



EDISON ELECTRIC  
INSTITUTE

# *Power Sector Views on Climate Change Legislation*

EIA Energy Outlook and Modeling Conference

Washington, D.C.

March 28, 2007

# Industry Efforts To Date

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- EEI keenly understands importance of climate change
- EEI members are leaders in reducing greenhouse gases
  - 1994
    - Part of “Climate Challenge” joint government / industry partnership
    - Eliminated 237 million metric tons of carbon dioxide equivalent “greenhouse” gas (GHG) emissions in 2000 alone
    - More than 2/3 of all reported reductions under 1605(b) program
  - 2004
    - Industry reduced, avoided or sequestered more than 282 million metric tons of carbon-equivalent GHG emissions
    - Formed Power Partners; pledged to reduce GHG intensity 3-5% by 2012
  - Currently
    - Leader in Asia-Pacific Partnership on Clean Development and Climate emphasizing importance of technologies
    - Involves Australia, China, India, Japan, Republic of Korea and U.S. – which together produce ~50% of world’s CO<sub>2</sub>
    - Continuing Power Partners<sup>SM</sup> programs

# *Baseline:* Challenges Going Forward

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- EIA projects energy demand will grow 40% by 2025
- 292 GigaWatts of new capacity needed by 2030
  - Coal's share of generation mix will increase to 57%
  - Assumes 12 new GW of nuclear power
  - Renewables will grow but still only 8-9%, including large-scale hydro
- Must invest now in new generation, T&D to meet this demand
- No short-term options to significantly reduce GHG emissions from power generation

# *Baseline:* Challenges Going Forward

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- Need to focus on developing cleaner coal, nuclear and gas generation technologies, while continuing efforts on renewables, energy efficiency and demand-side management
- Current efforts yielding results:
  - IGCC costs coming down
  - Major RDD&D effort could decrease cost of generation with capture
  - FutureGen (1<sup>st</sup> zero-emission coal plant) 2012 operational start
- Against this backdrop, EEI has developed a set of principles to guide member involvement in ongoing public policy debate

# EEI Global Climate Change Principles

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EEI will continue to emphasize the importance of:

- A reliable, stable and reasonably-priced electric supply to maintain the competitiveness of the U.S. economy
- A fuel-diverse generation portfolio to assure system reliability, energy security and price stability
- Public policies and initiatives to accelerate the development of viable and cost-effective energy efficiency programs and technologies, including carbon capture and storage
- International partnerships
- Solutions compatible with a market economy that deliver timely and reasonably priced GHG reductions

# *EEI Principles:* Primary Components

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- Ensure the development and cost-effective deployment of a full suite of “climate friendly” technologies;
- Minimize economic disruptions to customers and avoid harm to the competitiveness of U.S. industry, and
- Ensure an economy-wide approach to carbon reductions

# *EEI Principles:* All Technology Options Critical

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- Addressing climate change requires an aggressive and sustained commitment to a full set of technology options, including:
  - Intensified national commitment to energy efficiency – advanced efficiency technologies and new regulatory and business models
  - Accelerated development and cost-effective deployment of demand-side management and renewable energy resources
  - Advanced, clean coal technologies
  - Carbon capture and storage of all types of coal-based generation
  - Increased nuclear capacity and advanced nuclear designs
  - Plug-in electric hybrid vehicles

# *Landscape:* Administration and States

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## ■ Administration

- Continued support for Climate VISION, emission intensity reduction goals
- Expansion and implementation of Asia-Pacific Partnership initiatives
- Softening in Administration position?

## ■ States

- Some moving aggressively given perception of federal inactivity
- State CO<sub>2</sub> regulations in place – NH, MA, OR, WA
- RGGI states finalizing implementation; 10<sup>th</sup> state (MD) to join soon
- California – GHG cap and emissions performance standards program
- 30+ state national GHG registry underway
- Carbon capture and storage continuing – IL, MT, TX, WY, *etc.*



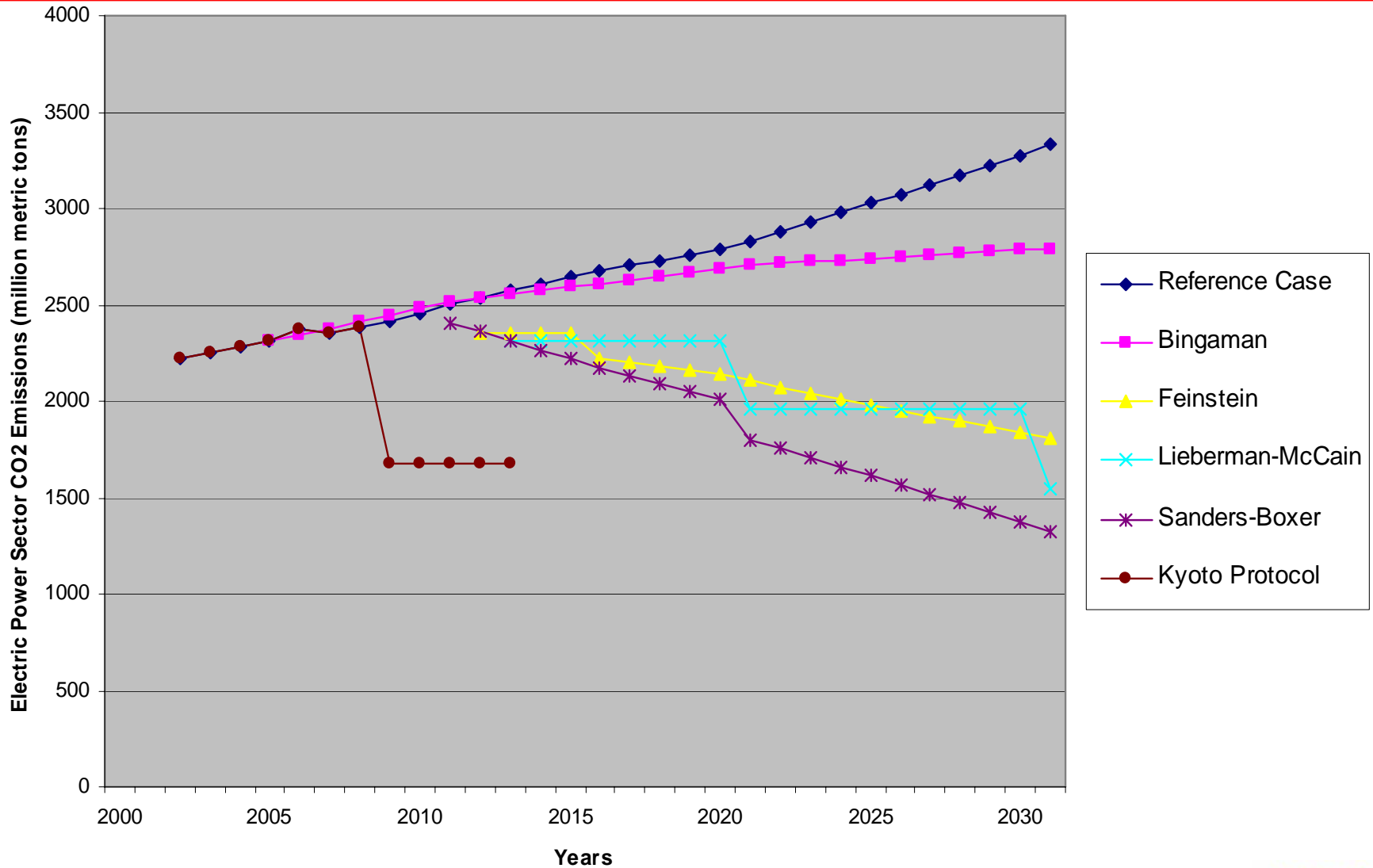
## ■ House of Representatives

- House Energy and Commerce Committee (Dingell, D-MI) hearings
- Speaker Pelosi (D-CA) formed Select Committee on climate change – goal is legislation by July 4 recess

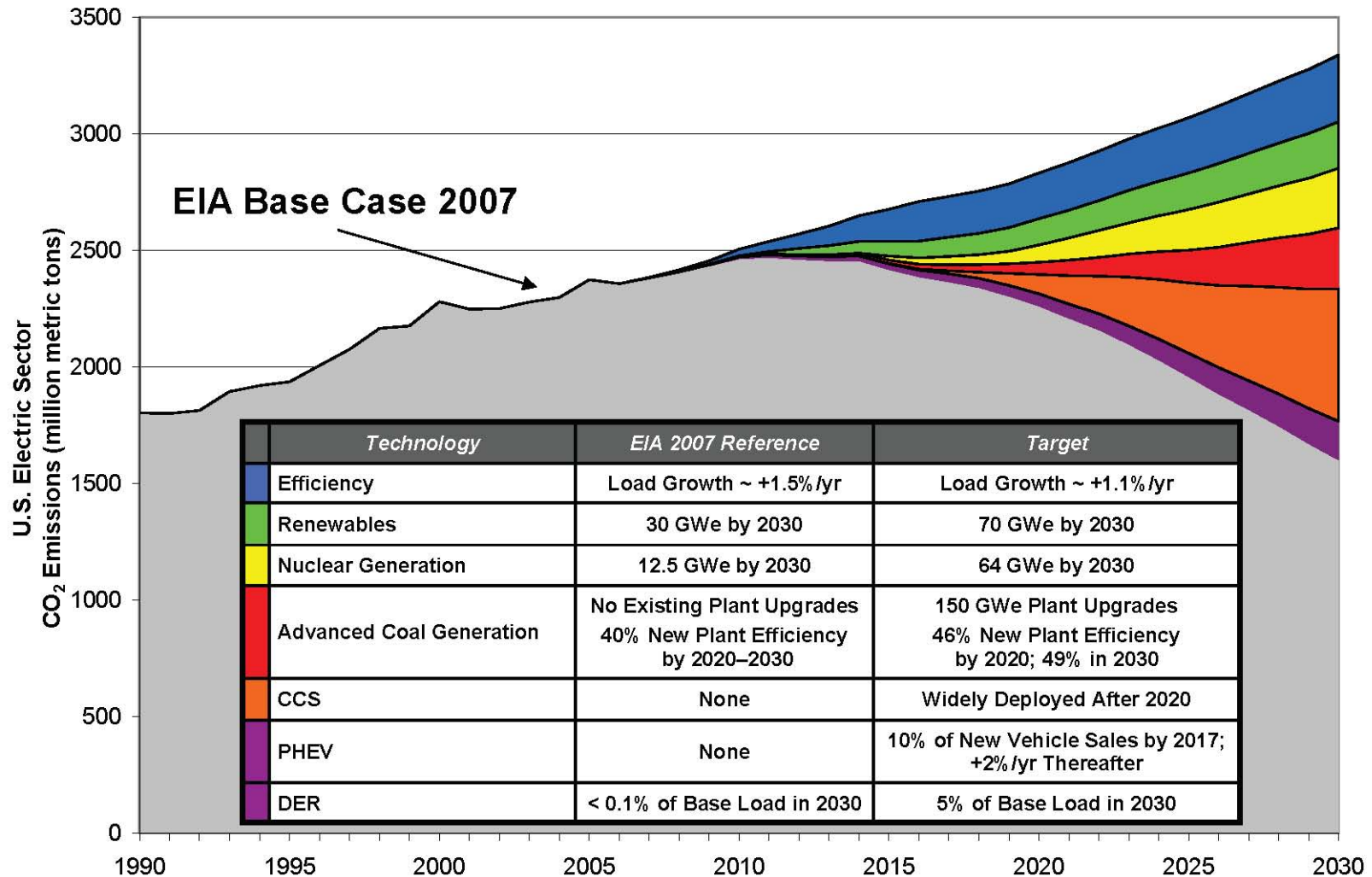
## ■ Senate

- Environment and Public Works Committee Chair Boxer (D-CA) moving aggressively, with numerous hearings expected during 2007
- Multiple bills have been introduced or are being prepared: McCain-Lieberman, Sanders, Feinstein, Kerry-Snowe, Bingaman
- Erosion of opposition to mandatory cap; desire “to do something”
- Senate vote on climate amendment likely this year
- Linkage to renewable portfolio standard; RPS legislation creates a new “baseline” for any climate vote

# Comparison of Key Bills



# CO<sub>2</sub> Reductions ... What's Technically Feasible \*



\* Achieving all targets is very aggressive, but potentially feasible

# Key Technology Challenges

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**It is technically feasible to reduce U.S. electric sector CO<sub>2</sub> emissions significantly, but to do so the U.S. electricity system will need ALL of the following components:**

1. Smart grids and communications infrastructures to enable end-use efficiency and demand response, distributed generation, and PHEVs
2. A grid infrastructure with the capacity and reliability to operate with up to 30% intermittent renewable generation
3. Significant expansion of nuclear energy enabled by continued safe and economic operation of existing nuclear fleet; and by a solution for managing spent fuel
4. New commercial-scale coal-based generation units operating with 90+% CO<sub>2</sub> capture and storage in a variety of geologies

# *Challenge:* Technologies and Timeframes

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- **Clean coal technologies** not commercially available until **2015**
  - IGCC / gasification and advanced combustion systems
  - Will improve plant efficiencies and achieve some GHG reductions
  - Widespread deployment not expected until then due to cost differential with conventional systems
- **Carbon capture and storage (CCS)** technologies not commercially available until **2020-2025**
  - EPRI estimates 2025 for commercial availability at today's pace
  - Possibly by 2020 with more aggressive funding and more pilot projects
  - Would make coal-fired generation zero or near-zero GHG emissions
- Deployment of **nuclear plants** not possible until **2015-2020** at earliest
- Deployment of CCS and nuclear would buy time for developing next generation technologies (*e.g.*, hydrogen, advanced nuclear, *etc.*)

# *Challenges Are Plentiful*

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- Urgent need for action on environment / energy efficiency
- Supply margins are declining and demand is increasing
- Cost of producing electricity no longer declining
- Significant need for infrastructure investment
- Lead times on permitting and construction are longer
- Diversity and aging workforce increasingly important
- New technologies must be developed and commercialized

# *EEI Principles:* Primary Components

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Eric Holdsworth

202-508-5103

[eholdsworth@eei.org](mailto:eholdsworth@eei.org)