Synapse
Energy Economics, Inc.

The Risks of Building and Operating Plant Washington

Sustainable Atlanta Roundtable

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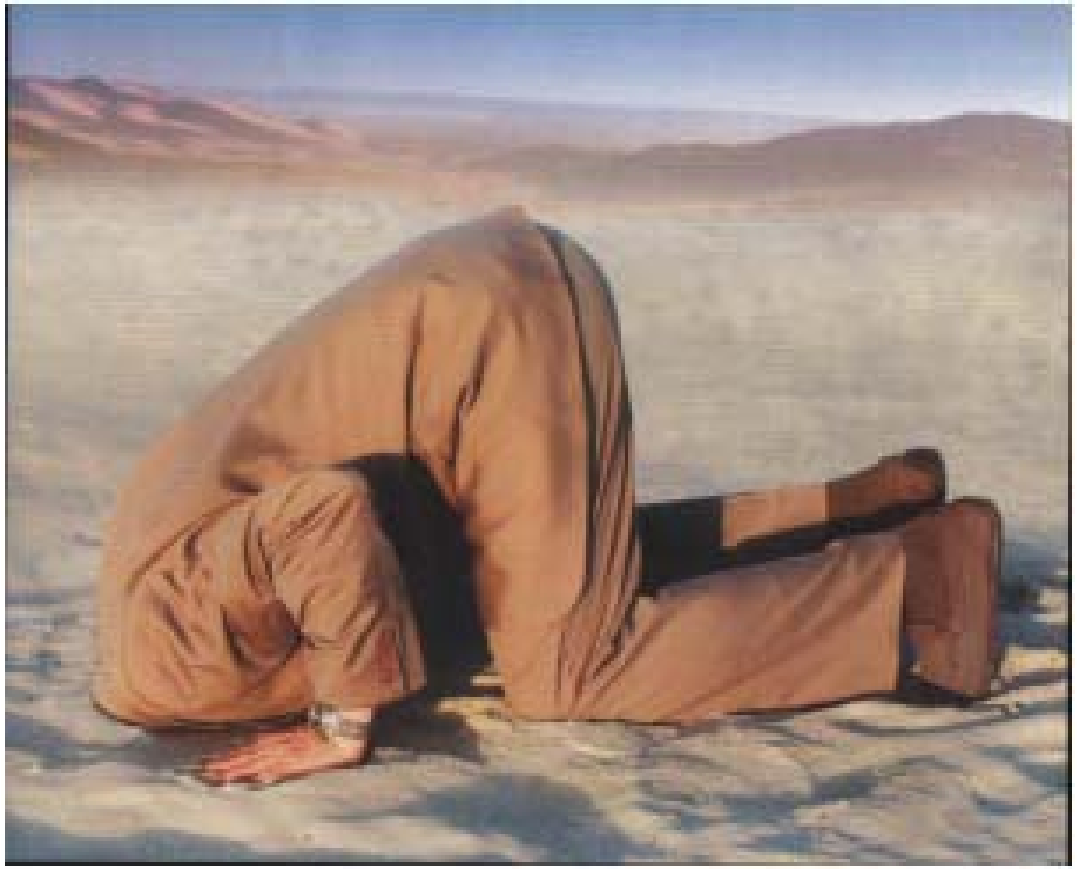
Uncertainties and Risks Facing Investments in New Coal Plants Today

1. Skyrocketing plant construction costs and extended schedules
2. The inevitability of a comprehensive federal system of mandated reductions in greenhouse gas emissions.
3. The possibility for state or regional mandated reductions in greenhouse gas emissions and/or the adoption of policies promoting increased use of energy efficiency and renewable resources.
4. Uncertainties surrounding the technical and economic viability of post-combustion carbon capture and sequestration for pulverized coal-fired power plants.
5. Coal price increases and supply disruptions.
6. More stringent regulation of the current criteria pollutants.
7. Water use and availability.

Ignoring Risks or Pretending There Will Be Easy Solutions Will Lead to …



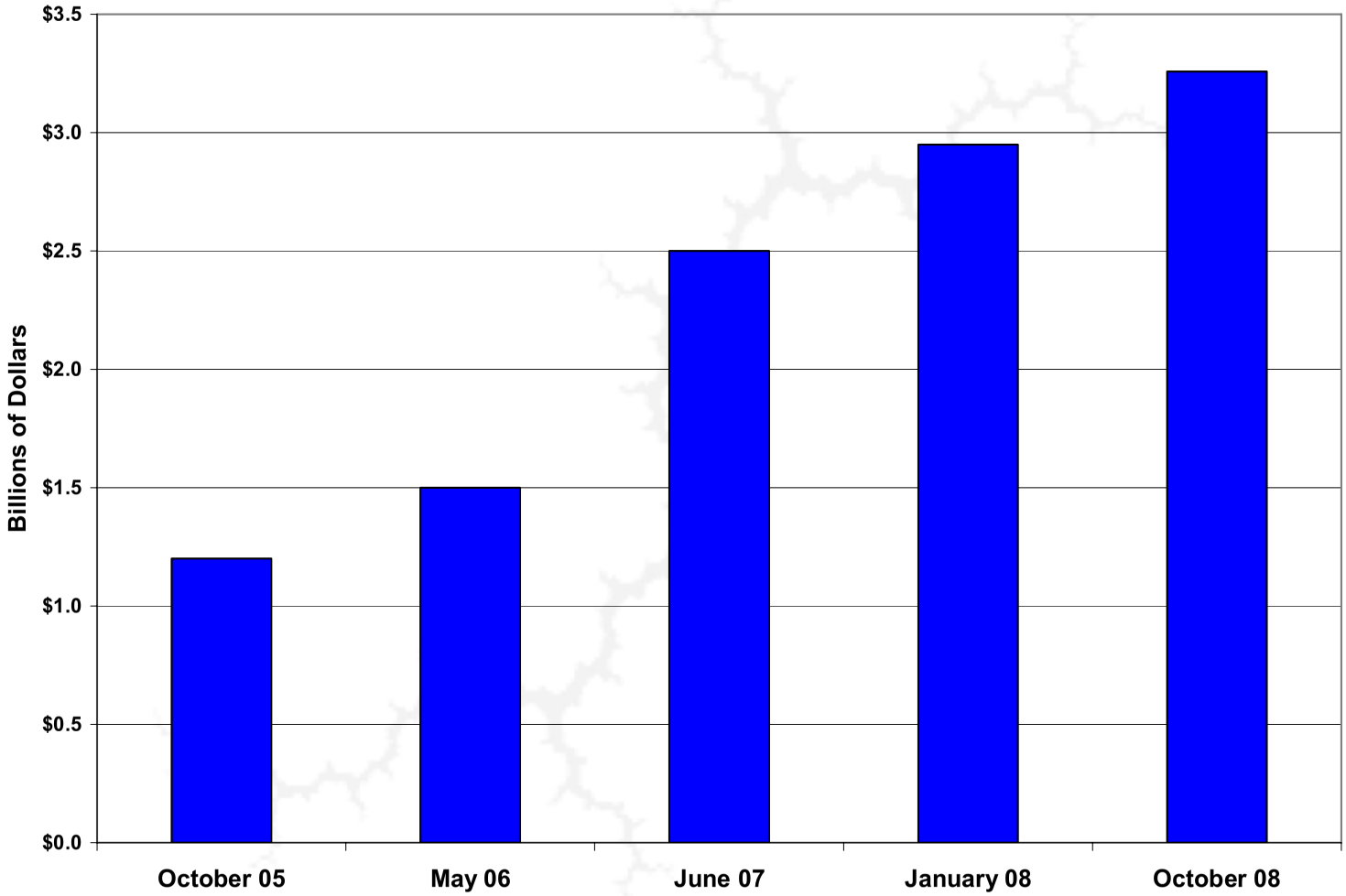
A Train Wreck for Consumers, Plant Owners, Investors, the Economy and the Environment

The Paradigm Must Change – New Solutions Are Needed

Costs of New Power Plants Have Skyrocketed

- Power plant construction costs have increased dramatically since early 2000's.
  - in 2002 estimated costs for new coal plants were in the range of $1500/kW
  - by 2006 estimated costs grew to $2000-2500/kW
  - by 2008 estimated costs increased above $3500/kW
- Descriptive terms used to describe construction costs are "skyrocketing," "staggering" and "sticker shock."
- But many cost estimates remain unrealistically low.

Proposed 960 MW AMP-Ohio Coal Plant - Increases in Estimated Construction Costs



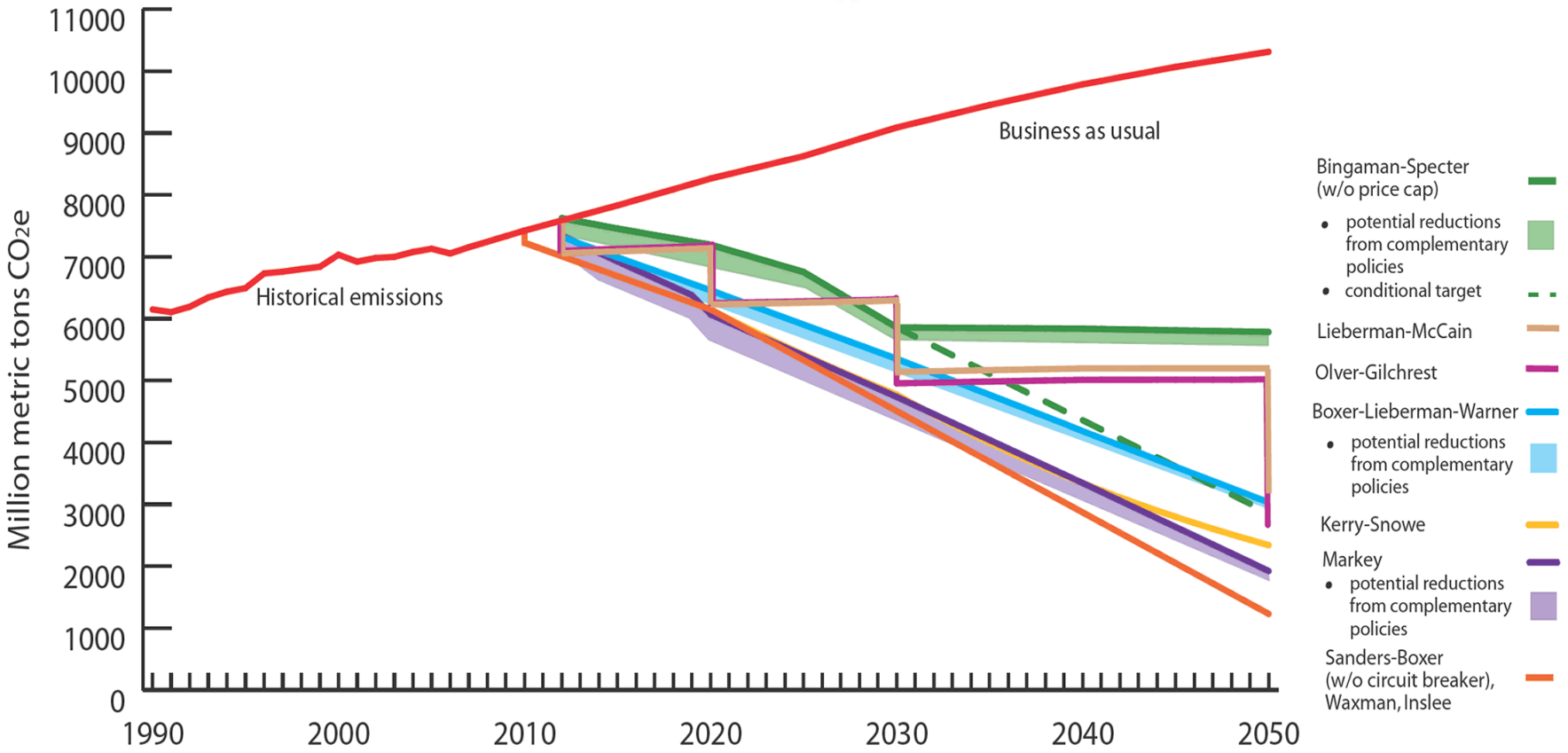
Recent Coal-Fired Power Plant Cost Estimates

Plant	Type of Coal Plant	Owner	Date of Estimate	Total Cost (Billions)	Size (MW)	Cost/ kW
Plant Washington	SCPC	Power4Georgians	January-08	$2.00	850	$2,353
Turk	SCPC	SWEPCO	Spring 2008	$1.52	600	$2,533
Karn-Weadock	SCPC	Consumers Energy	September-07	$2.21	800	$2,765
Meigs County	SCPC	AMP-Ohio	October-08	$3.26	960	$3,394
Nelson Dewey 3	CFB PC	Wisconsin Power & Light	September-08	$1.26	326	$3,865
Columbia 3	SubCritical PC	Wisconsin Power & Light	September-08	$1.28	326	$3,936
Marshalltown	SCPC	Interstate Power & Light	September-08	$2.23	630	$3,538

Factors Which Have Led to Rising Power Plant Construction Costs

- Cost increases are due, in large part, to significant increase in worldwide demand for power plants. Demand for plants is straining supply of design and construction resources.
- Increased demand from China and India.
- Despite recent cancellations, there is strong U.S. demand for new power plants and pollution control projects for older plants.
- Limited capacity of EPC (Engineering, Procurement and Construction) firms and manufacturers.
- Fewer bidders for work, higher prices, earlier payment schedules and longer delivery times.

CO_2 Emissions Reductions Under Proposals Introduced in Congress



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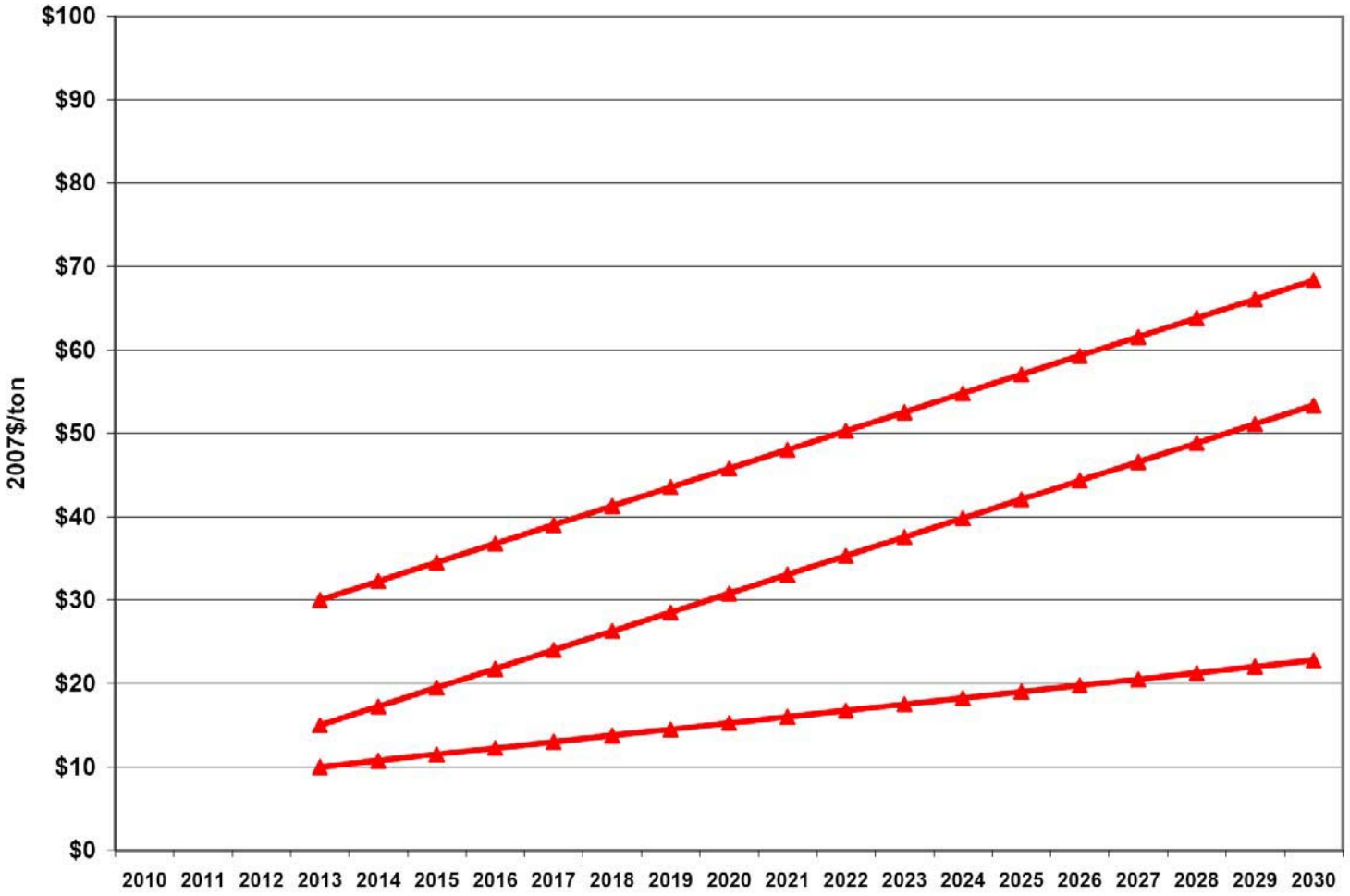
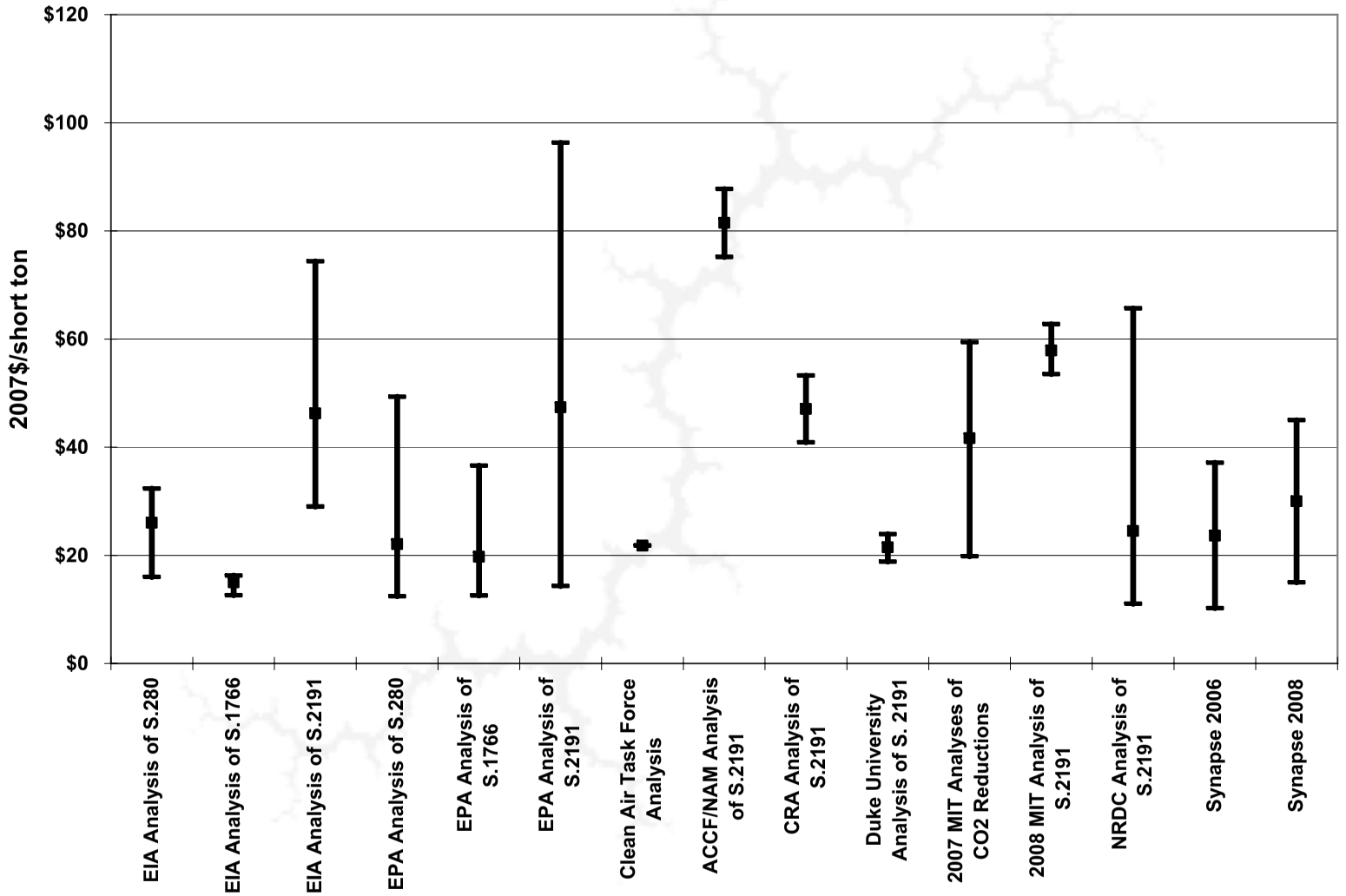
For a full discussion of underlying methodology, assumptions and references, please see http://www.wri.org/usclimatetargets. WRI does not endorse any of these bills. This analysis is intended to fairly and accurately compare explicit carbon caps in Congressional climate proposals and uses underlying data that may differ from other analyses. Price caps, circuit breakers and other cost-containment mechanisms contained in some bills may allow emissions to deviate from the pathways depicted in this analysis.

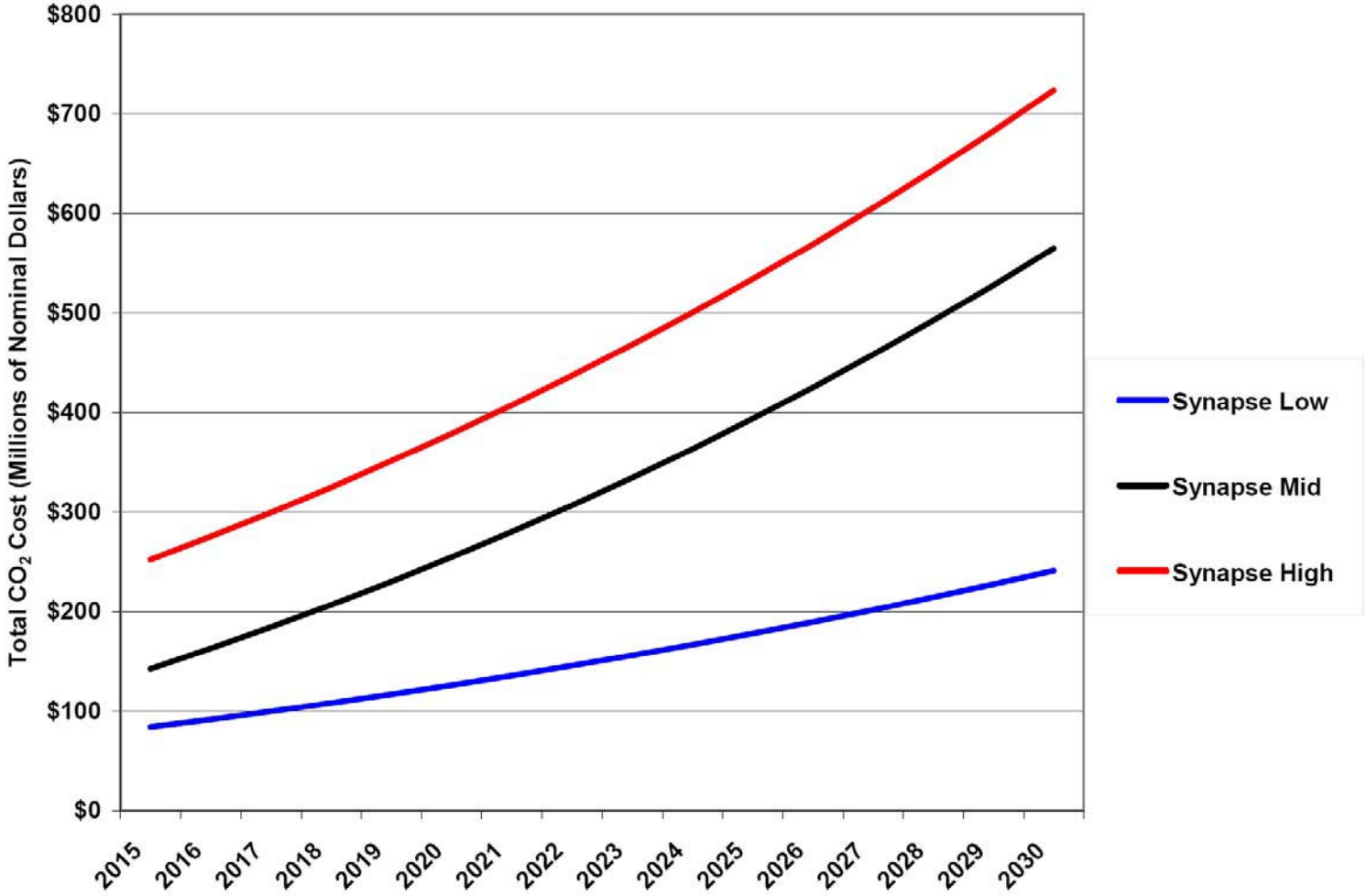
Synapse 2008 CO_2 Price Forecasts



Synapse CO_2 Prices vs. Results of Modeling of Climate Change Bills in Current Congress



Annual Costs of Purchasing Allowances for CO_2 Emissions from Plant Washington



Cost of Power - Plant Washington vs. Energy Efficiency, Renewables and Gas-Fired Capacity

Resource Option	Cost with Synapse Low CO_2 Price Forecast	Cost with Synapse Mid CO_2 Price Forecast	Cost with Synapse High CO_2 Price Forecast
	(Cents per kWH)	(Cents per kWH)	(Cents per kWH)
Plant Washington	9.3	11.3	12.7
Energy Efficiency	2 to 7	2 to 7	2 to 7
Biomass	5 to 9.4	5 to 9.4	5 to 9.4
On-shore Wind	4.5 to 11	4.5 to 11	4.5 to 11
Off-shore Wind	8 to 16	8 to 16	8 to 16
Gas-Fired Combined Cycle	9.5	10.4	11.0
Illustrative portfolio of efficiency, biomass, wind, and combined cycle	9.2	9.8	10.2

Poor Electric Resource Planning Practice

- Passive attitude toward information.
- Rely on out-of-date construction cost estimates.
- Ignore CO_2 price, look at a single, low set of CO_2 prices, or treat CO_2 "at the end" as a sensitivity case.
- Overly constrain alternatives such as renewables and energy efficiency.
- Claim that the proposed coal plant is part of a strategy or plan for reducing CO_2 emissions.

IMPRUDENT!

Good Electric Resource Planning Practice

- Actively seek out relevant information.
- Rely on up-to-date and realistic construction cost estimates.
- Include reasonable CO_2 price forecasts in the reference case, and analyze high and low sensitivities.
- Include full consideration of alternatives.

PRUDENT!

Questions, Comments, Follow-up

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