

## Communicating with Decision Makers

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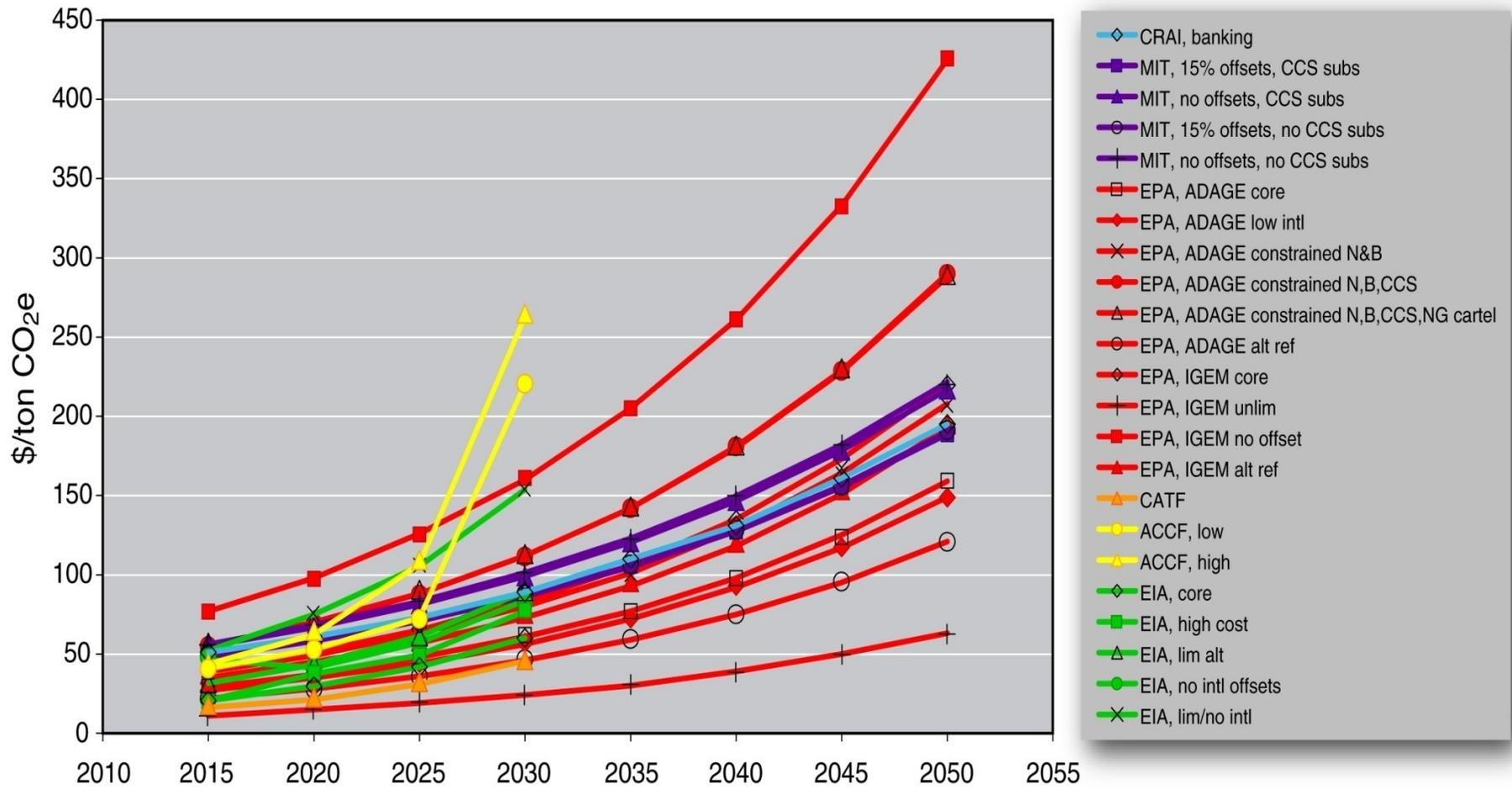
# Let's Play Jeopardy!

Category:

Estimated Cost of Climate Policy



# What were Public Estimates of the Cost of Lieberman-Warner Bill When it Went to the Senate Floor?



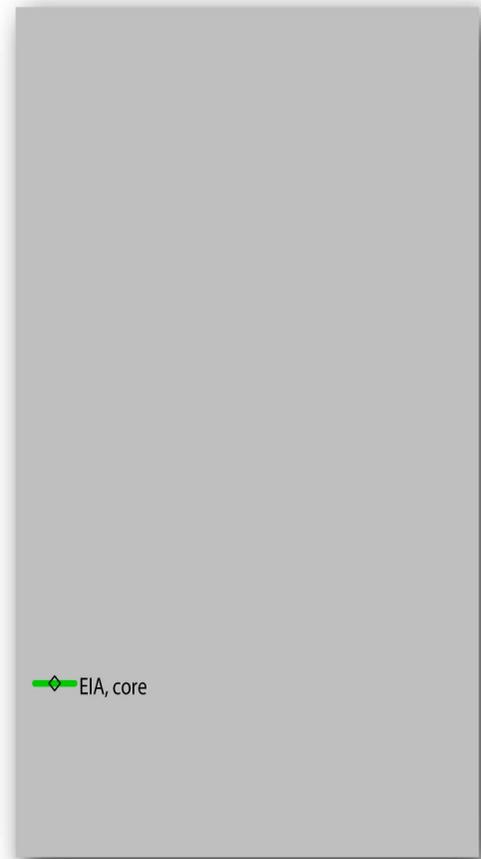
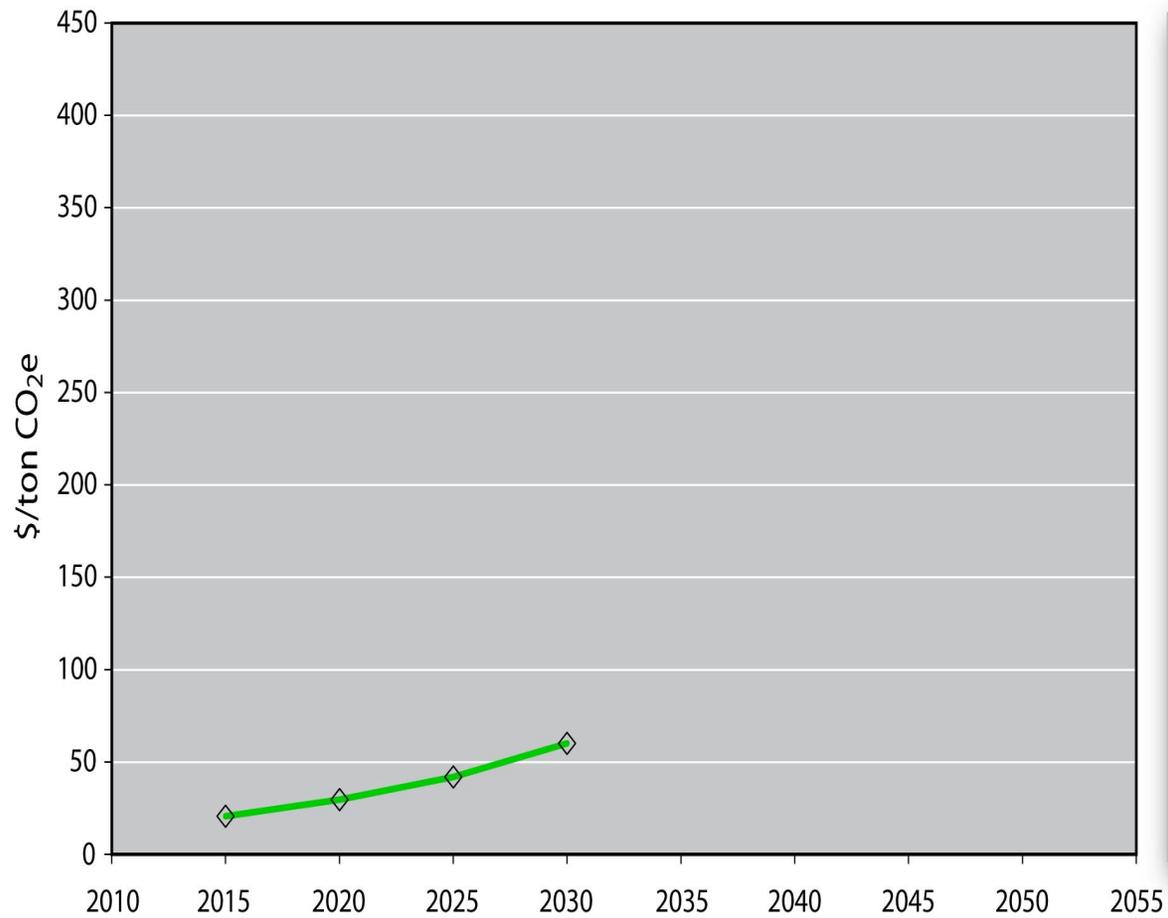
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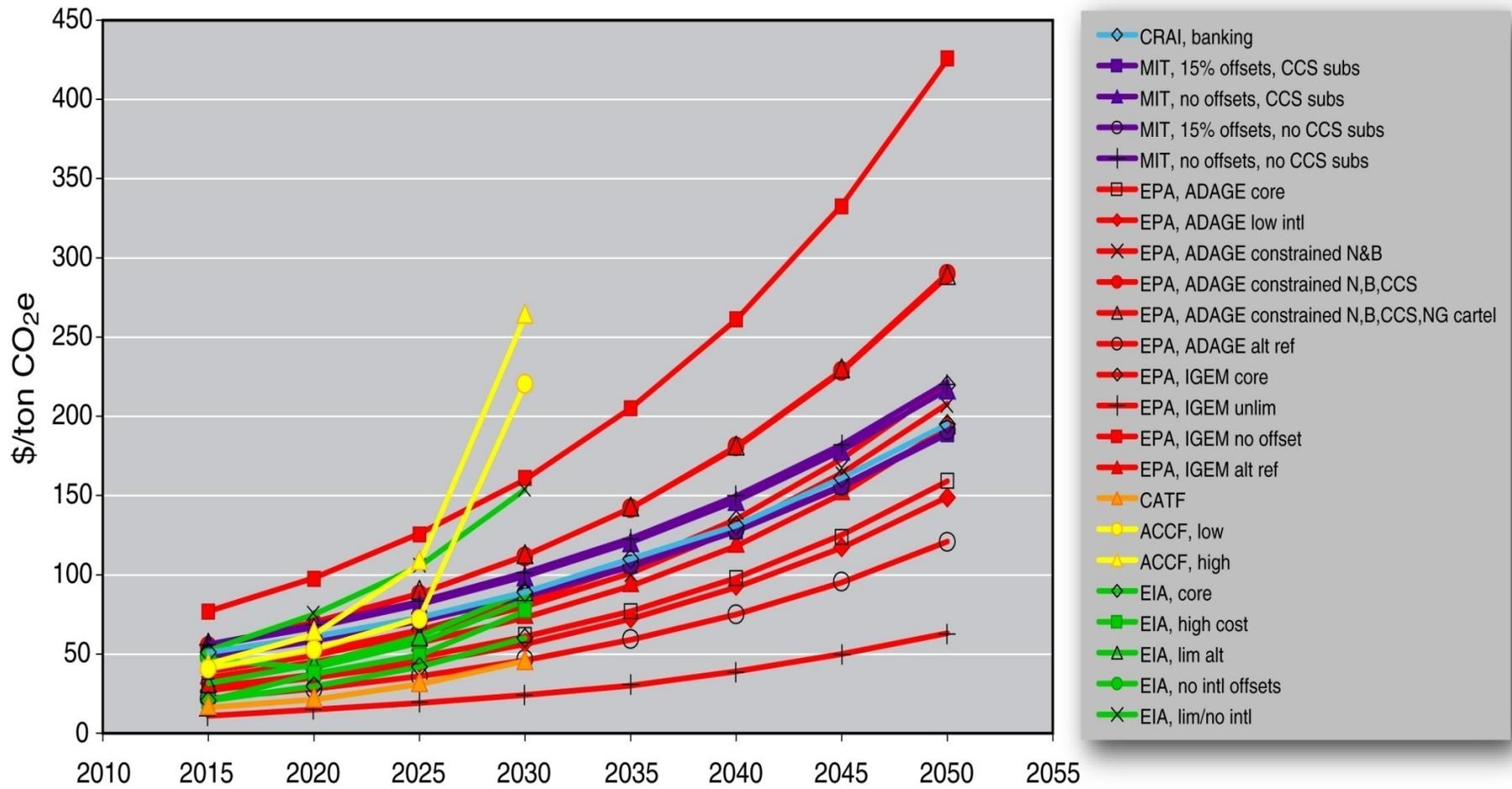
Congressional Interpretation of Cost  
Estimates of Lieberman-Warner



# What Single Cost Estimate Was Quoted by a Leading Senator As the Bill Went to the Floor?



# How Do You Make Sense of this Diversity of Results?



## For More Information on Policy Costs ...

- May 2008, we held a Capitol Hill workshop to understand cost estimates of Lieberman-Warner
  - Estimates from 6 modeling teams + CBO
  - Presentations by all of the modeling teams
  - Active discussion with government staffers, Congressional staff, companies, academics, environmental NGOs
- Differences due primarily to different baselines and different electric sector technology cost and deployment assumptions
  - Presentations and webcast available at EPRI Newsroom archive:

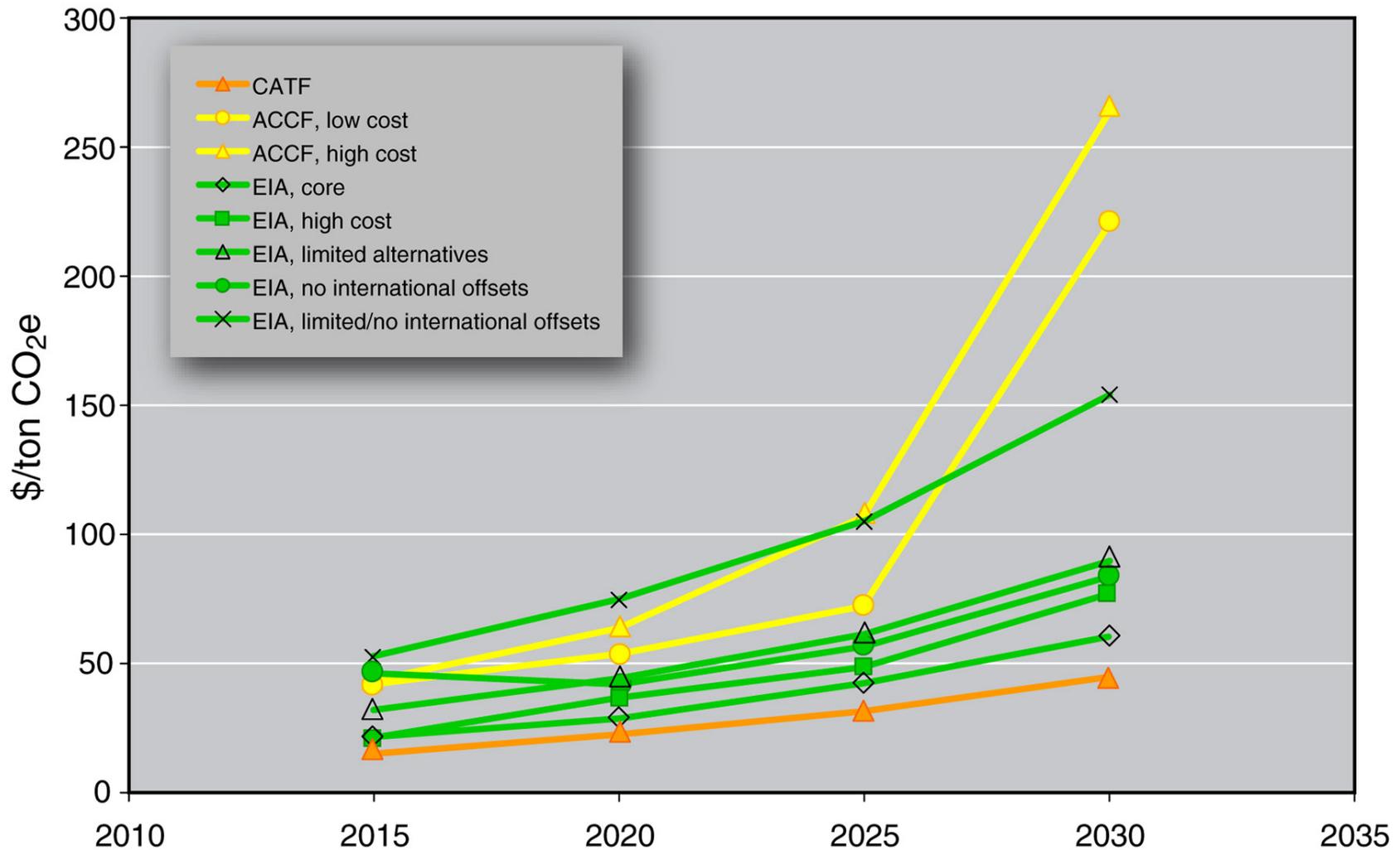
<http://my.epri.com/portal/server.pt?open=512&objID=342&PageID=223366&cached=true&mode=2>

# The Models are Different, but ...

Model/Modeling Effort	Geographic Scope	Sectors	Time Horizon	Foresight	Electric Sector Detail
EIA/Clean Air Task Force/ACCF					
• NEMS	U.S. – Regional	All, Process	2030	Recursive	Plant type
EPA					
• ADAGE	Global(?)	All, Trade <sup>1</sup>	2050	Perfect	Production function
• IGEM	U.S.	All, Trade <sup>1</sup>	2050	Perfect	Production function
• IPM	U.S. – Regional	Electric	2025	Perfect	Plant type/unit
MIT: EPPA	Global	All, Trade <sup>1</sup>	2050	Recursive	Production function
CRAI: MRN-NEEM	U.S. – Regional	All, Trade <sup>1</sup>	2050	Perfect	Plant type/unit

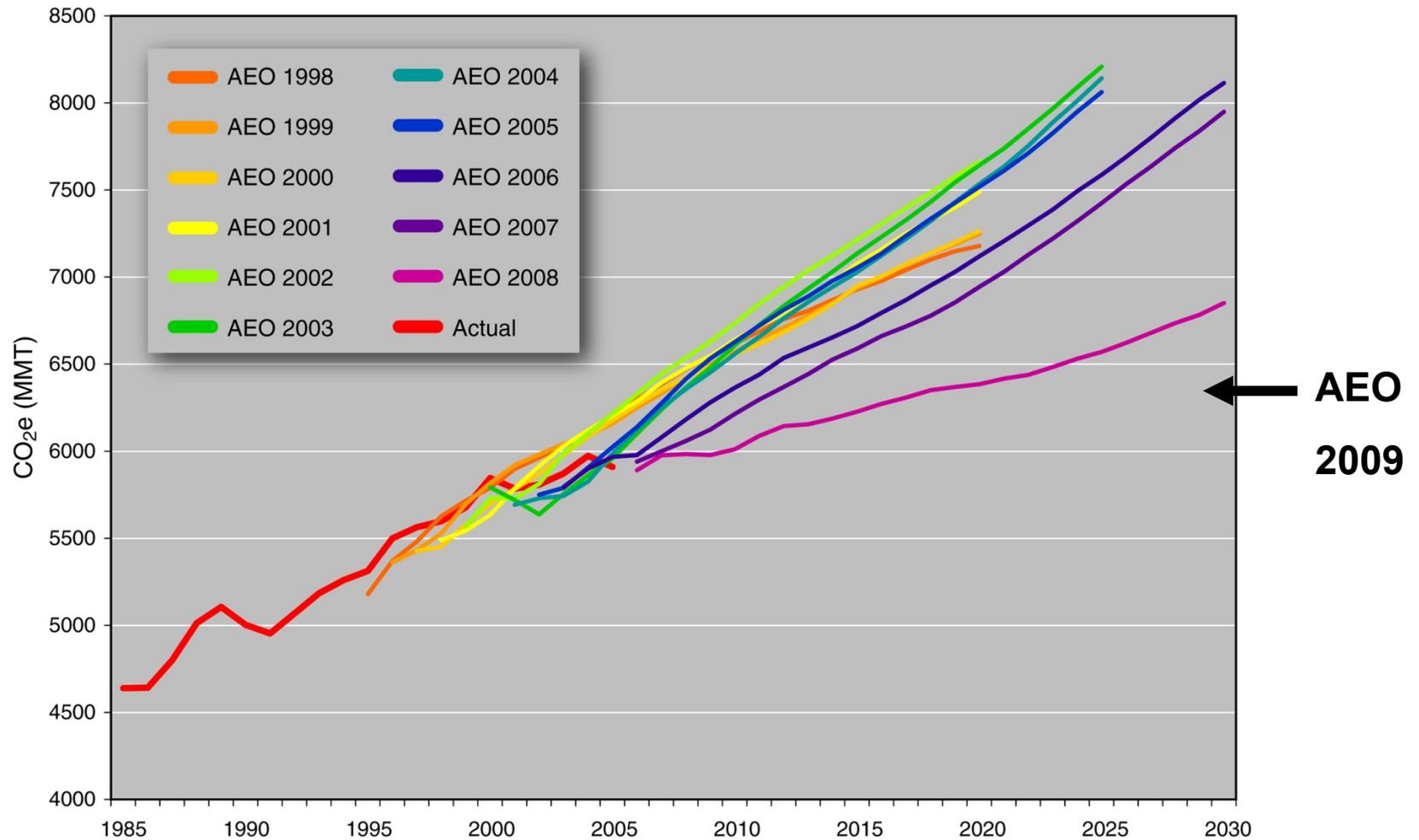
<sup>1</sup>Based on IMPLAN state-level, SIC code trade data with energy trade adjusted to match EIA physical trade data and reference scenario calibrated to EIA-AEO projections.

# Assumptions Led to Bigger Differences: NEMS Runs by EIA, CATF, and NAM/ACCF



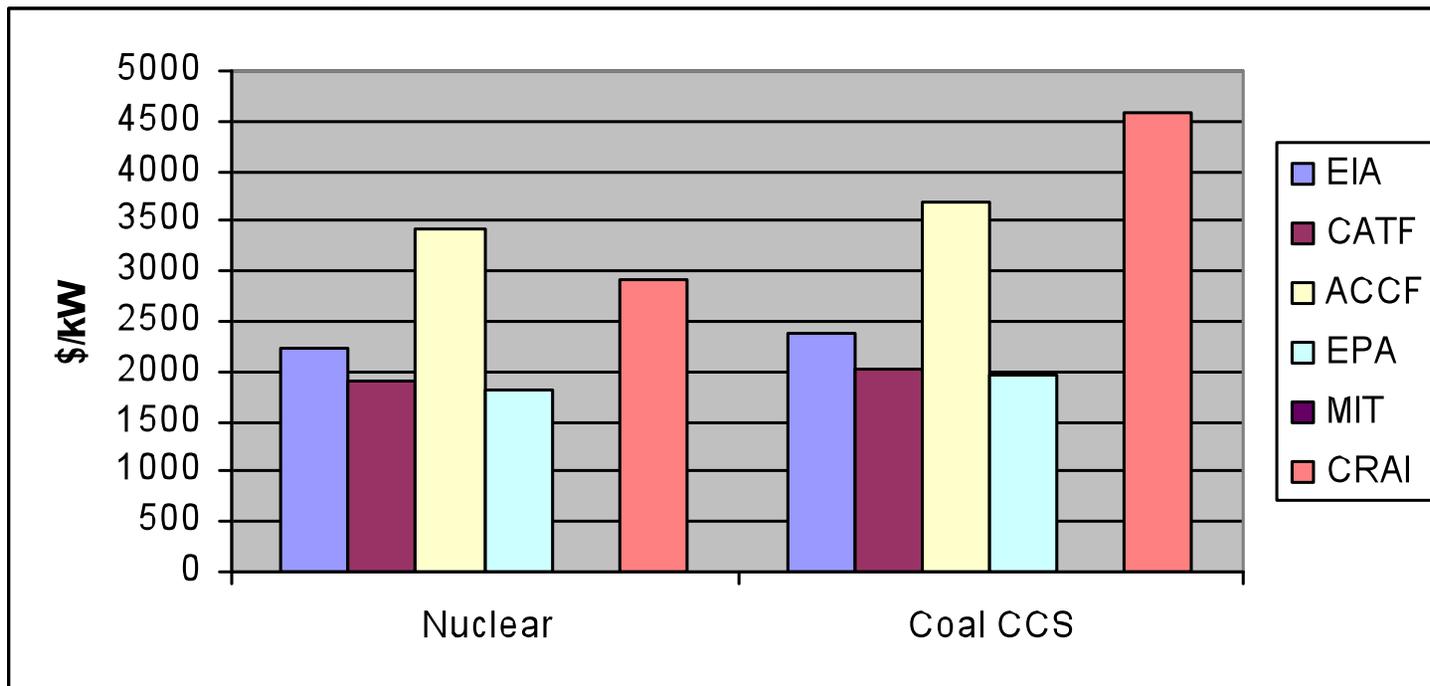
# Modelers Used Different Reference Cases

EIA Annual Energy Outlook Projected CO<sub>2</sub> Emissions (AEO 1998 – AEO 2008)



# Reported (and Guesstimated) Technology Cost Estimates Differed Widely

Overnight Capital Cost (2008\$/kW)



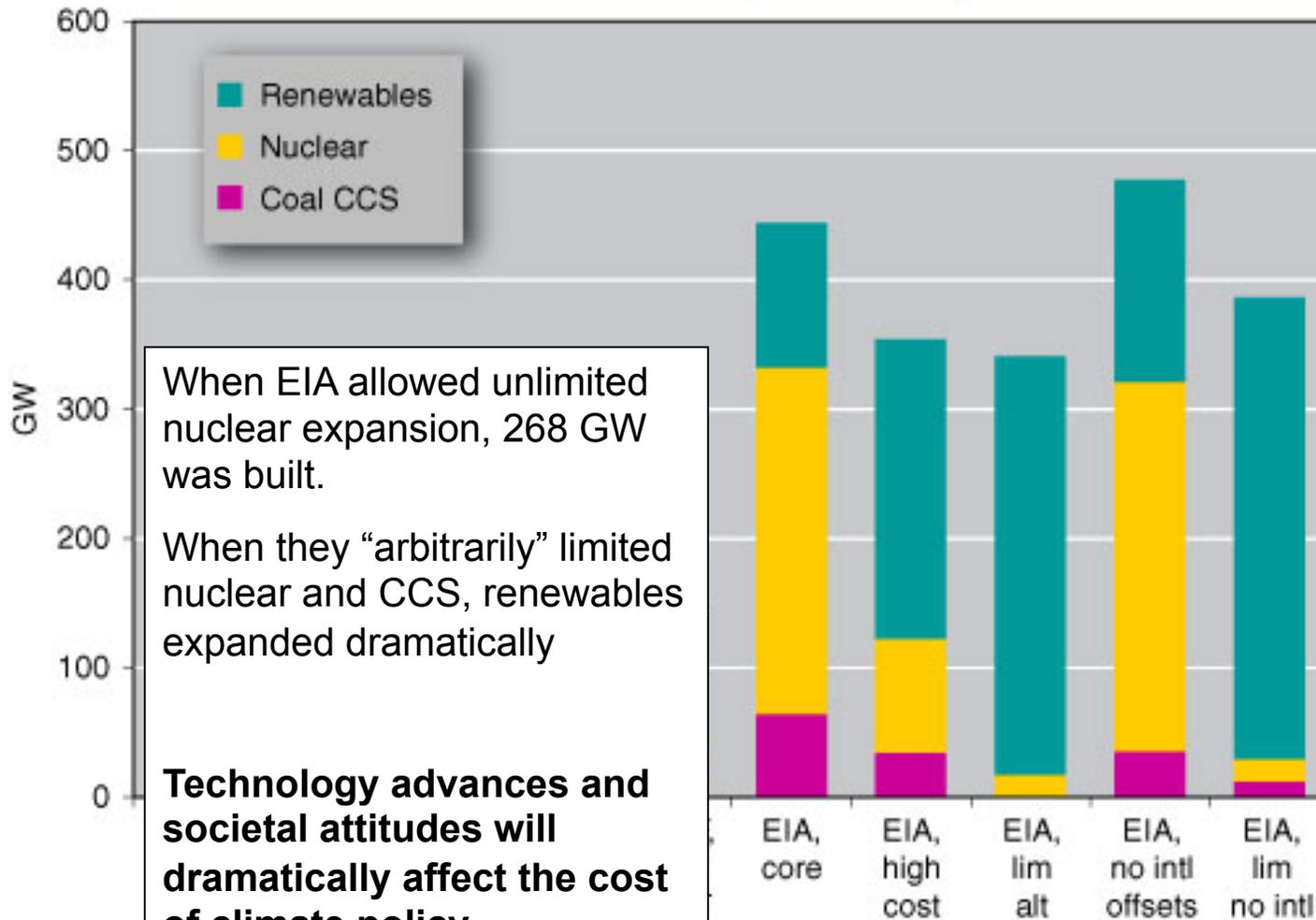
Caveats: Converted to 2008\$

CATF= AEO2007, EPA/IPM= AEO2005, CRAI= updated AEO2007

Some costs decline rapidly over time, e.g., CRAI Coal CCS to \$3203/kW by 2050

# Different Assumptions about Ability to Deploy New Technology Have a Big Impact on Cost

Cumulative Capacity Additions by 2030



When EIA allowed unlimited nuclear expansion, 268 GW was built.

When they “arbitrarily” limited nuclear and CCS, renewables expanded dramatically

**Technology advances and societal attitudes will dramatically affect the cost of climate policy.**

# Concluding Thoughts on Communicating Costs

- All of the models here are credible
  - None are great predictors; but all can provide important insights about policy
  - Differences in cost estimates appear to represent true uncertainties (e.g., technology deployment) and effects of policy choices (e.g., use of offsets) more than differences in models
- A wide range of cost estimates is valuable ... if you have enough information to understand why
  - It was not easy to find basic assumptions – should be easier

Neutral discussion of results with modeling groups and decision makers (government, business, Congressional staff, academics, environmental NGOs) helped a lot

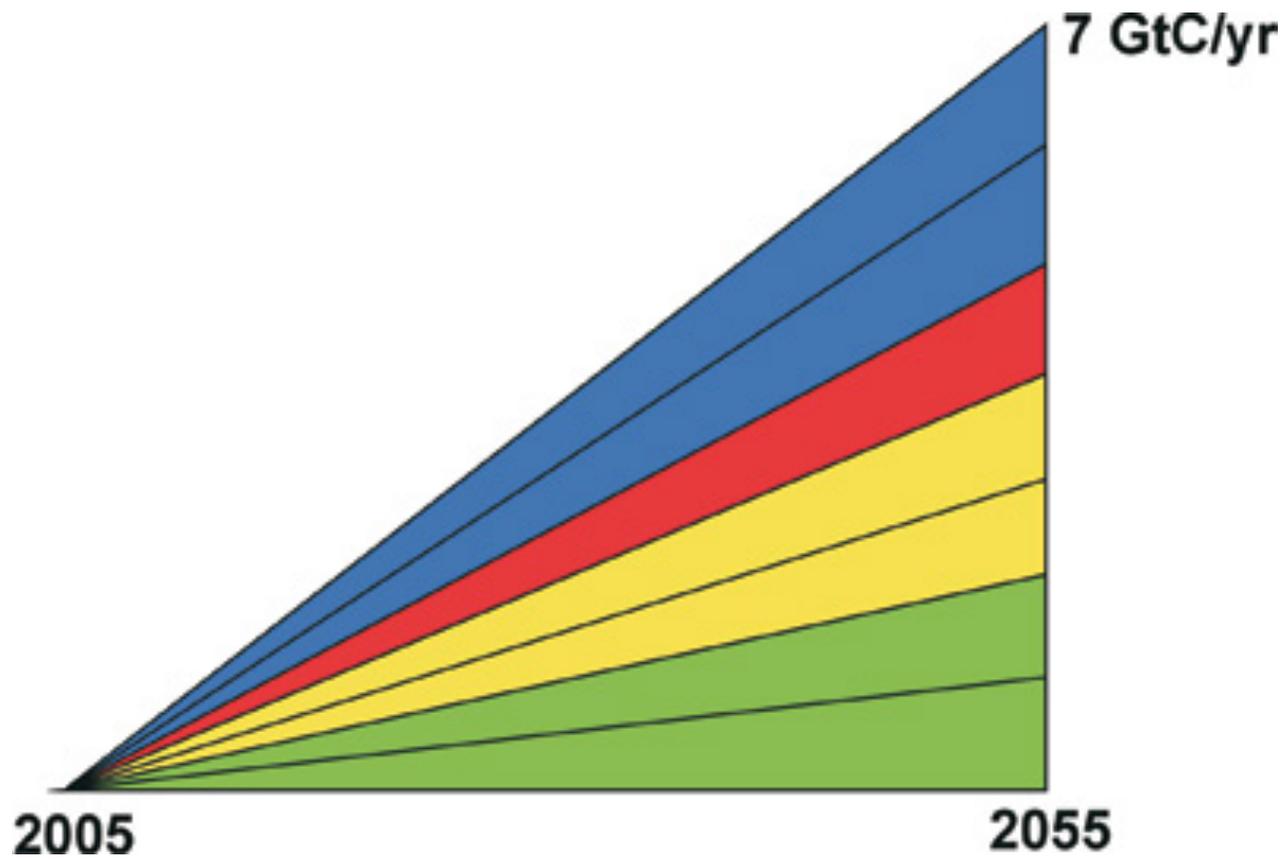
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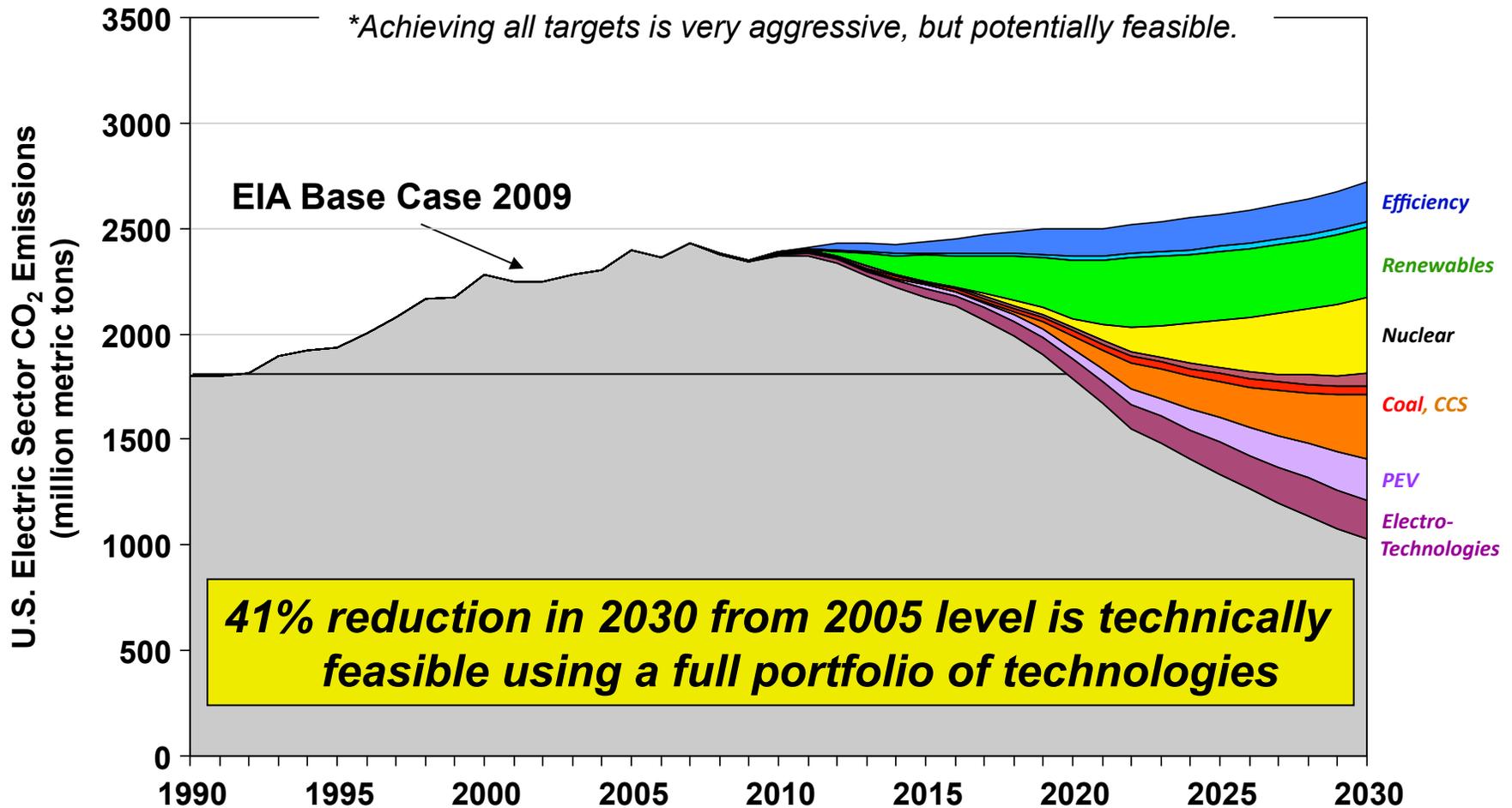
Memorable Charts



# What are the Princeton Wedges?



# EPRI's Prism Analysis CO<sub>2</sub> Reductions ... Technical Potential\*

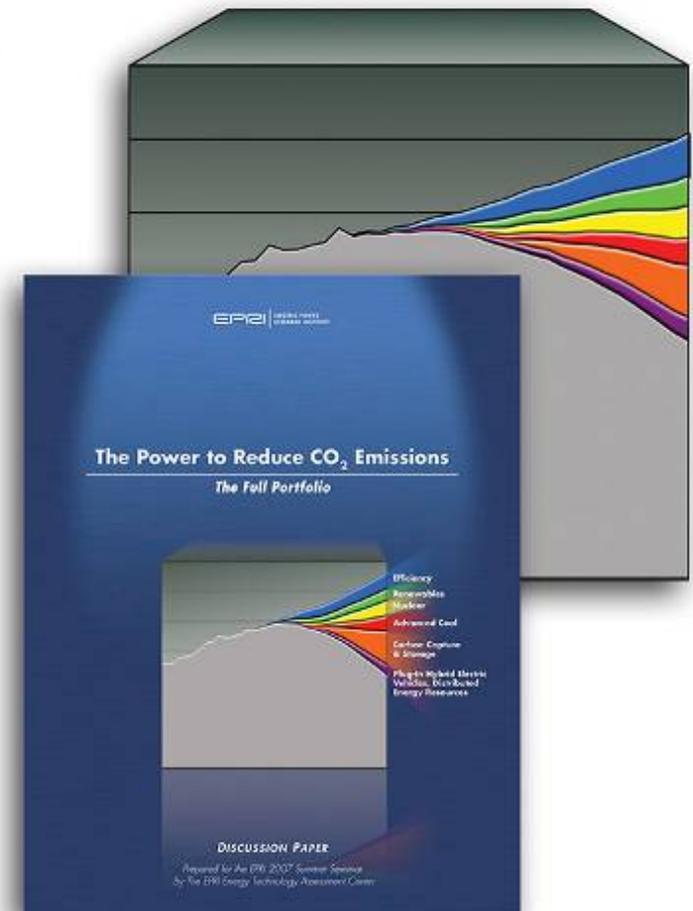


# Prism / MERGE Analysis...

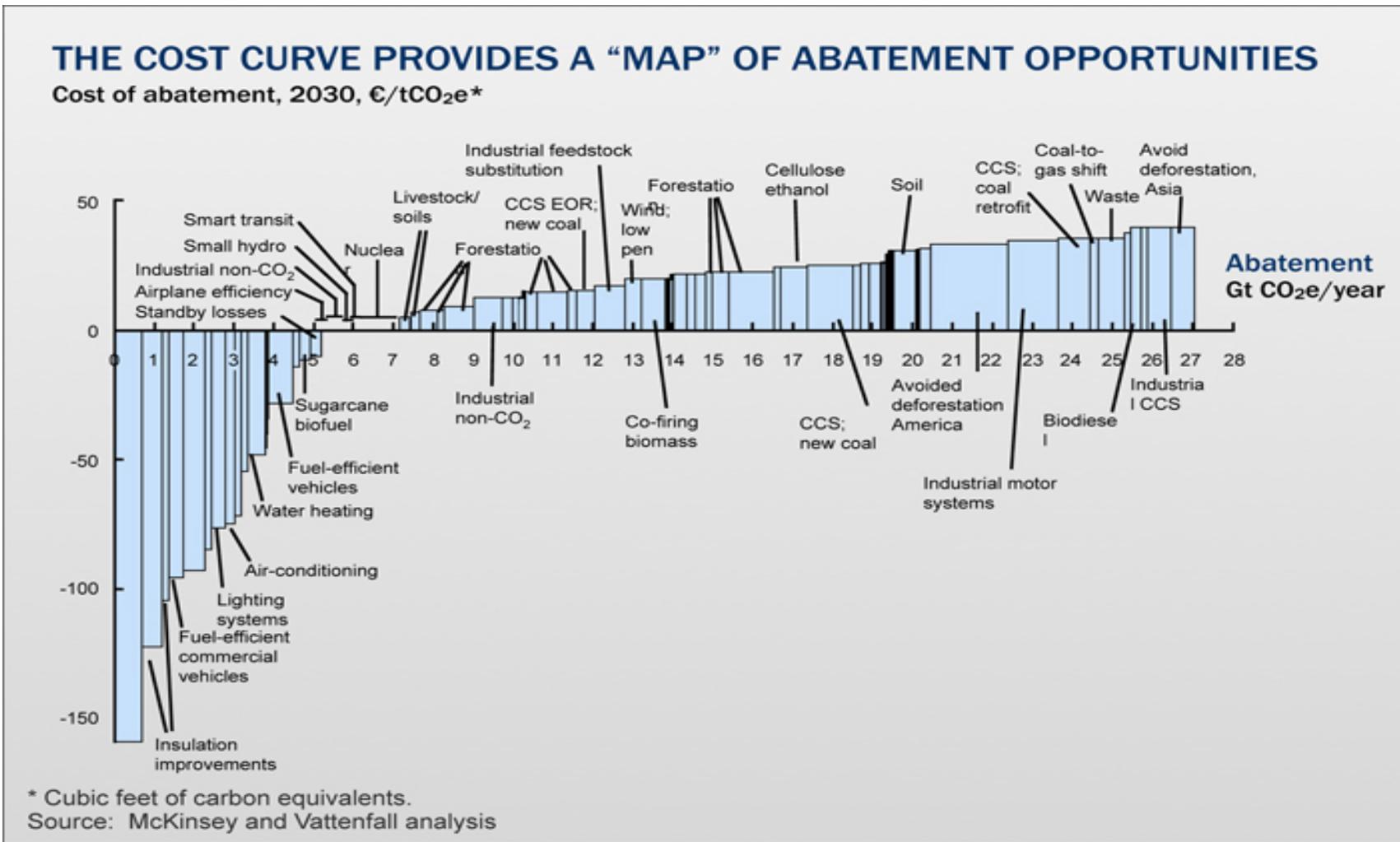
## *Roadmap for a low-carbon future...*

- Detailed analysis of the pathway to reducing CO<sub>2</sub> emissions across the electricity sector
- Provides guidance on the needed generation mix to slow, start and reverse global CO<sub>2</sub> emissions
- Cited in numerous national and international publications

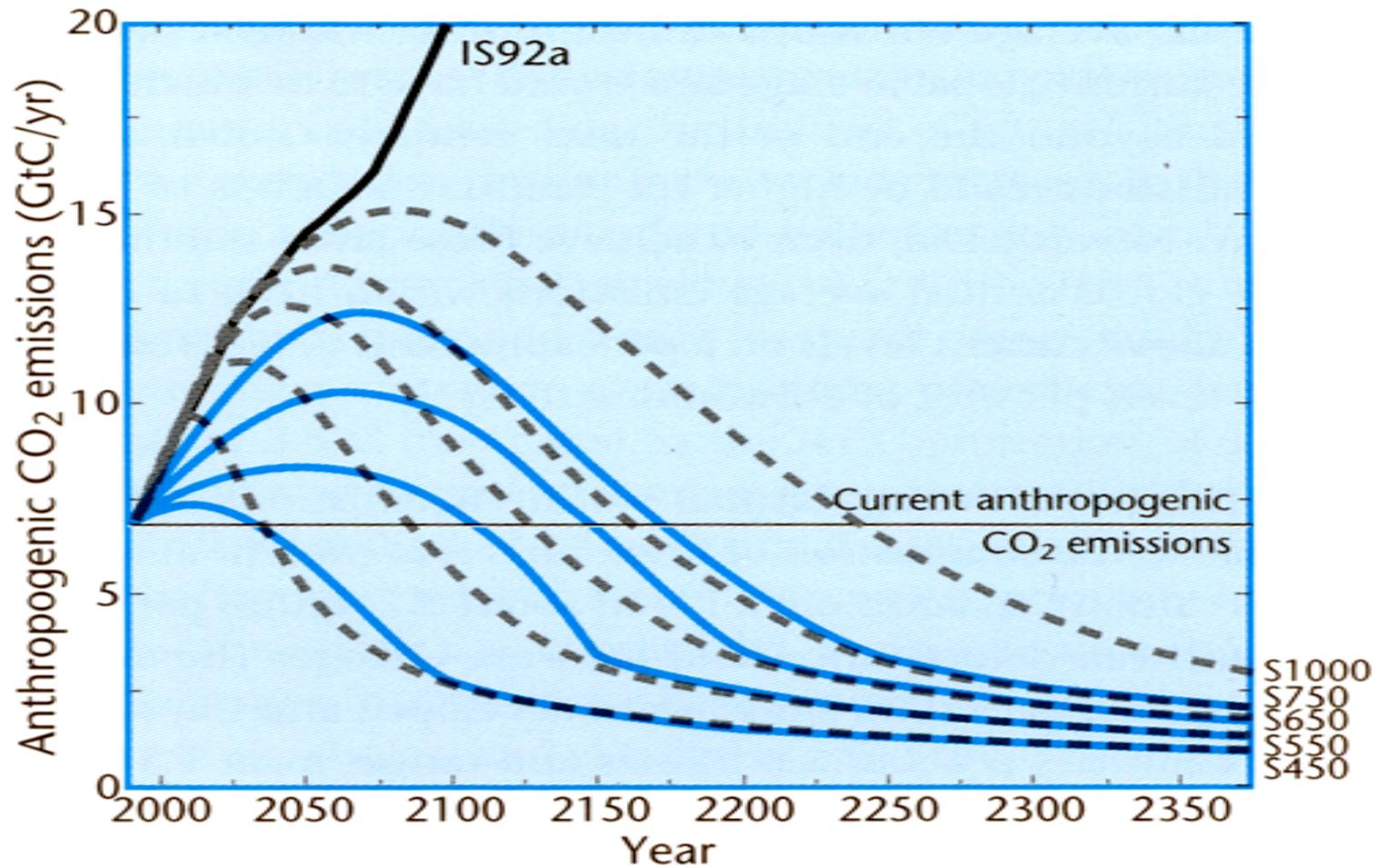
**2009 Update Just Completed**



# What is a McKinsey Abatement Cost Curve?



# What are the WRE Curves?



# What Makes These Charts Memorable?

- Simple, concrete?
- Intuitive, yet new?
- Engaging?
  - Can you “kick the tires”
  - Are stories/parables embedded
- Good communication strategy/big budget?
- Other?

# Final Thoughts

- Communication is interactive ... it requires work
- Know your core messages
  - Simple – can you provide the essence in one sentence?
  - Engaging – can your audience test your idea?
  - Stories – stories make key ideas memorable
- Overcome the “curse of knowledge”