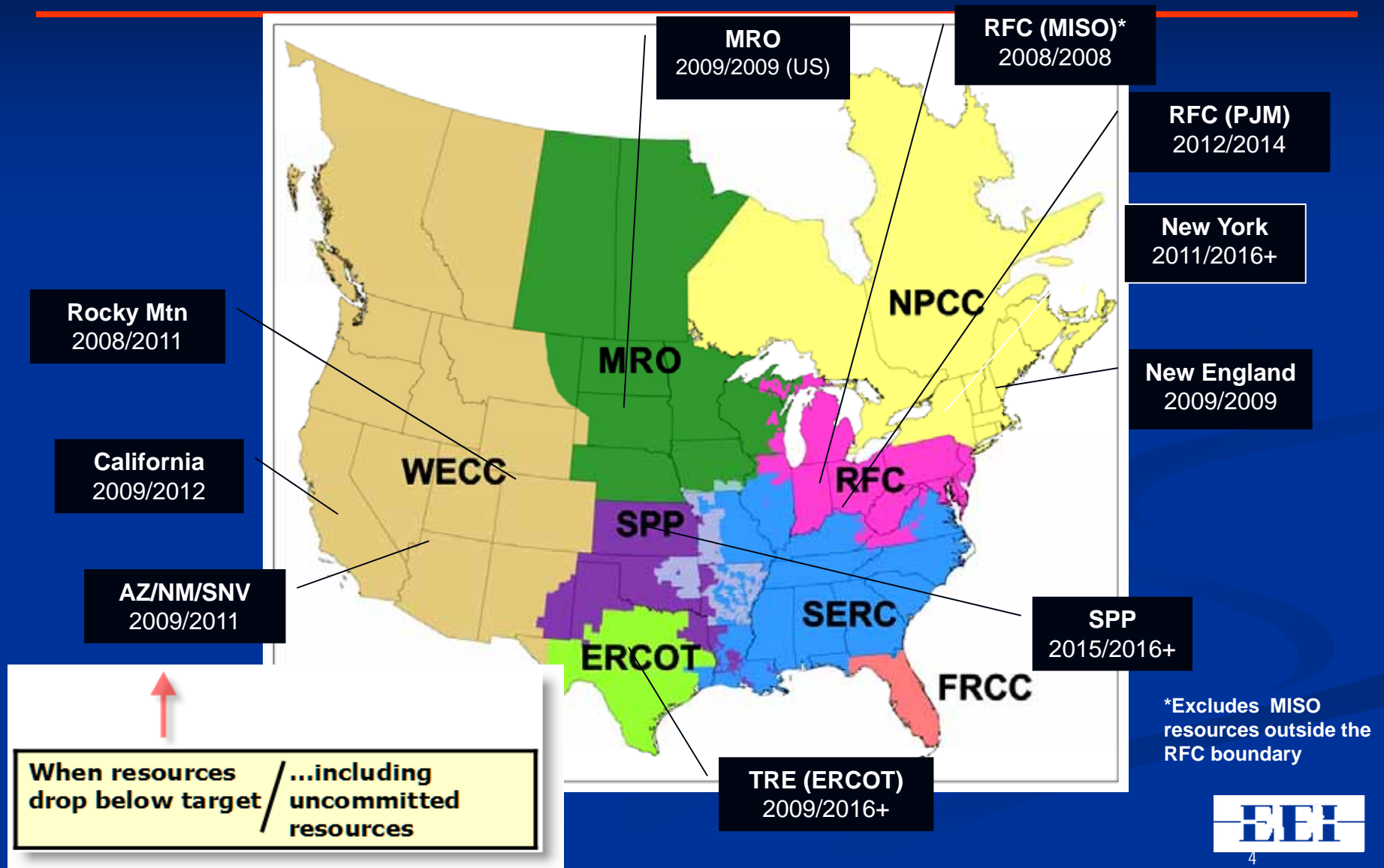
# *Demand for Electricity Is Increasing*



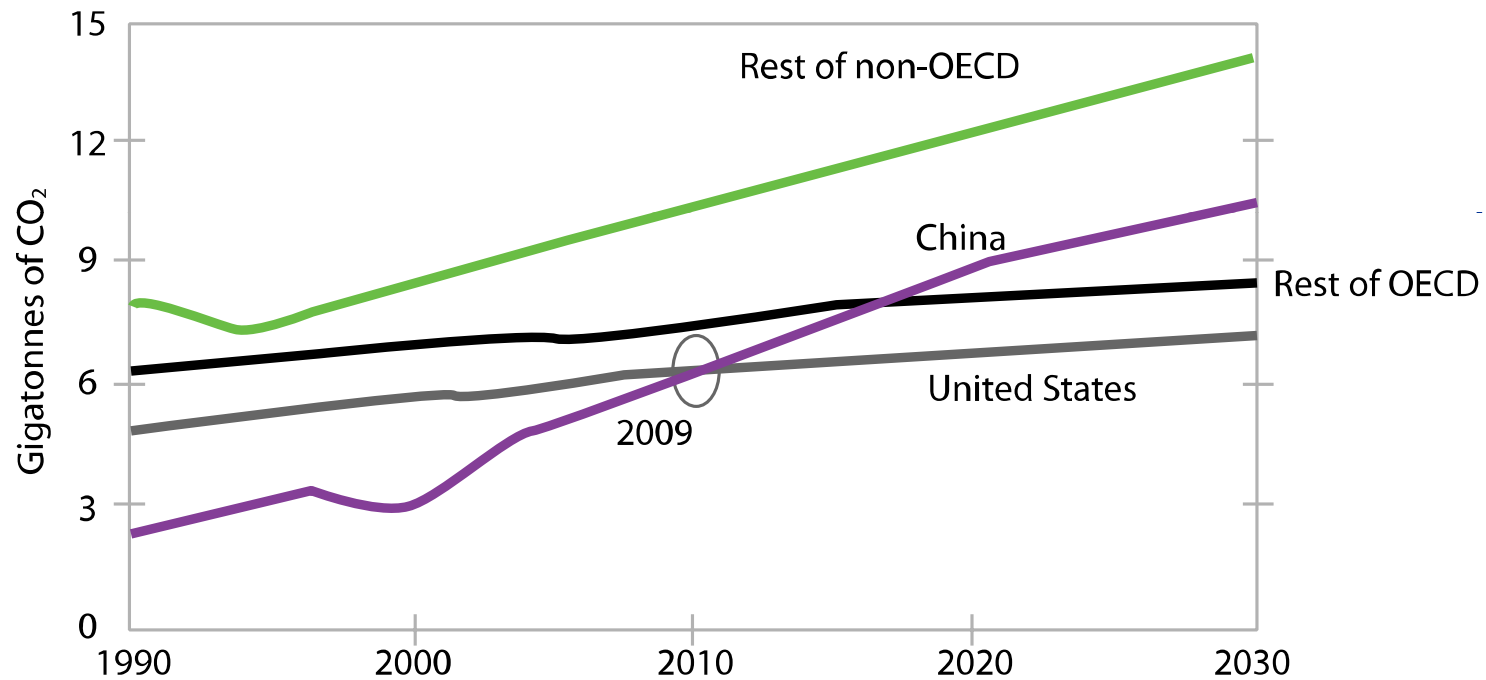
Sources: U.S. Department of Energy, Energy Information Administration, *Annual Energy Review 2005* and *Annual Energy Outlook 2007 Early Release*



# Electricity Supply Margins Projected to Fall Below Minimum Target Levels in Some Areas of North America



# Increasing Energy Means Increasing $CO_2$



Source: International Energy Agency, *World Energy Outlook 2006*

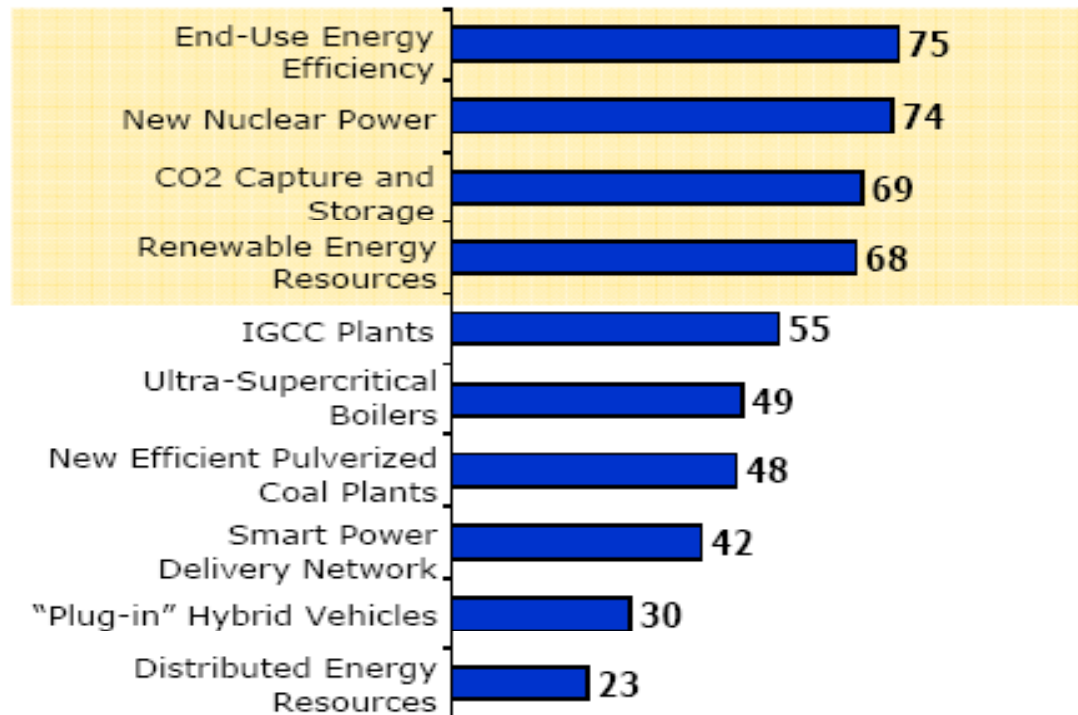
# Technology Strategies



## There is a strong consensus on technology strategies

### Important Climate Change Technology Strategies

(% Consider Very/Somewhat Important)



- A majority of industry leaders see end-user energy efficiency, nuclear and renewables as the most effective technologies, along with carbon capture and storage, for addressing climate change

Q27: How important will each of the following technology strategies be to utilities when it comes to addressing climate change?

Source: GF Energy 2007 Electricity Outlook Entering the Climate Zone June 18, 2007

# *Challenge: Technologies and Timeframes*

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- **Clean coal technologies**
  - Not commercially available until **2015**
- **Carbon capture and storage (CCS) technologies**
  - Not commercially available until **2020-2025**
- **Deployment of nuclear plants**
  - Not possible until **2015** at earliest

# *Huge Investment Needs*

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- Current net regulated electric utility property in service
  - ~ \$ 400 Billion
- Generation ~\$ 53 Billion 2007-2016
  - US DOE – Energy Information Administration projects ~\$412 Billion 2005 – 2030 for all generation sources
- Transmission ~\$ 85 Billion 2007-2016
- Distribution ~\$ 145 Billion 2007-2016
- Environmental ~\$ 30-60 Billion 2007-2016
  - Excludes potential cost of climate legislation
- Other cost factors
  - Critical infrastructure protection, RTOs, pension funds, health care, disaster recovery, end of rate freezes, RPS, fuel



# Pressure on Credit Ratings

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- Average credit rating has declined over the last 10 years, from A- to BBB (Source: Standard & Poor's)
- Wall St. expects further pressure due to (1) infrastructure spending, and (2) regulatory lag:
  - "Primarily because of regulatory lag and increased financing expenses that cause balance sheet strain and execution risks, utilities suffer subpar returns during periods of heavy capital investment..."
  - Each additional \$1 billion of FCF (free cash flow) deficit for the industry further reduces equity return by approximately 16 basis points. We project negative FCF throughout the 2007-09 period, which implies more substantial under-earning for the next few years."
  - (Lehman Bros., Global Equity Research, *Power & Utilities: Capital Complications*, May 22, 2007, page 21)

# *Electric Rates Are Rising*

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- 2000 – 2006 rates rose 25.4% nationally
  - New England region – 46.6%
  - Pacific region – 38.2%
  - Mountain region – 21.2%
  - Mid-Atlantic region – 21.1%

Source: EEI, *Typical Bills and Average Rates*

# *The Need for Increased Efficiency Is Urgent*

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- To slow demand growth
- To mitigate rate shock
- To mitigate investment risk
- To buy time for better technologies

# *Energy Efficiency is a Resource*

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- Today it is the lowest cost alternative and its emission free
- “[T]he most environmentally sound, inexpensive and reliable kilowatt of electricity is the one we don’t have to generate” Jim Rogers

# *Trends In The States*

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- Attention to EE is growing, but has not yet translated into scale investments
- Regulators increasingly recognize the importance of measurement & evaluation
  - The higher their comfort level over program outcomes, the sooner they may approve larger investments and use of ratepayer funds for EE programs
- The requirement for fuller cost effectiveness assessment of EE before approving new capacity is a growing trend

# *Recent State Developments*

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## ■ Florida

- Approved 11 new DSM programs (4 residential, 7 commercial), and 9 program enhancements

## ■ Arkansas

- Approved 12 new company-proposed EE programs\

## ■ Georgia

- 5 new DSM pilots and expansion of existing DSM programs

## ■ Ohio

- 10 new residential, 3 new commercial programs

# *The Role of Utilities*

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- **Regulated utilities are uniquely positioned to move the market:**
  - Scale & scope economies can be realized, speeding implementation
    - Scale – cost savings can be gleaned from larger program scale
    - Scope – utilities already do rate design, metering, billing, and customer information; customer care inputs can be better utilized & transaction costs can be saved
  - Consumer trust
  - Lower cost of capital
  - Longer time horizons for return on investment
- **Utilities must be able to make real *businesses* out of efficiency**
  - To honor fiduciary responsibilities
  - To pursue efficiency for the long-term
  - To apply the best talent and resources

# *Utilities Need Partners*

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- Where third parties have skills and technologies which utilities do not – it is better to “buy” than “make”
- Most DSM programs to date have been implemented with / by subcontractors and trade allies
- Utilities can be a platform for your businesses



# *Conclusions*

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1. Efficiency is a strategic priority
  - a. Investment will be increasing
  - b. New opportunities for third parties
2. Utilities are uniquely positioned to move the market
  - a. A platform for third parties' businesses
3. Efficiency needs to be approached as a business
  - a. The ability to make a margin is fundamental
4. We need to accelerate / expand efficiency activities

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# *Appendix*

# *The EE Capitalization / Bonus RoE Model*

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- Efficiency expenditures are capitalized as a Regulatory Asset and earn the allowed RoE as part of the cost of capital.
- The Reg Asset is amortized just like a power plant, but over a shorter period set by the Regulator.
  - Spreads the recovery of costs over time.
- When an RoE “add” of X 100s of basis points (say 500 bp) is included on the Equity portion, the shareholders are clearly rewarded.

# *The Shared Savings Model*

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- Net benefits are shared between customers and shareholders
  - Policy makers choose a “share” for the utility, possibly adding a sliding scale risk-reward structure
  - Net benefits (avoided cost savings – EE/DSM costs) measured after a program year is completed and installations are validated.
  - The incentive can be collected in a succeeding year, or spread over a longer collection period to allow measurement and verification.
- The incentive is tied directly to the actual levels of avoided cost benefit and this is an earmark of a good incentive
- Frequently linked with expensing efficiency program costs

# *Virtual Power Plant Model*

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- Utility spends at least 1% of gross revenues on energy efficiency
- MW saved are priced at 90% of avoided cost:
  - Unit avoided cost values for capacity and energy are based on values from a regulatory proceeding.
  - A tariff-based revenue stream established based on estimated savings
  - *Ex Post* Measurement and Verification. Revenues are trued up, based on actual GWh savings validated with current measurement and verification techniques.
- No provision for program cost, or fixed cost recovery
- Proposal not yet ruled on

# *Regulated ESCO Model*

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- ESCO signs 10 year contract and finances the EE Measures, incurring Admin costs
  - ESCO gets paid back with 90% of bill savings, until costs recovered
  - ESCO then collects 10%, which is profit.
- No recovery of costs in general rates, so RIM test is not applicable.
- A limited niche model, whose attractiveness depends on how many institutional customers you have (schools, hospitals, government, etc. )

# *Multiple Policies Are Needed*

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- Efficient rates – time differentiated rates, more customer choice
- Advanced metering infrastructure – price signals and interval data to support demand response, automated DR too
- New enabling regulatory policies – to address DSM cost recovery, the throughput issue, incentives
- New business models – to let utilities make sustainable businesses delivering efficiency and demand response

# State Tracking

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- A recent EEI survey, *State Regulatory Update: Energy Efficiency:*

[http://www.eei.org/industry\\_issues/retail\\_services\\_and\\_delivery/wise\\_energy\\_use/state\\_reg\\_update\\_efficiency.pdf](http://www.eei.org/industry_issues/retail_services_and_delivery/wise_energy_use/state_reg_update_efficiency.pdf)