

Synapse
Energy Economics, Inc.

An Assessment of Santee Cooper's 2008 Resource Planning

April 22, 2009
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- **There are serious weaknesses and biases in Santee Cooper's 2008 resource planning analyses that call into question its decision to build Pee River Units 1 and 2 coal plants:**
 - Low coal plant construction costs
 - No carbon dioxide prices in many scenarios, with low prices in remaining scenarios with the exception of a single sensitivity case
 - Inflated natural gas prices
 - Ignored available cost effective energy efficiency potential - amounts of energy efficiency available were preset so model could not select more even if it was lower cost option

- **Santee Cooper is undertaking a very expensive generation expansion program in period of great economic and financial uncertainty.**
- **Circumstances have changed significantly since Santee Cooper decided to undertake Pee Dee River Project.**
 - e.g., energy sales in 2008 lower than in 2007 and 8 percent below what Santee Cooper had projected.
- **Pee Dee River units would emit approximately 8 million tons of CO₂ each year – there is no commercially viable technology for capturing CO₂ emissions.**

- **Santee Cooper's proposed generation resource plan entails significant uncertainty and risk for ratepayers. Most significant are:**
 - coal and nuclear plant construction costs and schedules
 - availability of financing in capital markets and financing costs
 - Whether projected loads will materialize
 - The costs of complying with impending federal greenhouse gas regulations

Instead of a plan that maximizes the near-term commitment to expensive capital-intensive investments, it is better to adopt a flexible resource plan in today's uncertain times that allows:

- 1. The postponement of decisions concerning large capital expenditures for new coal-fired power plants.**
- 2. For the plan to be modified as circumstances change**

Coal Project Cancellations and Delays

- More than 80 proposed coal projects have been cancelled, delayed significantly or rejected since early 2000s.
- Concerns over rising construction costs and uncertain future CO₂ regulation compliance costs have been major contributing factors.
- In February, NV Energy in Nevada said it will not proceed with construction of coal plant until the technologies that will capture and store greenhouse gases are commercially feasible – likely not before the end of the next decade.

Coal Project Cancellations and Delays (2)

- In March, Entergy Louisiana suspended construction activities at Little Gypsy Project for at least 3 years due to changed circumstances including lower natural gas price forecasts, potential for national RPS, uncertainty regarding costs of compliance with coming federal CO₂ regulations.
- Two weeks ago, the Board of Tri-State G&T in Colorado voted to shift its focus away from building 2 or 3 new coal plants to natural gas, renewable energy and efficiency.

Current Path Will Lead To Train Wreck for Consumers, Investors, the Economy & Environment

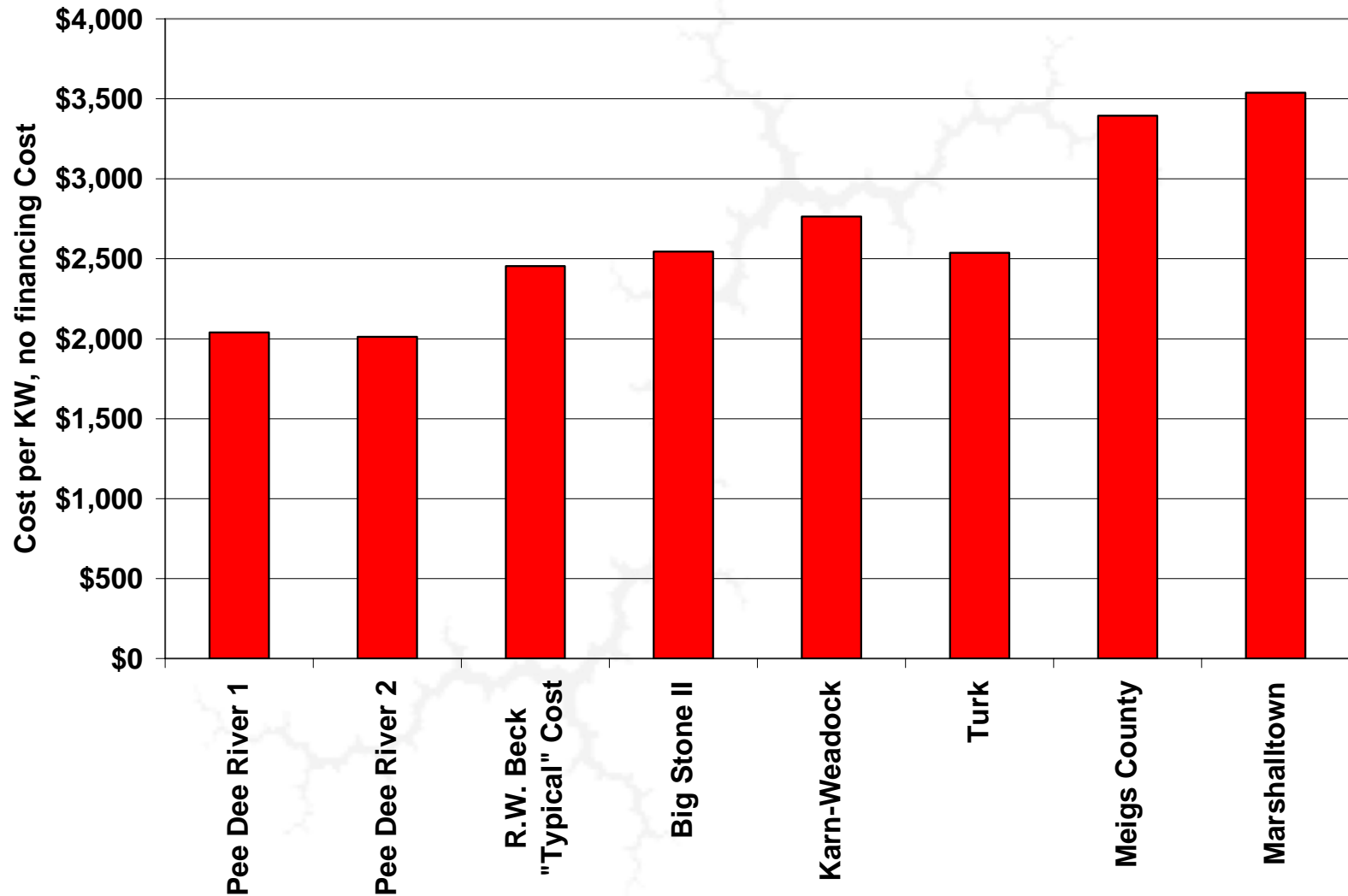


The Paradigm Must Change – New Solutions Are Needed

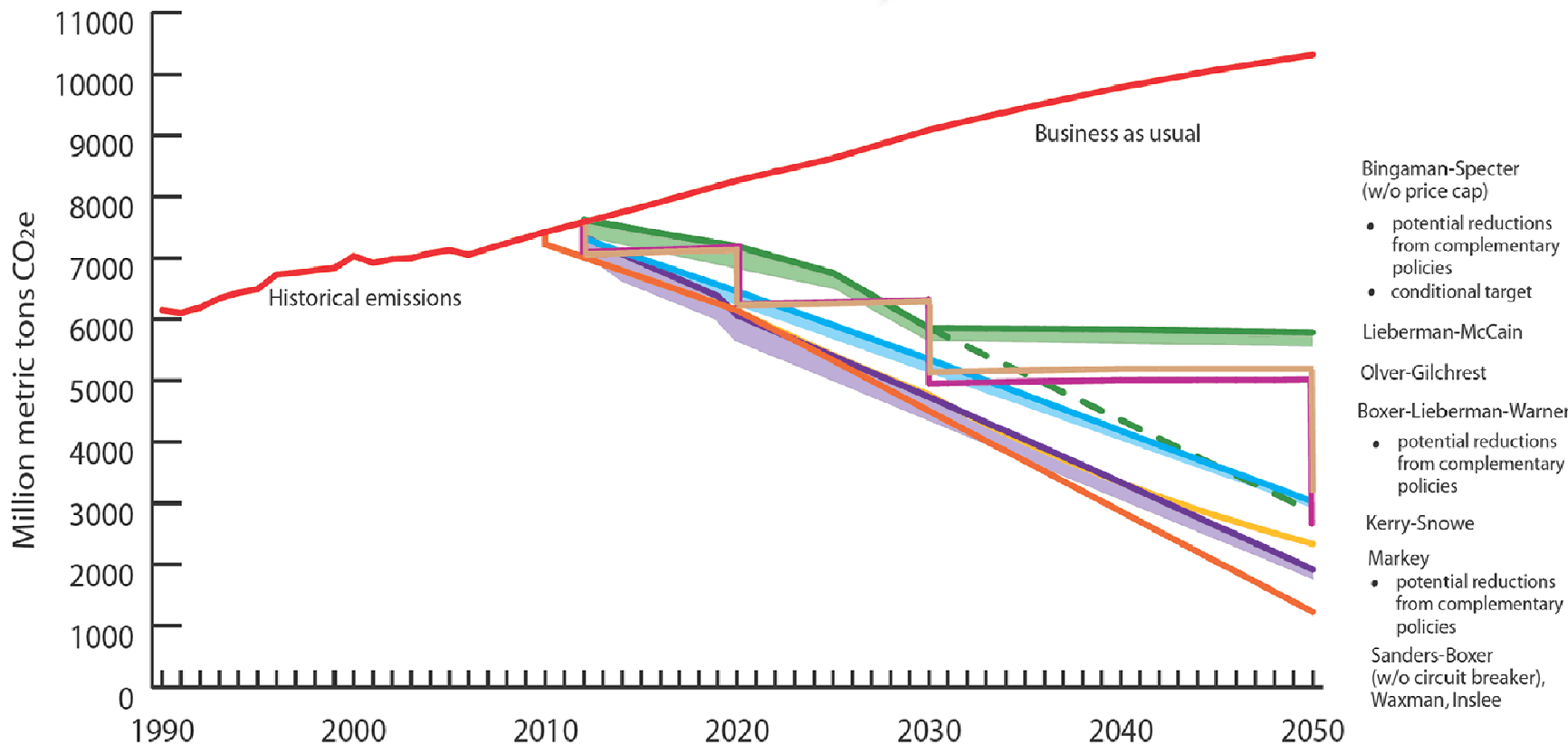
Santee Cooper Already Heavily Dependent on Coal-Fired Generation

Year	Coal As A Percentage of Energy Supply (%)
2007	81.4
2006	77.2
2005	72.9
2004	75.2
2003	75.7
2002	74.5
2001	79.8
2000	83.5
1999	81.6
1998	77.9
1997	80.3
1996	78.8
1995	75.7
1994	81.3

Santee Cooper assumes it can build new coal plants for less than other experienced utilities



Federal Regulation of CO₂ Emissions is a Matter of When, Not If

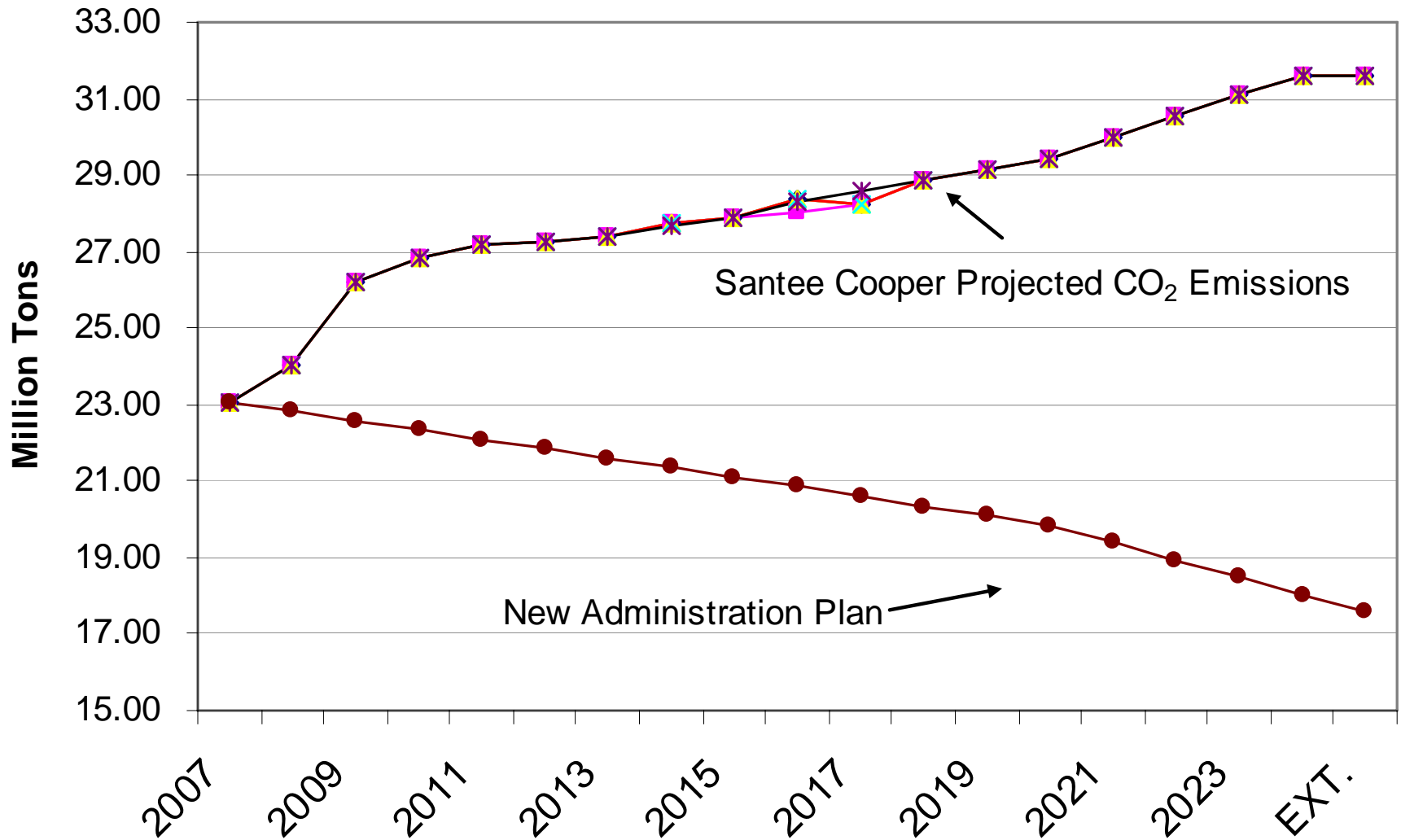


For a full discussion of underlying methodology, assumptions and references, please see <http://www.wri.org/usclimatetargets>. WRI does not endorse any of these bills. This analysis is intended to fairly and accurately compare explicit carbon caps in Congressional climate proposals and uses underlying 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.

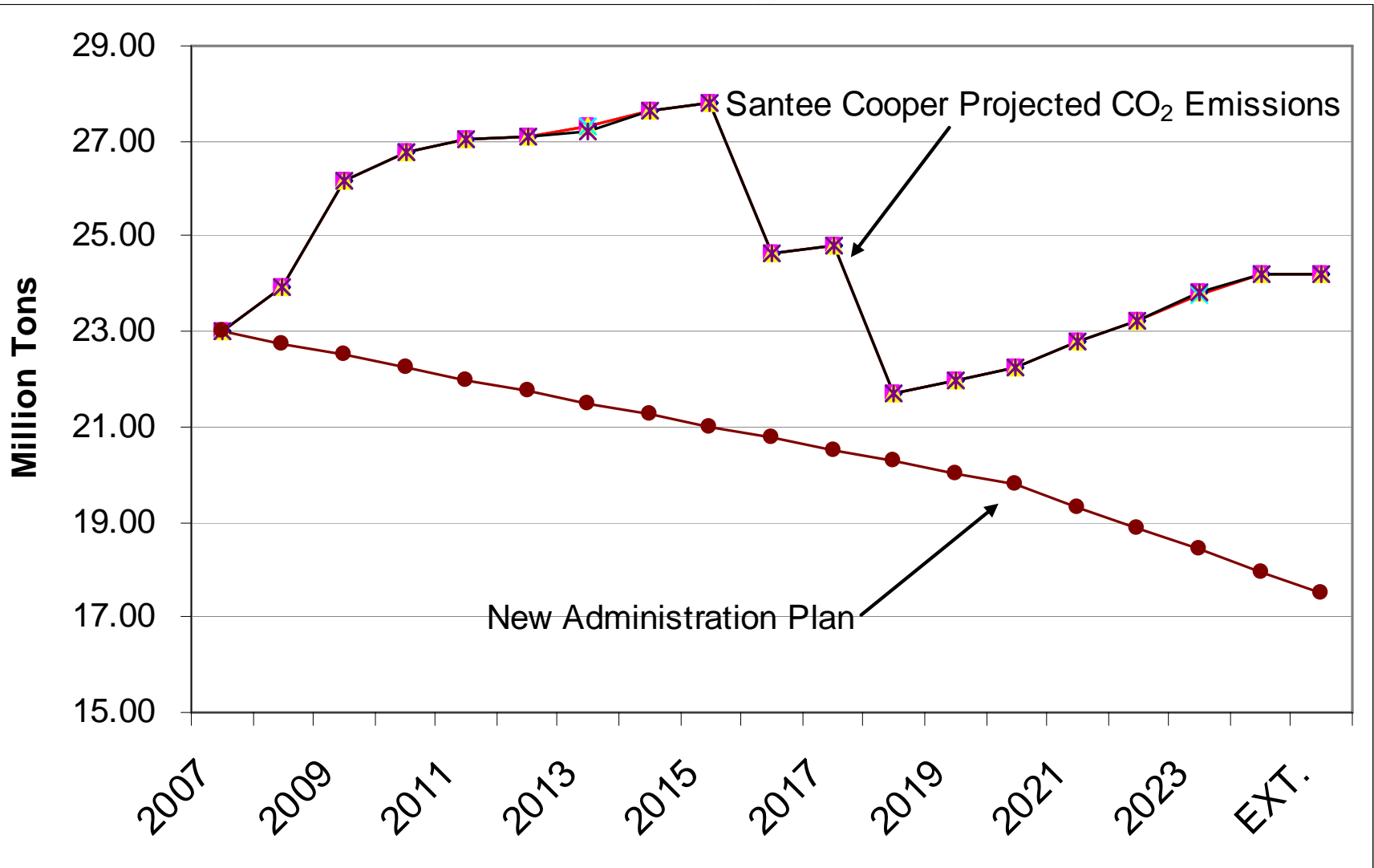
Federal Regulation of CO₂ Emissions is a Matter of When, Not If – The Obama Plan

- Federal cap-and-trade system
- Reduce CO₂ emissions to 14 percent below 2005 levels by 2020
- Reduce CO₂ emissions to 83 percent below 2005 levels by 2050
- Essentially would represent the steepest lines in the previous figure

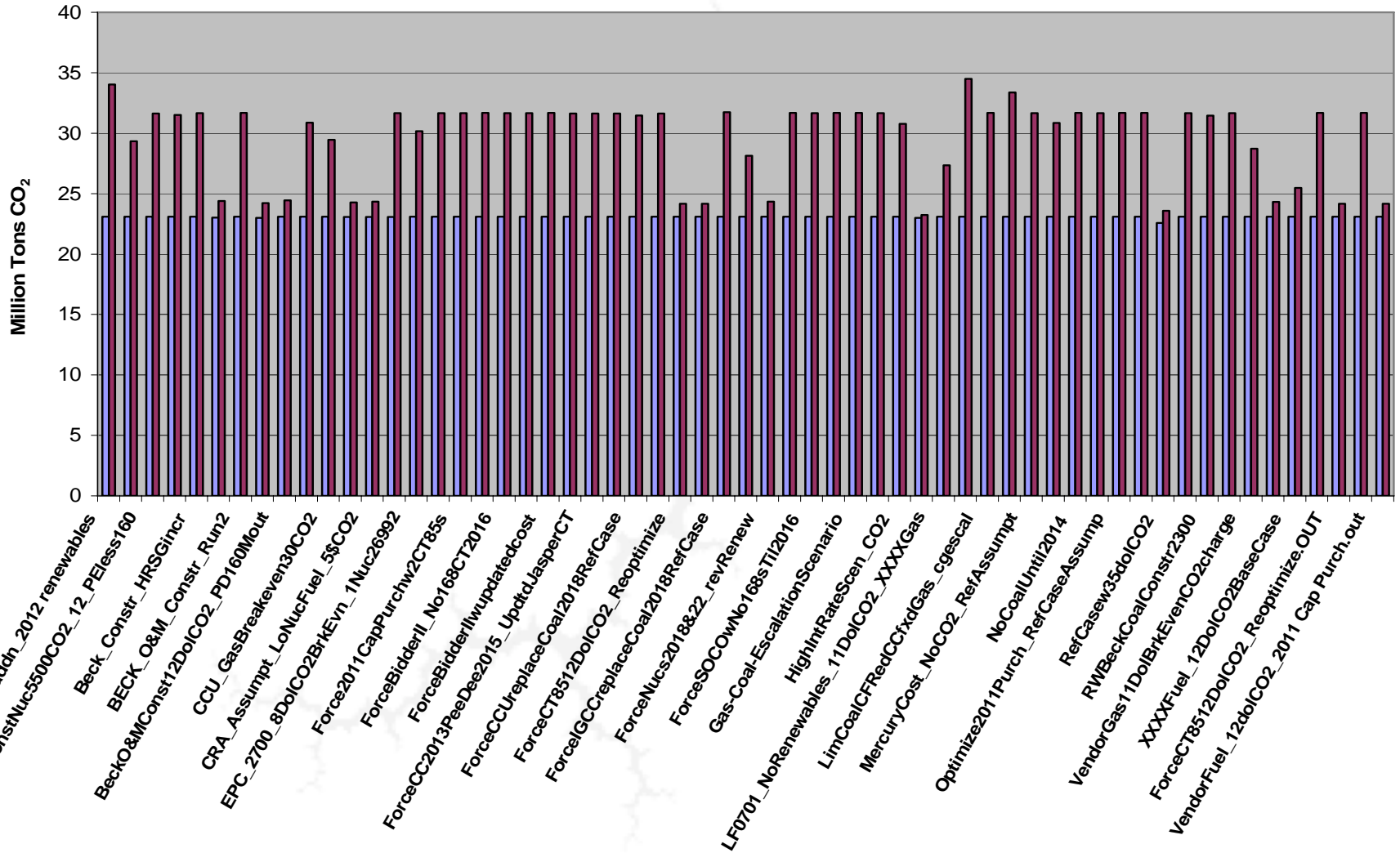
Illustrative CO₂ Emissions - Plan with 2 new Pee Dee River Coal Units



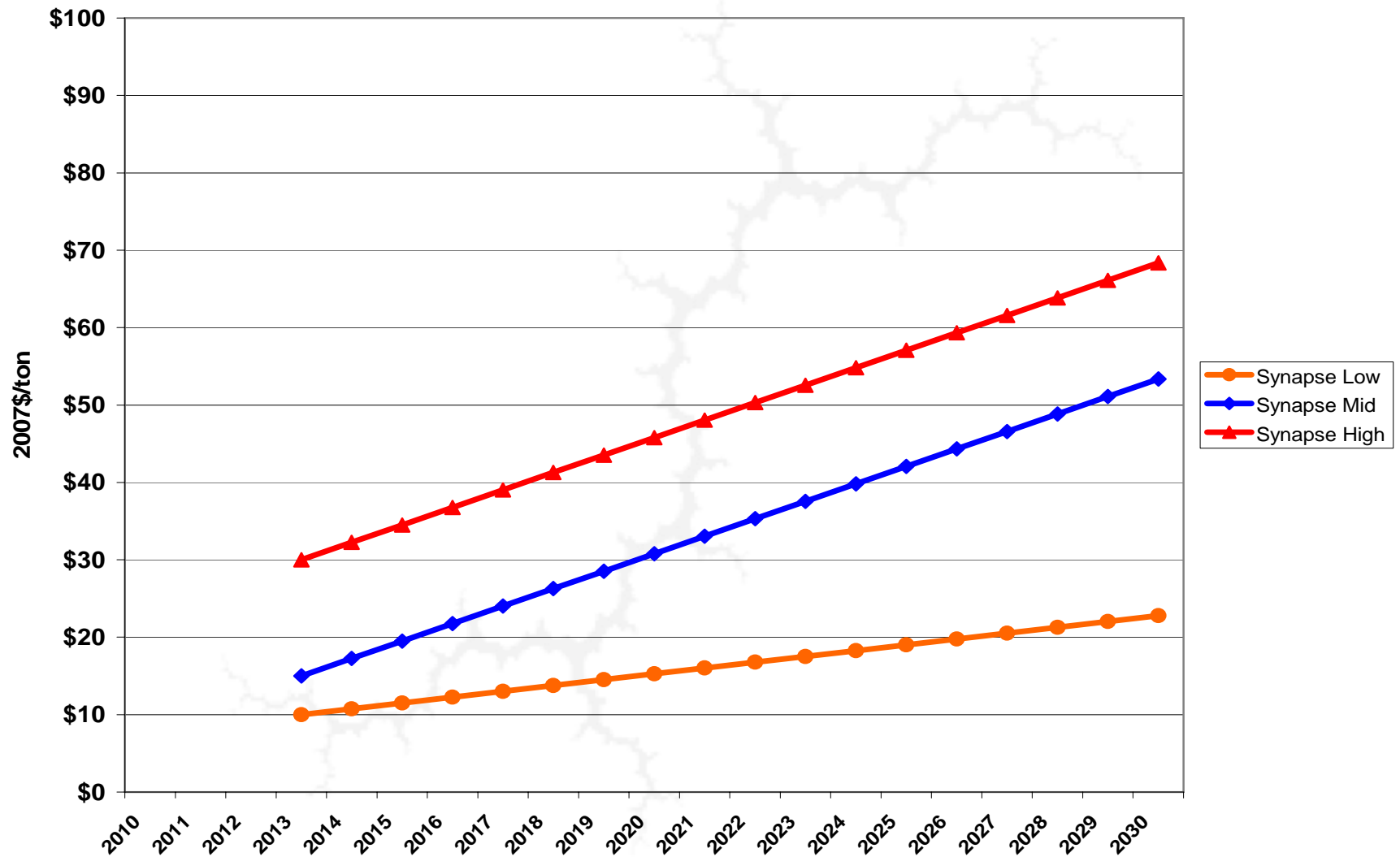
Illustrative CO₂ Emissions – Plan with Pee Dee 1 + New Nuclear Units



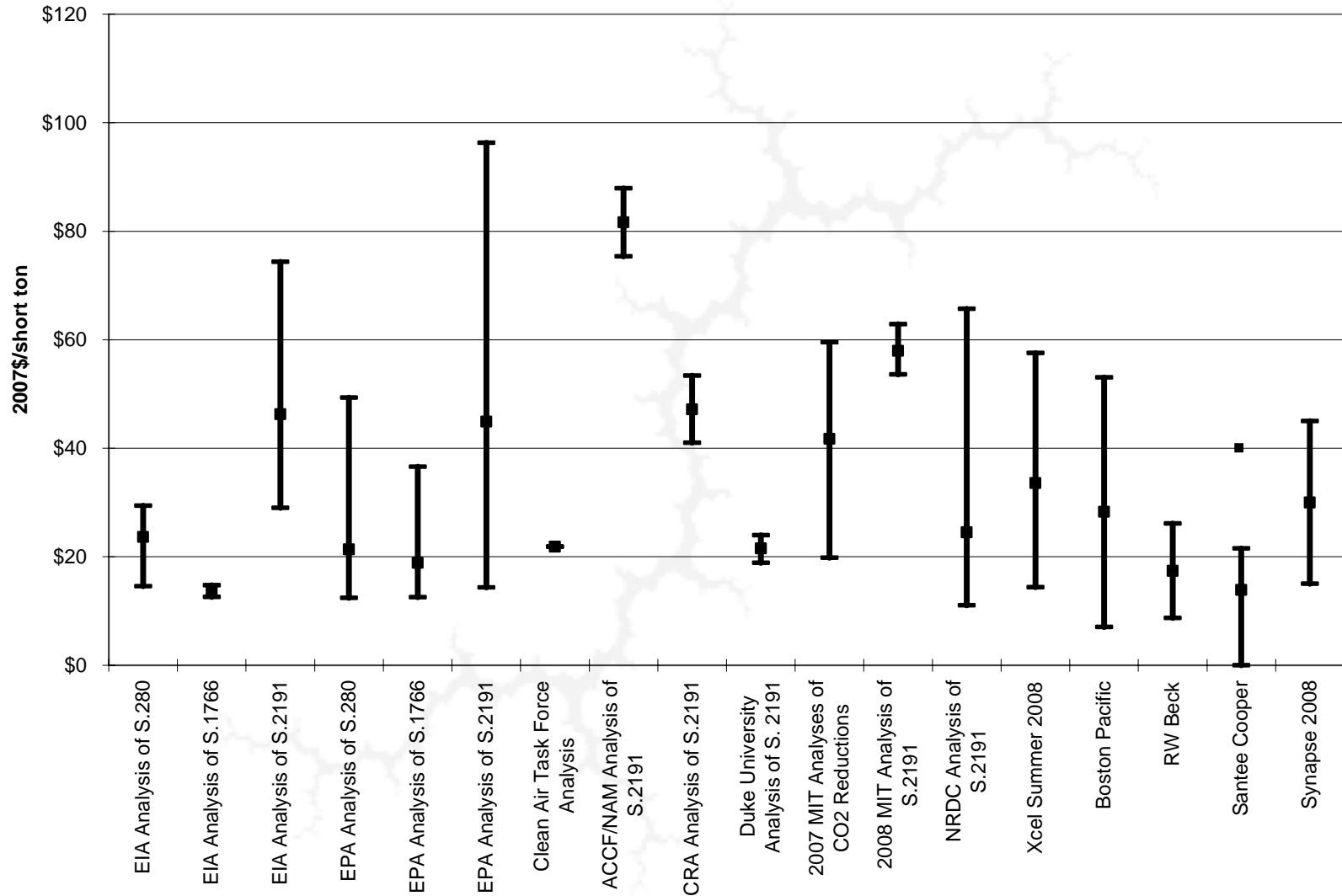
Santee Cooper CO₂ Emissions in 2007 and 2024 from Modeling Output Files



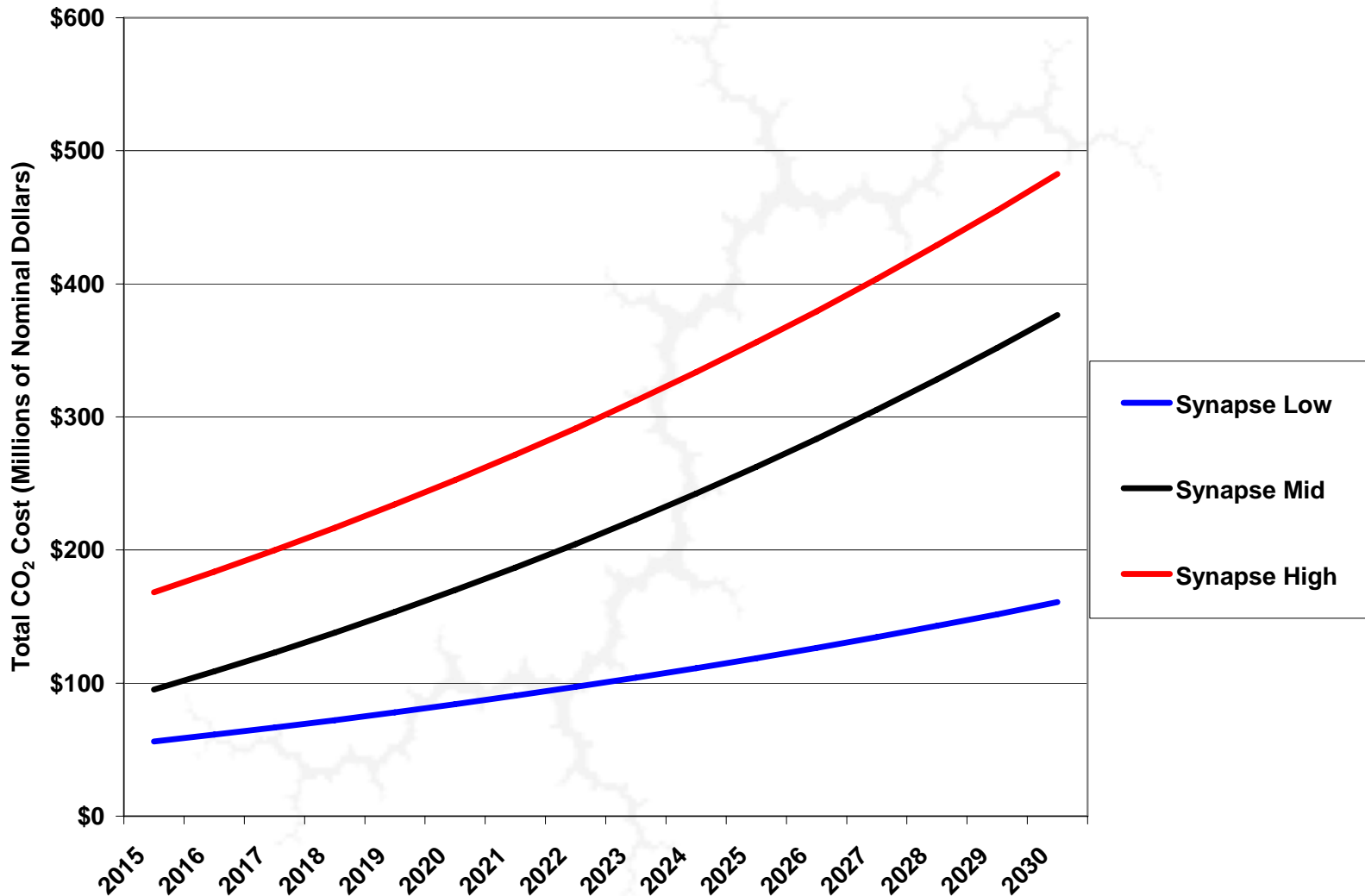
Synapse CO₂ Price Forecasts



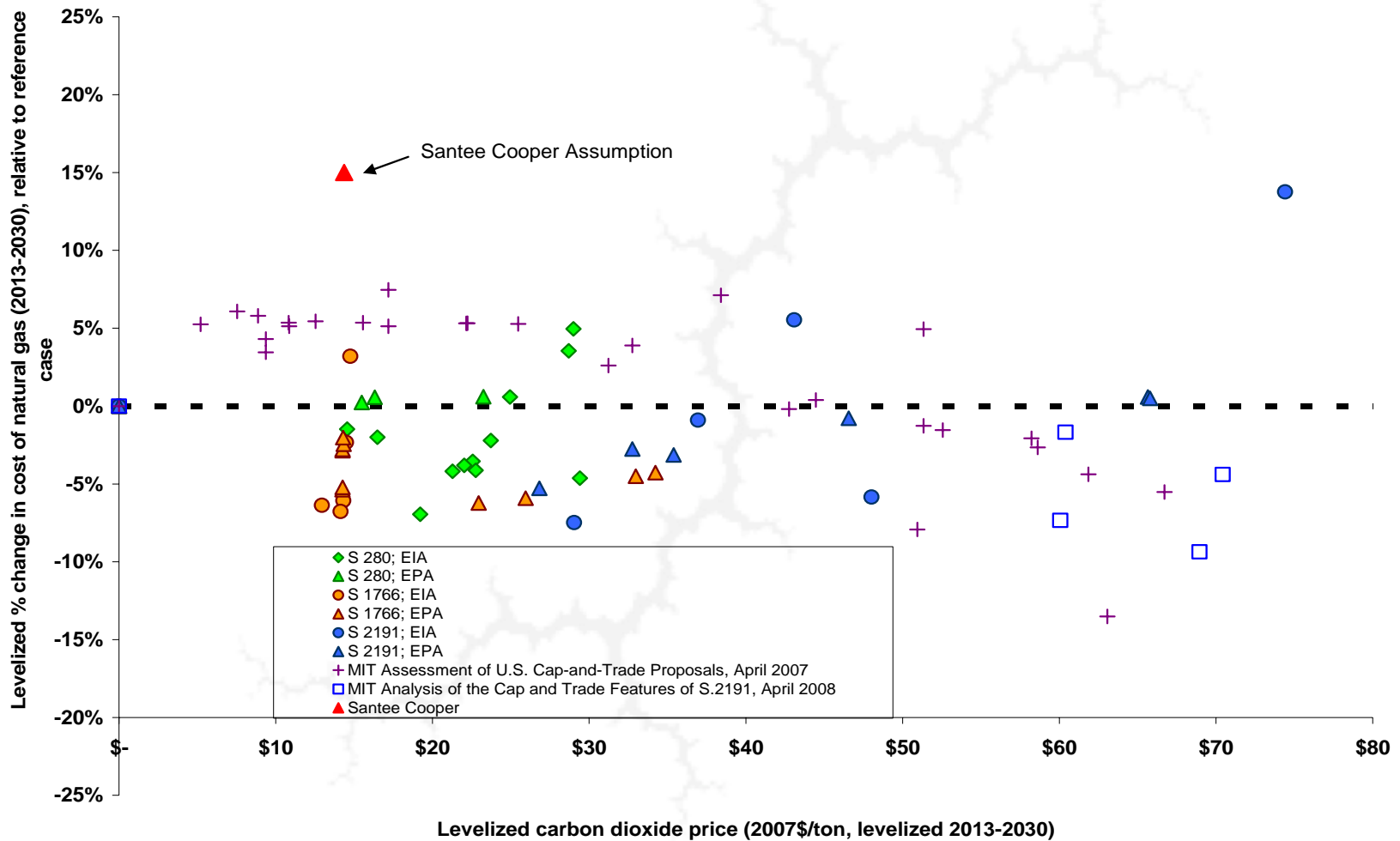
Synapse & Santee Cooper Levelized CO₂ Prices vs. Results of Modeling of Legislative Proposals



Total Annual CO₂ Expenditures for One Pee Dee River Unit with Synapse Prices



Impact of CO₂ Regulation on Natural Gas Prices



Energy Efficiency Potential

	Achievable Cost Effective Potential MWh Savings by 2017
GDS 20% Market Penetration Scenario	228,583
GDS 50% Market Penetration Scenario	667,872
GDS 80% Market Penetration Scenario	1,159,402
Used by Santee Cooper in 2008 Resource Planning Scenarios	120,000

- Also, where GDS had found that Santee Cooper could reduce its 2017 peak loads by approximately 10 percent through implementation of well-designed and aggressive energy efficiency programs, Santee Cooper assumed that its summer 2017 peak load would be reduced by only 30 MW (or about 3 percent) and its winter 2017 peak load would be reduced by only 40 MW (or only about 3-4 percent).

Good Electric Resource Planning Practice

- Actively seek out relevant information.
- Rely on up-to-date and realistic construction cost estimates.
- Include reasonable CO₂ price forecasts in the reference case, and analyze high and low sensitivities.
- Include full consideration of alternatives.

PRUDENT!

Poor Electric Resource Planning Practice

- Passive attitude toward information.
- Rely on out-of-date construction cost estimates.
- Ignore CO₂ price, look at a single, low set of CO₂ prices, or treat CO₂ “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 CO₂ emissions.

IMPRUDENT!

- Consultants on energy and environmental issues.
- 19 professional staff with over 200 combined years of experience studying the electric power industry.
- Clients have included
 - US EPA, US DOE, US DOJ.
 - Regulatory Commissions in 11 states
 - Consumer Advocates and AGs in 20 states, including North Carolina
 - Large and small cities and towns
 - National Association of Regulatory Commissioners
 - Non-governmental clients including local and national environmental and consumer organizations

- Engineering degrees from Massachusetts Institute of Technology and Stanford University.
- Law degree from Stanford School of Law.
- 35 years of experience in electric resource planning.
- Testified as expert witness in more than 100 state regulatory commission proceedings and state and federal court cases.
- Lead author of *Don't Get Burned, the Risks of Investing in New Coal-Fired Power Plants*, February 2008, and other Synapse reports on proposed coal-fired power plants and greenhouse gas regulation.