ORIGINAL

BEFORE THE PUBLIC SERVICE COMMISSION

REBUTTAL TESTIMONY OF MATTHEW PRESTON

ON BEHALF OF

FLORIDA MUNICIPAL POWER AGENCY

JEA

REEDY CREEK IMPROVEMENT DISTRICT

AND

CITY OF TALLAHASSEE

DOCKET NO. 060635-EU

NOVEMBER 21, 2006

Q. Please state your name and business address.

A. My name is Matthew Preston. My business address is 222 Severn Avenue, Annapolis, MD 21403.

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

A. I am employed by Hill & Associates, Inc., where I am a senior consultant.

Q. Have you previously submitted testimony in this docket?

A. Yes.

Q. Have you reviewed the direct testimony of Dian Deevy filed in this docket on November 2, 2006?

A. Yes.

DOCUMENT NUMBER-DATE
10720 NOV 21 06
FPSC-COMMISSION CLERK

Q. What is the purpose of your rebuttal testimony?

A. The purpose of my testimony is to rebut Ms. Deevy's criticisms of the assumptions underlying Hill & Associates' carbon dioxide (CO_2) allowance forecast.

Q. Are you sponsoring any exhibits with your rebuttal testimony?

A. Yes. I am sponsoring Exhibit No. __ (MP-1R), which provides a summary of historical allowance price trends.

Q. On page 7 of her testimony, Ms. Deevy states that while your CO_2 allowance forecasts "are not the lowest [she] has found in the literature, their erratic progression over time from low to high and then down again is unusual." Do you agree that it would be unusual for CO_2 allowance costs to be erratic?

A. No. Hill & Associates' CO_2 allowance price forecast is an output of the PRISM model. The PRISM model projects emission allowance prices, in this case CO_2, based on the congruence of a whole host of factors. These factors include fundamental assumptions such as electricity demand and fuel supply/price relationships as well as assumptions concerning the cost of various actions potentially necessary to meet environmental goals. The emission allowance prices projected by PRISM are not predetermined based on any defined set of compliance actions but rather represent the value of emissions reductions given all of the potential means of reducing emissions, nationwide, available to the model. The potential methods of reducing CO_2 emissions in the

model include re-dispatch and building less carbon-intense new generation. Because PRISM includes the influence of many factors, the emission price forecast produced by the model can fluctuate as the model responds to changes in these factors.

Historically, emission allowance prices have proven to be volatile and, like all commodities, prices have fluctuated in response to changes in the fundamentals of supply and demand. This is demonstrated in Exhibit No. __ (MP-1R), which presents historical prices for CO_2 allowances in Europe and for SO_2 allowances in the United States. Because CO_2 allowance prices will depend on the type of regulatory regime implemented, the prices shown on these charts are not necessarily representative of what might be seen if and when a CO_2 regulatory program is implemented in Florida. Nevertheless, the charts demonstrate the significant volatility seen in allowance market systems in general. Of particular note, these charts show the type of low-to-high-to-low trend that Ms. Deevy inexplicably finds "unusual." Because allowance prices respond to numerous market factors, I would find it unusual to see a straight-line or ever-increasing trend for CO_2 allowance prices.

Q. On page 8 of her testimony, Ms. Deevy questions why Hill & Associates set the initial CO_2 limit for electric generating units (EGUs) at 110% of the EGU CO_2 emissions in year 2000. Please explain the basis for that assumption.

A. As there is no existing nationwide legislation regarding the limiting of greenhouse gasses (GHG) and there are many competing proposals, I had to develop what I thought would be a plausible future scenario. In developing this scenario I considered both the desire to limit CO_2 and the potential economic impacts. I primarily relied on the McCain Lieberman Climate Stewardship Act (S.342) as the only Act, so far, to make it to a vote on the floor of the Senate. I also considered the Regional Greenhouse Gas Initiative (RGGI) Memorandum of Understanding because it was the only active policy at the time this scenario was created. The McCain Lieberman Act, the general basis for establishing the CO_2 Case does not specifically set a target for GHG emissions for EGUs but rather sets a nationwide cap that covers most sectors of the US economy. However, the PRISM model addresses only the response in the electric and fossil fuel markets. Considering the long lead time to make large scale changes in the demand, supply and distribution of electricity and the potential shock to electric rates and availability that a restrictive EGU CO_2 cap would engender, the ***useable*** limit of CO_2 allowances for EGUs was increased 10% beyond the year 2000 emissions (for EGUs). The increased limit could be from the banking of early compliance credits or from related industries (such as recovery of coal-bed methane). The practice of adjusting the EGU cap on the basis of economics is a feature of both S.342 and RGGI.

Q. Also on page 8 of her testimony, Ms. Deevy faults Hill & Associates for restricting electricity demand growth to 1% per year in the CO_2 case. Please explain the basis for that assumption.

A. In developing a plausible CO_2 case limited to the impact on only the electric industry, I considered the response of states and individuals to the prospect of a GHG constrained world. I considered it reasonable to assume that electricity demand growth would slow. This might manifest itself in three ways:

1. States may more generally support demand-side management programs and efficiency standards;
2. Individuals may make choices that limit electricity growth requirements; and,
3. The higher price of electricity, or the prospect of higher prices, may limit growth.

From a modeling perspective any or all of the above factors is represented by slower electricity growth. Note that by electricity growth I mean the rate of change in the number of annual MWhs required to meet demand by control area. For the purposes of modeling the CO_2 case, I limited the year-on-year annual growth in MWhs in any given control area to 1% in those control areas where the growth, in the Base Case, was greater than 1%. Growth rates below 1% were left unchanged.

Q. On pages 8 and 9 of her testimony, Ms. Deevy questions Hill & Associate's assumption that renewables would be at 12% of generation requirements by 2010 and later increase to 20%. Please explain the basis for that assumption.

A. First, let me clarify that by renewables, as used in the development of the CO_2 Case, I mean all generating technologies, with the exception of nuclear, that do

not emit GHGs in the stage where electricity for the grid is created. For the most part, this includes hydro, geologic heat sources, solar, bio-mass and wind. Biomass is included even though it emits CO_2 because the growth of the biomass fuel consumes the CO_2 emitted. Nationwide, about 10% of the nation's generation comes from these sources. Many states have already stipulated renewable standards as an initial step in limiting GHGs. In designing a plausible CO_2 scenario I assumed that states more generally would continue this practice. Although the real world implementation of such a strategy would likely result in a wide variety of state standards, I applied the 12% to all states generically for the purposes of developing this Case as I believe this is a reasonable projected average for state renewable standards in a carbon-constrained scenario.

Q. On page 9 of her testimony, Ms. Deevy asserts that Hill & Associates assumed that nuclear units will be considered "non-emitters." Did you account for CO_2 emissions sometimes associated with non emitting technologies such as nuclear?

A. To the extent that these emissions are associated with electricity demand, such as required for the enrichment of uranium, they are accounted for. In the model I added 12 nuclear plants in the CO_2 Case, again as a plausible response by the electric industry to provide affordable non GHG emitting generation. As I discussed previously, electricity demand was adjusted. This adjustment accounts for the additional electricity needed to process the nuclear fuel, manufacture solar photovoltaic panels, etc.

Q. On pages 9 and 10 of her testimony, Ms. Deevy questions Hill & Associates' assumption that aggressive reductions in other industries would be a source of CO_2 allowances for EGUs going forward. Why did you make that assumption?

A. I assumed that some relief would be provided to the EGU sector in the interest of maintaining affordable electricity rates because each $1 per ton of CO_2 adds about $1 dollar per MWh (1 mil/kwh) to the cost of coal-fired generation and about $.50 per MWh (.5mil/kwh) to gas-fired generation. The removal of CO_2 from conventional coal- and gas-fired EGUs, and even from IGCC plants, is expected to be very costly – perhaps as much as $20 to $40 per ton of CO_2 not including the cost of impounding the CO_2 once it has been sequestered. Additionally, while coal- and gas-fired EGUs, as a group, are the largest emitters of GHGs they only contribute just over 1/3 of the nation's total emissions. Given the high cost of removing CO_2 emissions from EGUs, I assumed that some of the reductions in other sectors would come at lower cost therefore providing some relief to the EGUs.

Q. Finally, on page 10 of her testimony, Ms. Deevy questions Hill & Associates' assumption that EGUs will be provided some form of relief to buffer electricity customers from higher electricity costs. Will energy companies profit from any such relief in the EGU related CO_2 cap?

A. It is very unlikely that *electric* companies will profit from this type of relief. Even with the relief there are few, if any, owners of fossil-fueled EGUs that will be able to profit from CO_2 cap relief. The fact that CO_2 allowances have

positive value indicates that they will be an additional cost born by EGU owners. The owners of EGUs will try to pass these costs on to customers. Relief from the cap would perhaps spare *rate payers* the capital and operational and maintenance (O&M) expense of sequestering and impounding CO_2. Competition will keep wholesale electricity prices at or near the price of the marginal unit which in turn will be lower due to the lower cost of CO_2 allowances.

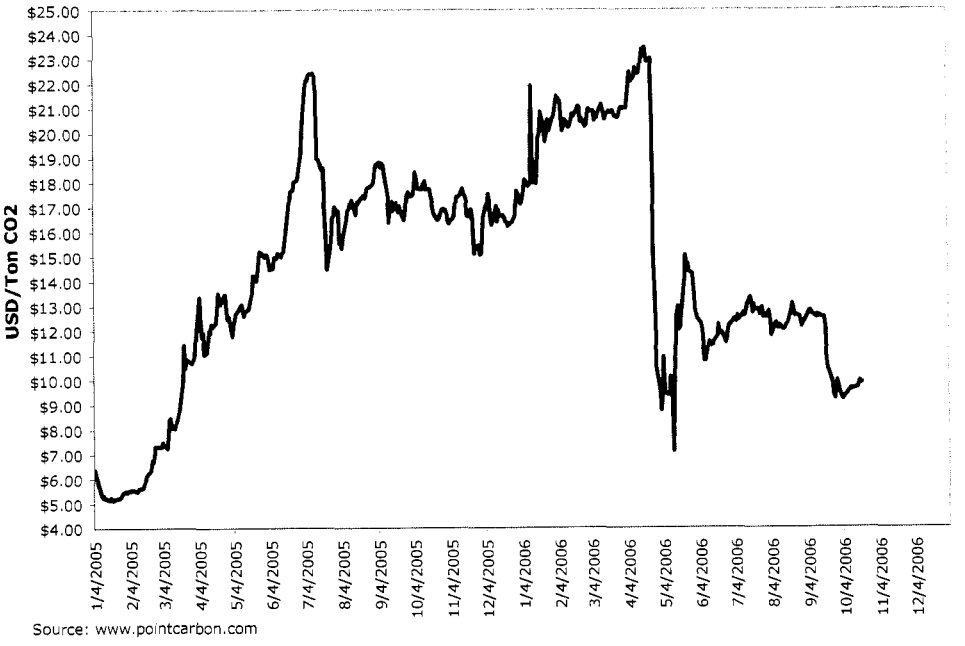
Q. Do the points raised in Ms. Deevy's testimony lead you to question the reasonableness of your CO_2 allowance price forecast?

A. No. As discussed above, our allowance price forecast was developed using a comprehensive model which accounts for fundamental market factors such as electricity demand and fuel supply/price relationships as well as the cost of actions potentially necessary to meet environmental goals. Ms. Deevy's criticisms primarily relate to assumptions concerning the components of a CO_2 regulatory program that has not been adopted. This simply underscores the high degree of uncertainty inherent in developing CO_2 allowance price forecasts unless and until a specific regulatory program is enacted and the regulators determine how such a program would be implemented.

Q. Does this conclude your rebuttal testimony?

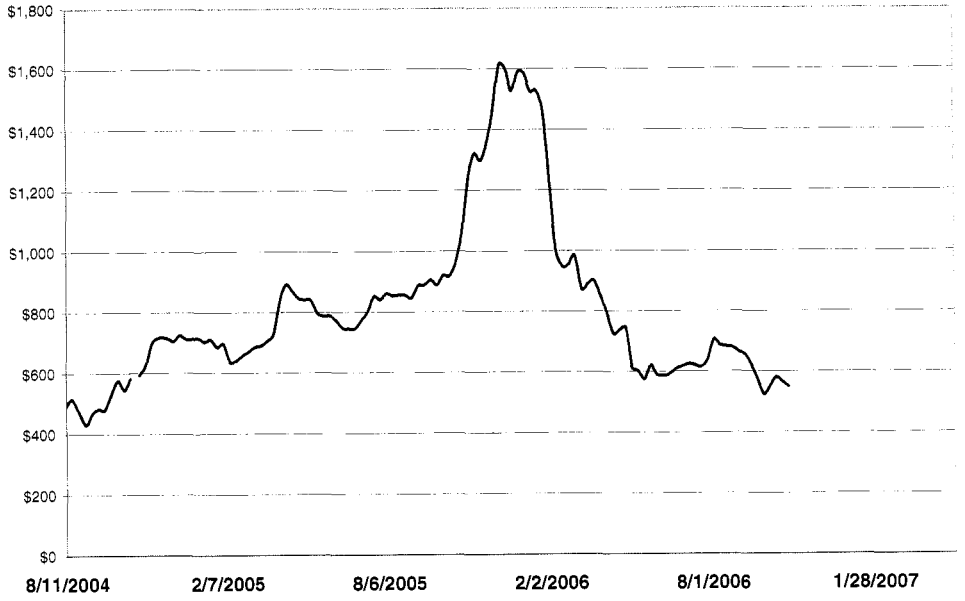
A. Yes.

European CO2 Allowance Price Trend



Source: www.pointcarbon.com

US SO2 Allowance Prices



Source: Energy Publishing, Coal & Energy Price Report