BEFORE THE FLORIDA PUBLIC SERVICE COMMISSION

In Re: Petition for Determination of Need for Levy Units 1 and 2 Nuclear Power Plants.	))))	Docket No: 080148-EI Submitted for Filing: March 11, 2008

TESTIMONY OF J. MICHAEL KENNEDY ON BEHALF OF PROGRESS ENERGY FLORIDA

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IN RE: PETITION FOR DETERMINATION OF NEED FOR LEVY UNITS 1 AND 2 NUCLEAR POWER PLANTS

FPSC DOCKET NO. _____

DIRECT TESTIMONY OF
J. MICHAEL KENNEDY

I. INTRODUCTION AND QUALIFICATIONS

Q. Please state your name and business address.

A. J. Michael Kennedy, P.O. Box 14042, St. Petersburg, Florida 33733.

Q. By whom are you employed and in what capacity?

A. I am employed by Progress Energy Service Company as a Principal Environmental Specialist.

Q. What do you do?

A. In my current role, which I assumed in August 2005, my responsibilities include analyzing and assessing emerging environmental legislative and regulatory issues for Progress Energy Florida ("PEF" or the "Company") and Progress Energy Carolinas. Prior to that, I managed the environmental permitting and compliance activities in support of Florida Power Corporation's and then PEF's generating fleet, including air permitting and Title V issues. For ease of reference, I will refer to Florida Power Corporation and PEF together as PEF except when circumstances may warrant a distinction between the two companies.

Q. Please describe your education background and professional experience.

A. I earned a Bachelor of Science degree in Meteorology from Purdue University in 1978. Before coming to work at then-Florida Power Corporation, from January 1990 to June 1992, I was a Senior Environmental Scientist at Indianapolis Power & Light Company, where my responsibilities included support of generating plants in the area of air permitting and compliance. From August 1986 to December 1989, I was the Permitting and Planning Manager for the Indianapolis Air Pollution Control Division. I managed the areas of air operating and construction permits, air quality modeling and planning, and regulatory development for Indianapolis/Marion County, Indiana. From June 1978 to July 1986, I worked as an Air Quality Planner for the Indianapolis Air Pollution Control Division. There I helped develop the State Implementation Plan for compliance with the 1977 Clean Air Act Amendments. I also reviewed air operating and construction permit applications and assisted with compliance inspections at the major sources in the county.

Q. Are you sponsoring any sections of the Company's Need Study, Exhibit No. ___ (JBC-1)?

A. Yes. I am sponsoring the subsection of Section IV, C., 9 of the Need Study addressing the reduction of air emission compliance costs due to existing and future potential environmental regulation including greenhouse gas emissions ("GHG").

Q. Are you sponsoring any exhibits with your testimony?

A. Yes. I am sponsoring the following exhibits that I prepared or that were prepared under my supervision and control:

- Exhibit No. ____ (JMK-1) which is a Emission Comparison Chart;
- Exhibit No. ____ (JMK-2) which is a Lifecycle CO_2 Emission Summary;
- Exhibit No. ____ (JMK-3) which is an Estimated CO_2 Emission Cost Graph; and
- Exhibit No. ____ (JMK-4) which is an Annual CO_2 Emissions Avoided by Proposed Levy Nuclear Units Chart.

All of these exhibits are true and accurate to the best of my knowledge.

Q. What is the purpose of your testimony?

A. The purpose of my testimony is to address environmental emission issues related to nuclear generation, including greenhouse gas emissions.

Q. Please summarize your testimony.

A. Nuclear power plants emit no air pollutants during operation. Unlike fossil fuel powered generating facilities, the Levy nuclear units will produce no NO_x, SO_2, mercury, or greenhouse gas emissions, such as carbon dioxide (CO_2). As a result, Levy Units 1 & 2 will avoid up to 1.4 million tons of NO_x, up to 5.8 million tons of SO_2, approximately 28,800 pounds of mercury, and approximately 864 million tons of CO_2 emissions when compared to the emissions from a conventional coal-fired plant. For carbon alone, this equals removing approximately 2.9 million cars per year off Florida roads over 60 years,

or a total of 174 million cars. No other generating resource has these significant environmental benefits.

To date, no federal or state laws impose direct limits on GHG emissions, including carbon emissions. However, a number of bills have been introduced in Congress which would, if enacted, regulate such emissions. In addition, Florida Governor Charlie Crist issued Executive Order 07-127 on July 13, 2007, which directed the Florida Department of Environmental Protection to enact some of the most restrictive limits on GHG emissions in the nation. Under Governor Crist's proposal, Florida electric utilities would be required to reduce GHG emissions to 2000 levels by 2017, to 1990 levels by 2025, and to 20 percent of 1990 levels by 2050. Irrespective of what specific GHG regulations are eventually enacted in the future, however, the zero GHG emitting Levy units will certainly help PEF comply with any such requirements.

II. BACKGROUND ON GHG AND OTHER (NO_x, SO_2, MERCURY) EMISSIONS

Q. Please explain greenhouse gas.

A. A greenhouse gas (GHG) is a substance that, when present in the atmosphere, absorbs or reflects outgoing energy into the atmosphere or back to earth. A certain amount of this effect is necessary for life, because without this effect the average temperature of the earth would be well below freezing. If an excess amount of greenhouse warming occurs, then the average temperature of the planet may increase. There are several compounds that act as GHGs, and CO_2 is the dominant GHG emitted by human activities.

Q. How are greenhouse gases emitted?

A. Some greenhouse gases such as carbon dioxide occur naturally and are emitted to the atmosphere through natural processes and human activities. Other greenhouse gases (e.g., fluorinated gases) are created and emitted solely through human activities. The principal greenhouse gases that enter the atmosphere because of human activities are carbon dioxide, methane, nitrous oxide, and fluorinated gases. Carbon dioxide enters the atmosphere through the burning of fossil fuels (oil, natural gas, and coal), solid waste, trees and wood products, and also as a result of other chemical reactions (e.g., manufacture of cement). Carbon dioxide is also removed from the atmosphere (or "sequestered") when it is absorbed by plants as part of the biological carbon cycle. Methane is emitted during the production and transport of coal, natural gas, and oil. Methane emissions also result from livestock and other agricultural practices and by the decay of organic waste in municipal solid waste landfills. Nitrous oxide is emitted during agricultural and industrial activities, as well as during combustion of fossil fuels and solid waste. Hydrofluorocarbons, perfluorocarbons, and sulfur hexafluoride are synthetic, powerful greenhouse gases that are emitted from a variety of industrial processes. Fluorinated gases are sometimes used as substitutes for ozone-depleting substances (i.e., CFCs, HCFCs, and halons). These gases are typically emitted in smaller quantities, but because they are potent greenhouse gases, they are sometimes referred to as High Global Warming Potential gases ("High GWP gases").

Q. Please describe the types of electrical generating facilities that emit greenhouse gas.

A. Any electric generating facility that uses fossil fuel to produce power emits GHGs. These include all coal, oil, and natural gas-fired facilities.

Q. Are there GHG emissions associated with burning non-fossil sources such as ethanol derived from sugar cane or citrus waste?

A. Yes. Burning ethanol produces CO_2 emissions similar to those for a light oil.

Q. Are there any proposals at the federal or state level to regulate or address greenhouse gas emissions?

A. A number of congressional proposals to advance programs designed to reduce greenhouse gases have been introduced in the 110th Congress. There are generally three types of proposals. First, there are proposals designed to improve the monitoring of greenhouse gas emissions to provide a basis for research and development, and for any potential future reduction scheme. Second, there are proposals to enact a market-oriented greenhouse gas reduction program similar to the trading provisions of the acid rain reduction program established by the 1990 Clean Air Act Amendments. The third type of proposals serve to enact energy and related programs that would have the added effect of reducing greenhouse gases such as requiring energy producers to generate a portion of generation from renewable resources.

On July 13, 2007, Governor Crist issued three executive orders calling for immediate action to reduce greenhouse gas emissions in the State of Florida. In Executive Order No. 07-127, the Governor established emission reduction targets to substantially reduce greenhouse gas levels. He also ordered his administration to

develop emission reduction standards for electric utilities and motor vehicles. The Florida Energy Commission, in January 2008, proposed similar reductions.

III. HOW NUCLEAR CONTRIBUTES TO REDUCED GHG AND OTHER AIR EMISSIONS

Q. Explain why there are no air emissions associated with nuclear generation.

A. Air emissions are produced by the burning of fossil fuels. Since nuclear power plants do not use fossil fuels to produce electricity, there are no emissions associated with it.

Q. Compare the air emissions of nuclear generation to emissions from other electric generating sources.

A. Nuclear power plants emit no air pollutants while generating electricity. Comparatively, a conventional coal-fired boiler will produce about 2,200 pounds of CO_2 for each megawatt-hour (MWh) of electricity it produces. A natural gas-fired facility produces about half of that, or 1,100 lb of CO_2/MWh. Prior to pollution control systems, a conventional coal-fired power plant of 1,092 MW capacity can emit up to approximately 48,000 tons of SO_2, 12,000 tons of NO_x, 240 pounds of mercury, and 7.2 million tons of carbon dioxide (CO_2) per year. For CO_2, this equals the emissions from approximately 2.9 million cars. Advanced air pollution control systems will remove approximately 95% of the SO_2, 90% of the NO_x, and 80% of the mercury, resulting in emissions of approximately 2,400 tons of SO_2, 1,200 tons of NO_x, and 48 pounds of mercury from a coal-fired power plant.

A 1,092-MW natural gas-fired combined-cycle combustion turbine power plant will emit approximately 12 tons of SO_2, 240 tons of NO_x, a negligible amount of mercury, and 3.2 million tons of CO_2 per year. A nuclear plant with the same capacity emits none of these compounds. Exhibit No. ____ (JMK-1) graphically depicts the comparison in annual emissions between a coal-fired plant, a natural gas-fired combined-cycle plant, and a nuclear plant.

Q. What is the quantity of these avoided emissions on a long-term basis?

A. Compared to a coal-fired facility of similar capacity, a 1,092-MW nuclear plant will avoid up to approximately 2.9 million tons of SO_2, 720,000 tons of NO_x, 14,400 pounds of mercury, and 432 million tons of CO_2 over a 60-year timeframe. If we make that comparison to a natural gas-fired, combined-cycle facility of similar capacity, the nuclear facility will avoid up to approximately 720 tons of SO_2, 14,400 tons of NO_x, and 192 million tons of CO_2.

Q. What is the quantity of avoided emissions for Levy Units 1 & 2?

A. Levy Units 1 & 2 would avoid approximately 5.8 million tons of SO_2, 1.4 million tons of NO_x, 28,800 pounds of mercury, and 864 million tons of carbon dioxide over a 60-year life time when compared with the potential emissions from a coal-fired plant. Compared to a natural gas-fired, combined-cycle facility, Levy Units 1 and 2 would avoid approximately 1,440 tons of SO_2, 28,800 tons of NO_x, and 384 million tons of CO_2. Exhibit No. ____ (JMK-4) graphically depicts the annual CO_2 emissions avoided by the proposed Levy nuclear units.

Q. How do the life-cycle CO_2 emissions from nuclear power compare with other electricity-generating technologies?

A. As stated previously, a nuclear power unit generates no CO_2 while operating. There are CO_2 emissions associated with the construction of the unit, the mining and processing of uranium, and the transportation of fuel to the plant. Over the life time of the plant, however, such life-cycle emissions are quite low and they compare favorably with other electric generating technologies. In fact, the life-cycle emissions from nuclear power are lower than those from solar photovoltaic (PV) power, because a great deal of emissions are associated with the preparation of the pure silicon that is needed for the PV panels. Exhibit No. ____ (JMK-2) is a summary of the life-cycle CO_2 emissions from several electric-generating technologies.

IV. CURRENT STATE OF AIR QUALITY REGULATION

Q. Are there environmental air quality and emissions regulations related to fossil generation?

A. Yes, there are several.

Q. Please explain how air quality is currently regulated by the state and federal governments.

A. The federal government regulates air quality through the Clean Air Act (CAA) and its amendments, the most recent of which were passed by Congress in 1990. States are required to implement the provisions of the CAA through the State Implementation Plan

(SIP) process. SIPs are comprised of regulations at the state level that are reviewed and approved by Environmental Protection Agency (EPA).

Q. Please explain National Ambient Air Quality Standards.

A. National Ambient Air Quality Standards (NAAQS) are pollutant concentration levels set by EPA to protect health and welfare. Several key pollutants, known as criteria pollutants, are measured through an extensive, nation-wide monitoring network. Areas with monitors that register levels greater than the NAAQS must take steps to reduce emissions in order to attain compliance.

Q. Please explain the U.S. Acid Rain Program.

A. Congress created the Acid Rain program with the 1990 CAA amendments. It requires reductions in SO_2 and NO_x emissions from electric utility power plants throughout the country. Utilities reduced emissions significantly through the Acid Rain program, and additional regulations promulgated in the past two to three years require deeper reductions.

Q. What additional air quality regulations apply to fossil generation and what challenges does PEF have in meeting them?

A. Current major air quality regulations at the state and federal levels are the Clean Air Interstate Rule (CAIR), which requires significant additional reductions in SO_2 and NO_x emissions, the Clean Air Mercury Rule (CAMR), which requires reductions in mercury emissions from fossil fuel-fired power plants nation-wide, and the Clean Air Visibility

Rule (CAVR), which may require additional reductions in SO_2 and NO_x in order to improve and protect visibility in national parks and wilderness areas. All of these regulations significantly affect Florida and PEF's existing generation fleet. For example, PEF is currently implementing its compliance plan to meet these new regulatory requirements, which will include the Company investing more than $1.2 billion in pollution control installations at our Crystal River and Anclote fossil fuel-fired facilities.

Q. What other environmental restrictions are being discussed at the federal and state level that could impact the Company's generation resource plan?

A. As discussed above, there are several climate change bills active in Congress that would require significant reductions in GHG emissions from electric utilities. In addition, in July 2007, Florida Governor Charlie Crist issued executive orders requesting deep reductions in GHG emissions from the state's electric utilities. The Florida Energy Commission in January 2008 proposed similar reductions. These goals, if implemented, will be extremely challenging to meet, particularly given the growth rate in Florida's population and associated electric demand.

Q. What are the specific GHG reduction targets in the federal proposals you mentioned before?

A. Several current Federal legislative proposals cap greenhouse gas emissions at 1990 levels in the year 2020. After year 2020, proposals contain requirements to reduce emissions by roughly 5% annually from the previous year's level through 2050. Other proposals establish renewable portfolio standards for electric generating facilities.

Q. What are the reduction targets in the state proposals?

A. Governor Crist's Executive Order No. 07-127 has directed the Secretary of Environmental Protection to adopt maximum allowable emissions level of greenhouse gases for electric utilities requiring at a minimum to reduce emission in the year 2017 to year 2000 levels; 2025 emissions must not exceed year 1990 utility sector emissions, and emissions in 2050 must not be greater than 20% of year 1990 utility sector emissions.

Q. Please discuss the current DEP rulemaking activity in Florida.

A. In Executive Order 07-127, Governor Crist instructed the Florida Department of Environmental Protection (DEP) to initiate a rulemaking to implement the caps on electric utility emissions contained in the order. DEP began this process with its first rulemaking workshop in August 2007 and a second workshop in December 2007. To date, the DEP has not issued a proposed rule, but such a proposal may be forthcoming in the near future.

Q. Are there any greenhouse gas activities ongoing before the Florida Energy Commission?

A. The Florida legislature created the Florida Energy Commission (FEC) in 2006. The FEC is a nine-member panel comprised of representatives from academia, environmental interests, and business to consider energy and climate change policy for the state. The FEC provided its recommendations in a report to the Legislature at the end of 2007. Among them is a recommendation, similar to Governor Crist's proposal, that would

require reductions of emissions of GHGs in the state to 2000 levels by 2020, to 1990 levels by 2030, and to 20 percent of 1990 levels by 2050.

Q. Please discuss Governor Crist's Action Team.

A. In Executive Order 07-128, Governor Crist created the Florida Governor's Action Team on Energy and Climate Change to develop a comprehensive Energy and Climate Change Action Plan to effectuate greenhouse gas reductions specified in Executive Order 07-127. The Action Team provided its initial framework recommendations to the Governor on November 1, 2007. The details for the implementation of the recommendations will be developed through a stakeholder-driven process in 2008. Final recommendations are due to be submitted to the Governor by October 1, 2008.

Q. Has the issue of greenhouse gases been discussed in any recent need proceedings before the Florida Public Service Commission?

A. Yes, in Florida Power and Light's ("FPL") need proceeding for its Glades Units, the Sierra Club filed testimony that focused on the likelihood of future requirements to reduce emissions of GHGs. The Sierra Club agrees that business and industry must plan for a carbon-constrained future. A tabular summary was included of the 17 Congressional bills addressing climate change as of January, 2007, most of which would require significant reductions in GHG emissions to levels as low as 80% below 1990 emissions by the year 2050. In addition, the Sierra Club discussed state and regional activity, such as the Regional Greenhouse Gas Initiative in the Northeast U.S. and the orders to reduce GHG emissions from California Governor Arnold Schwarzenegger.

Finally, the Sierra Club testimony discussed potential carbon costs in the future and recommended that utilities should include the potential cost of carbon in their resource planning.

Q. Discuss FPL statements regarding greenhouse gases in its Glades Need Case and its Turkey Point 6 & 7 Nuclear Need Case.

A. Mr. Kennard Kosky was FPL's witness regarding environmental matters for both the Glades need case and the Turkey Point 6 & 7 need case. Although there are currently no regulations regarding emissions of CO_2, FPL considered the potential cost of carbon regulation on the operation of the Glades facility and concluded that it is the most cost-effective alternative. In its comparison of emissions from electric-generating technologies, however, FPL did not compare air emissions from the proposed Glades facility to those of a comparably-sized nuclear plant.

In his Turkey Point testimony, Mr. Kosky stated that FPL's proposed nuclear units are the preferred alternative from an environmental perspective in that their operation will generate no air pollutant emissions, including GHG emissions. Mr. Kosky compared the life-cycle emissions of nuclear power with other power-generating technologies, including fossil fuel-fired plants, wind power, and solar photovoltaic (PV) generation. Mr. Kosky stated that life-cycle emissions from solar PV are actually higher than those from either wind or nuclear power. Finally, although there are currently no regulations of GHG emissions, Mr. Kosky concludes that there are likely to be in the future, adding cost to the operation of facilities that emit GHGs. The proposed Turkey

Point 6 & 7 nuclear units will not add cost to FPL's operations in the area of carbon regulation because they will not emit GHGs.

Q. You mentioned that in his testimony, Mr. Kosky added costs to the operation of facilities that emit GHGs. Have you endeavored to make estimates of what those costs may be?

A. As I mentioned before, there are no current GHG regulations, and no one can say with certainty what the future will be in this regard. We believe some form of GHG legislation is likely and that such legislation would impose a cost for emissions of greenhouse gases, but the timing and nature of the policy is uncertain. Rather than placing probability weights on policy scenarios, we have elected to show a range of potential future costs for CO_2 to demonstrate the potential range of impacts on the economic analysis for the Levy units. Based on all the information available to me now, I have prepared reasonable estimates as to what costs may arise for GHG-producing facilities.

Q. Please discuss how you arrived at your estimates for GHG costs.

A. The first step in my analysis was to gather all the various federal and state GHG regulations that have been proposed to date along with other studies that have attempted to estimate what future GHG costs may be. From each of these sources, I extracted dollars/ton of CO_2 figures and plotted them on a graph ranging temporally from 2006-2050. The results of my findings are depicted on Exhibit No. ____ (JMK-3).

In 2020, the various proposals ranged from a low of $21/ton of CO_2 emissions to a high of $80/ton. As reflected on Exhibit No. ____ (JMK-3), most proposals centered on an average estimate of around $30/ton in 2020 but some were higher. Based on these data, I developed a reasonable projection of a representative high case based on the most stringent current federal and state regulatory proposals, a high academic case projection of the likely outcome given the various legislative and regulatory proposals, and a "middle" and "low" case estimate for potential future CO_2 emissions costs. Respectively, in 2020 for example, those figures are $21/ton, $32/ton, $63/ton, and $80/ton.

V. POTENTIAL CONSEQUENCES OF VARIOUS PROPOSALS

Q. Are there environmental compliance costs associated with the current and proposed regulations you have discussed?

A. There are significant costs incurred in order to comply with environmental requirements. There are major costs associated with the installation and operation of air emissions control equipment such as scrubbers, selective catalytic reduction (SCR), and electrostatic precipitators.

Q. What is the magnitude of the environmental compliance costs associated with fossil forms of electrical generation?

A. Environmental compliance costs for coal-fired generation are typically several hundred million dollars per facility. Even for natural gas-fired facilities, these costs are normally in the tens of millions of dollars.

Q. Will carbon costs be applied to nuclear power?

A. No, under either a carbon tax or cap-and-trade regime, carbon costs would only be imposed on the use or combustion of carbon and the resulting emissions of CO_2.

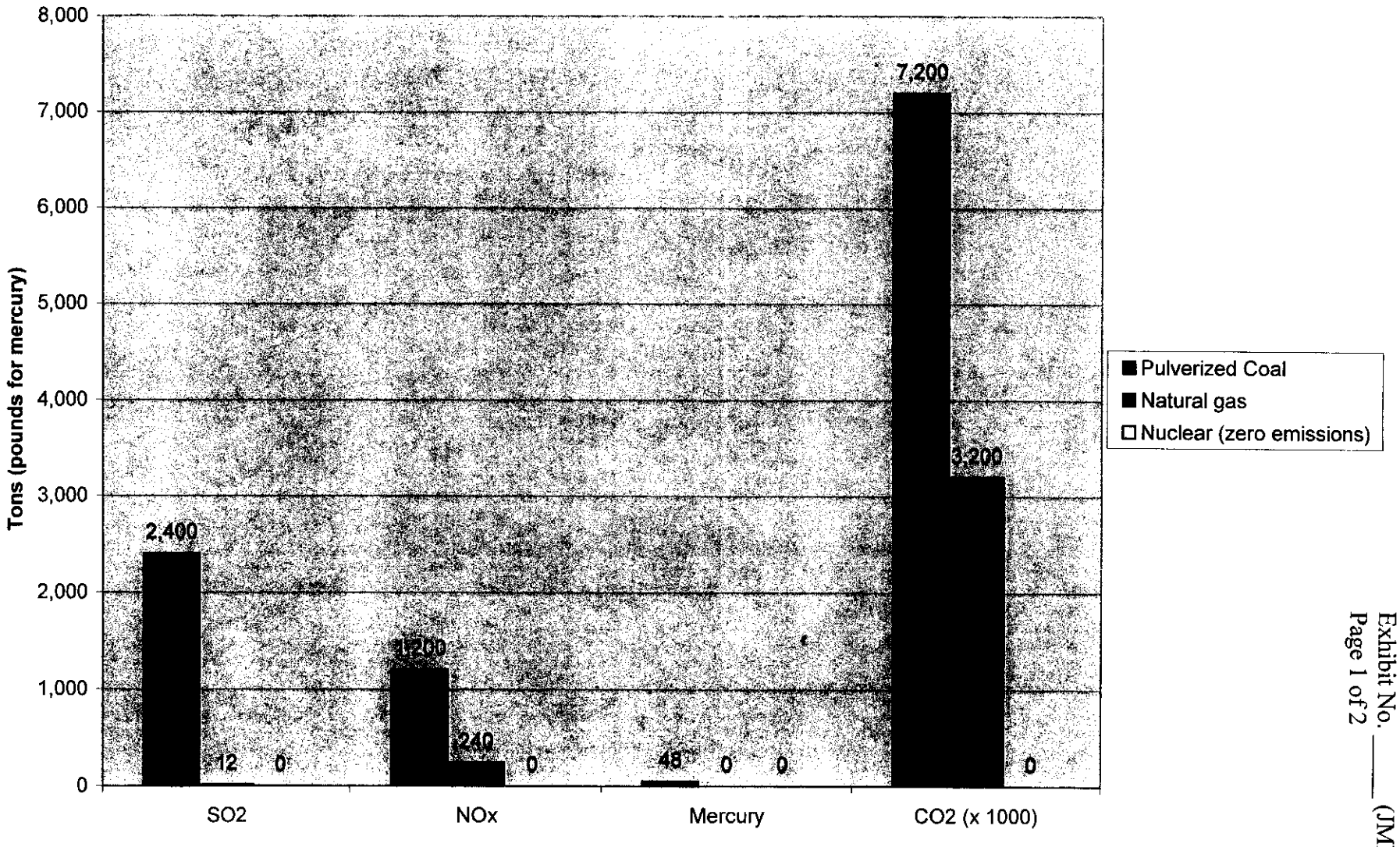
Q. Will a nuclear power plant require the installation and operation of air emissions control equipment such as scrubbers, selective catalytic reduction (SCR), and electrostatic precipitators?

A. No, again because a nuclear plant would not have the air emissions that a traditional fossil plant has. Thus, nuclear power plants would not have to incur the expenses associated with this equipment.

Q. Does this conclude your testimony?

A. Yes.

Annual Air Emissions Comparison



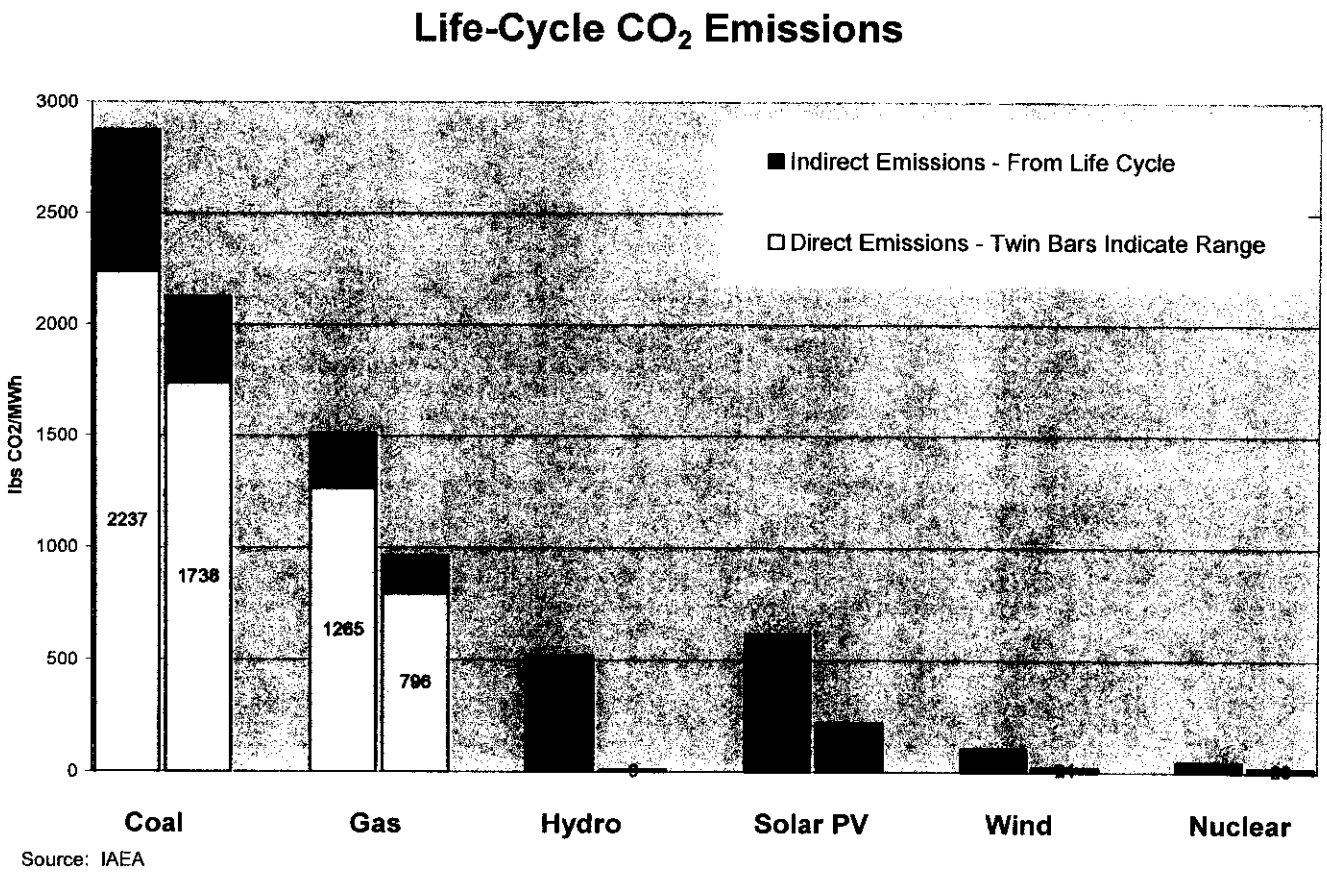
Annual Air Emissions Comparison in Tons (pounds for Mercury)

	SO_2	NOx	Mercury	CO_2 (x 1000)
Pulverized Coal	2,400	1,200	48	7,200
Natural gas	12	240	0	3,200
Nuclear (zero emissions)	0	0	0	0

EXHIBIT JMK-2. Life-Cycle CO_2 Emissions for Several Energy Production Technologies

Life Cycle Analysis, focused on energy, is useful for comparing emissions from different methods of electricity generation. This analysis includes emissions for construction, mining, transportation, operation, and decommissioning.

The following figure compares the direct and indirect carbon dioxide (CO_2) emissions of the generating technologies. Direct emissions are those resulting from the combustion of fuel, and indirect emissions are the "life-cycle" emissions resulting from construction, mining, transportation, operation, and decommissioning.



Source: IAEA

As indicated in the legend, the dual bars indicate the range of results varying by study and type of technology within a category. For example, coal-fired generation efficiency varies by type and vintage of unit, and nuclear technology also varies (centrifuge vs. diffusion enrichment).

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Note that, as expected, there are no direct CO_2 emissions associated with hydro, solar PV, wind, or nuclear power. The large amount of energy needed to manufacture solar PV significantly adds to its life-cycle emissions. Overall, nuclear power has consistently the lowest life-cycle CO_2 emissions.

[1] Sources:

Chapman P.F. 1975, Energy analysis of nuclear power stations, Energy Policy Dec 1975, pp 285-298.
ERDA 1976, A national plan for energy research, development and demonstration: creating energy choices for the future, Appendix B: Net energy analysis of nuclear power production, ERDA 76/1.
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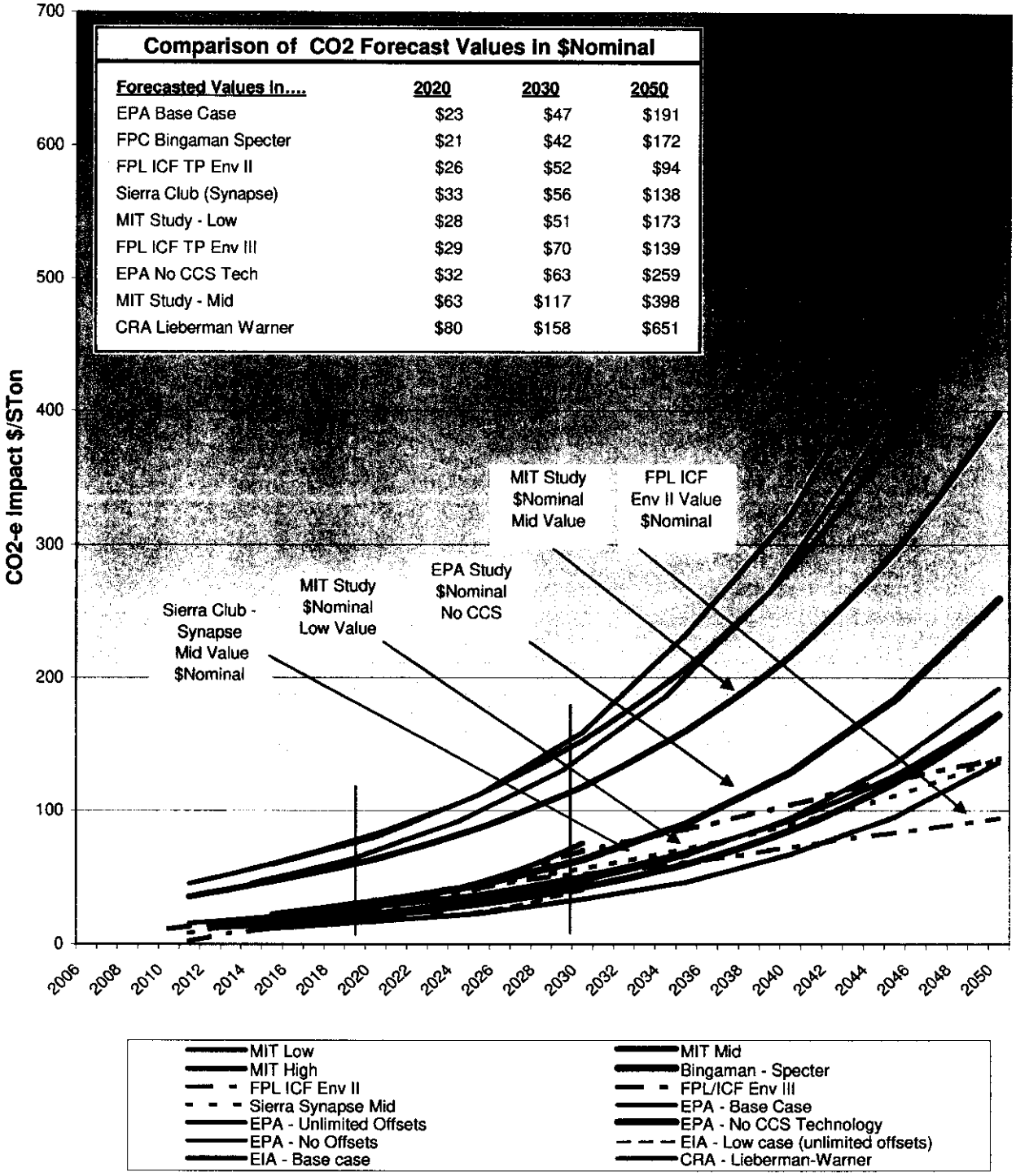
Assumptions for Analyses

The table below summarizes the range of assumptions used for each technology in emissions studies.

Technology	Capacity/Size	Life Time	Capacity Factor	Efficiency	Construction Time	Comments
Coal	600 - 1300 MW	25 - 30 Years	75% - 80%	35% - 43%	5 years	Efficiency high range for IGCC, supercritical PC
Gas	500 – 750 MW	30 years	75%	55% - 58%	1 – 2 years	
Hydro	10 MW	60 years	45%	Turbine efficiency 90%	4 years	Efficiency is for turbines only
Solar PV	1 MW	20 – 30 years	20% – 25%	15%	1 year	
Wind	0.1 MW – 1.5 MW	20 – 30 years	20% - 35%	35%	1 – 2 years	
Nuclear	1,000 MW	30 years	61% - 75%	30% - 34%	5 – 6 years	

CO2-e Forecasts Provided from Public Sources
Presented in $/Ton Short Equivalent ($Nominal)



CO2 Equivalent Forecasts from Public Sources
Table of Sources

FPL/ICF Env II and III Forecasts presented as $Nominal in FPL's Turkey Point 6&7 Need Filing - Appendix F.

Synapse Forecast Mid Range converted to $Nominal From Sierra Club Testimony in FPL's Glades Power Park Need Case.

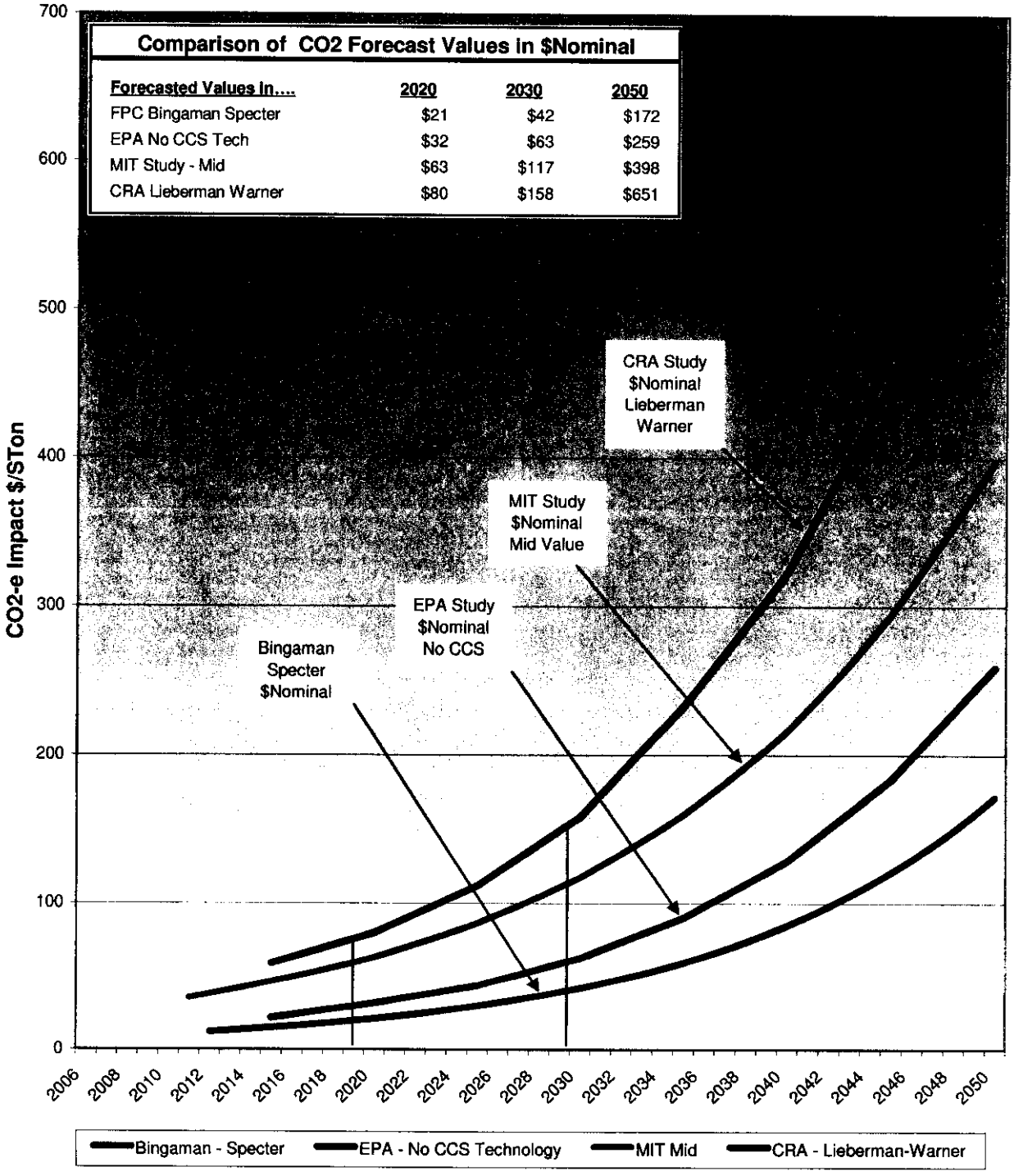
MIT Low, Mid and High Forecasts converted to $Nominal from the report "Assessment of US Cap and Trade Proposals Report 146"

EPA Forecasts converted to $Nominal from the report "September 2007 - United States Environmental Protection Agency's Analysis of Senate Bill S.1766 in the 110th Congress, the Low Carbon Economy Act of 2007" at http://www.epa.gov/climatechange/economicanalyses.html.

EIA Forecasts converted to $Nominal from the report "Supplement to Energy Market and Economic Impacts of S.280" at http://www.eia.doe.gov/oiaf/servicerpt/biv/index.html.

CRA Forecast from Study of the Lieberman Warner Bill Documentation of Scenarios Used in Dr. Anne E. Smith's Testimony of November 8, 2007 before the Senate Environment and Public Works Committee Regarding the Economic Impacts of S.2191- Response to a Request by Senator Lieberman in a Letter to Dr. Smith of November 16, 2007.

CO2-e Forecasts Provided from Public Sources
Presented in $/Ton $_{Short}$ Equivalent ($Nominal)



Annual CO_2 Emissions Avoided by Proposed Levy Nuclear Units