CALPINE CORPORATION

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May 31, 2011

Via Hand Delivery

Alisa Carrow Bentley, Secretary
Delaware Public Service Commission
861 Silver Lake Boulevard
Cannon Building, Suite 100
Dover, Delaware 19904

Re: Delaware PSC Docket No. 10-2

Dear Ms. Bentley:

Enclosed please find, on behalf of Calpine Corporation, an original and 15 copies of its Comments in the above-referenced proceeding.

Please contact me directly should you have any questions regarding this matter.

Very truly yours,

John Citrolo
302-319-0169

Cc:\
Service List

BEFORE THE PUBLIC SERVICE COMMISSION

OF THE STATE OF DELAWARE

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IN THE MATTER OF INTEGRATED
RESOURCE PLANNING FOR THE
PROVISION OF STANDARD OFFER SERVICE PSC DOCKET 10-
BY DELMARVA POWER & LIGHT COMPANY

UNDER 26 *DEL. C.* §1007(c) & (d)
(OPENED JANUARY 11, 2011)

May 31, 2011

INITIAL COMMENTS OF CALPINE CORPORATION IN RESPONSE TO DELMARVA POWER & LIGHT COMPANY'S INTEGRATED RESOURCE PLAN

Pursuant to the approved procedural schedule in this case, Calpine Corporation ("Calpine") offers the following comments in response to Delmarva Power & Light Company's ("Delmarva Power") Integrated Resource Plan ("IRP") filed on December 1, 2010. In these comments, Calpine addresses the following:

1. The IRP fails to address steps the state could take to mitigate its growing reliance on electricity imports and fails to adequately address pending environmental regulations that will exert upward pressure on regional power prices. Such steps could include a procurement process that includes new and existing generation resources to address reliability concerns and mitigate the potential adverse cost impacts arising from these regulatory actions. Furthermore, to the extent the Commission finds that there is a specific reliability need in Southern Delaware and that generation resources should be acquired in

that area, the process it uses should be competitive and open to both new and existing resources;

2. The IRP understates the importance of developing flexible gas-fired generation to operationally balance the additional development of the potential growth of intermittent renewable generating resources;

3. The IRP does not adequately comply with Rule 6.1.4 of the Commission's Integrated Resource Planning for the Provision of Standard Offer Service by Delmarva Power & Light Company, in that it ignores the environmental impacts related to power supplied from out-of-state resources. (See *26 Del. Admin. Code § 3010, ¶ 6.1.4,* See also, *Delaware Energy Plan 2009-2014, submitted to Governor Jack Markell by The Governor's Energy Council, March 26, 2009, at pp. 27-28*); and

4. The IRP does not adequately comply with Rule 6.1.5 of the Commission's IRP rules by understating the impact on Delaware's environmental footprint from demand-side resources that rely on on-site generators to maintain electric consumption levels during a demand-side response call. (See *Id.*, ¶ *6.1.5.* See also *Delaware Energy Plan 2009-2014 at page 92*)

INTRODUCTION

Calpine is a Delaware corporation engaged in the development, financing, acquisition, ownership, and operation of independent power production facilities and the wholesale marketing of electricity in the United States and Canada. Through various subsidiaries, Calpine owns, leases, and operates natural gas-

fired and renewable geothermal power plants in 20 states and Canada with an aggregate capacity of nearly 27,500 MW.

Calpine owns 19 plants and approximately 4,500 MW of gas-fired generation in five Mid-Atlantic States in the PJM region, including 1,800 MW in the State of Delaware. Calpine owns and operates the largest portfolio of electric generating assets in Delaware.

BACKGROUND

The Electric Utility Retail Customer Supply Act of 2006 ("the Act") directs Delmarva Power to file an IRP with the Commission, the Delaware Energy Office (the "Energy Office"), the Controller General, and the Director of the Office of Management and Budget (collectively, the "State Agencies"). (See *26 Del. C. 1007(c), as amended by 75 Del. Laws ch. 242 § 6 (2006)*) The Act requires Delmarva Power to systematically evaluate all available supply options (including procurement, generation, transmission, conservation and load management) over a ten-year planning period. (*Id.*)

Delmarva Power filed its initial IRP under the Act on December 1, 2006. The Commission opened Docket No. 07-20 in January 2007 to perform its oversight and review of the integrated resource planning process (See *Order No. 7122*). In August 2007 the Commission opened PSC Regulation Docket No. 60 (See *Order No. 7263)* to consider the development of rules and regulations to accomplish integrated resource planning for Delmarva Power's Standard Offer Service ("SOS") customers.

On September 22, 2009, the Commission closed docket No. 07-20 and directed Delmarva Power to file an IRP which complies with the newly adopted IRP regulations (See *Order No. 7628*) by May 31, 2010. *(See Orders No. 7661, 7755)*

Subsequent to its initial IRP filing on December 1, 2006, Delmarva Power filed revised IRP's on March 5, 2008, May 15, 2008, November 5, 2008 and December 1, 2010.[1]

DISCUSSION

The IRP fails to address steps the state could take to address reliability concerns and mitigate its growing reliance on electricity imports, especially in light of pending environmental regulations that will exert upward pressure on power prices. Such steps could include undertaking a competitive procurement process to mitigate the potential adverse rate impacts arising from these regulatory actions.

The State of Delaware continues to be a significant net importer of electricity, relying on out-of-state power resources for more than half of the state's overall electric power needs. Much of these imports are from higher emissions sources that will inevitably face rising costs in order to comply with pending emissions regulations. Delaware's reliance on these power imports is likely to increase under the pending IRP if the proposed Mid-Atlantic Power Pathway ("MAPP") transmission project is constructed.

[1] http://depsc.delaware.gov/documents/Public%20IRP%20Filing.pdf *May 2011*

In its 2009 report, the Governor's Energy Council (*29 Del. § 8055*) reported that in 2006 Delaware's net electricity generation was 52% of demand and that this imbalance is expected to continue into the near future. (See *Delaware Energy Plan 2009-2014, ("Report") pp. 27-28*) Delaware's level of imported electricity actually rose from 48% in 2006 to 57% in 2009.

Much of the out-of-state generation upon which Delaware relies for reliability is considered "at risk" due to those generators' high emissions rates coupled with high future costs to comply with pending federal environmental regulations, such as the U.S. Environmental Protection Agency's ("EPA") Hazardous Air Pollutant Maximum Achievable Control Technology ("MACT") rules and the Transport Rule. (*75 Fed. Reg. 45210 et seq.*) The Transport Rule, for example, targets power plant emissions in *upwind* states that contribute to ambient air quality non-attainment in *downwind* states. The EPA estimates the cost that power plants will incur to comply with the rule will be over $5 Billion by the end of 2014. (*Id. at 45438*) These additional costs will lead to higher prices and also could force economic retirements of numerous affected facilities that currently participate in the regional market.

In PJM's capacity and energy markets, compliance with the Transport Rule has been estimated to increase prices approximately 35% and 7% respectively. (*BernsteinResearch, July 29, 2010 at p. 2*) The three primary drivers resulting in upward price pressure in these markets are: 1) Retirement of generation units reducing supply resources; 2) Increased cost recovery for units that perform the upgrades to units needed for compliance; and 3) The execution

of Reliability Must Run ("RMR") contracts by PJM with units that otherwise would retire. RMR units are defined as generation units designated as *must operate* but not available to be dispatched economically. (*PJM Manual 35: Definitions and Acronyms*)

Because of the regional nature of the grid, Delaware is likely to see upward pressure on electricity prices as out-of-state non-complying units retire. Or, in lieu of retirement, some non-complying generators may be designated as RMR units, forcing Delaware's electricity customers to experience the indignant irony of simultaneously paying more for electricity and further aggravating Delaware's pervasive ambient air quality challenges.

In order to hedge against the potential cost increases associated with upcoming EPA regulations, the Commission should consider undertaking an all-source competitive procurement process to lock in a least-cost wholesale power price for its consumers. This all-source competitive procurement process would not only allow Delaware consumers to benefit from low-cost existing or new generation capacity, but would also allow Delaware to capture the considerable benefits associated with reliable and low-cost domestic natural gas supplies from regional shale resources.

This increased supply of abundant regionally-produced natural gas has significantly reduced the volatility of otherwise historically highly volatile natural gas prices. This recent development has dramatically increased the underlying economic attractiveness of gas-fired generation across the east coast. Delaware can now reap the benefit of this paradigm-shifting development and should

consider a process to lock in this benefit for its consumers, in order to provide them with a stable price outlook for capacity and energy – despite the expected retirement of significant amounts of older, coal-fired capacity across the PJM footprint.

Furthermore, to the extent the Commission finds that there is a specific reliability need in Southern Delaware and wants to acquire generation resources in that area, the process it uses should be competitive and open to both new and existing resources.

The IRP understates the importance of developing flexible gas-fired capacity to operationally balance the additional development of intermittent renewable generating resources.

The inherently intermittent nature of renewable energy resources, such as wind and solar, present significant reliability challenges for electrical grid system operators and planners. For example, PJM currently assigns a capacity factor of 13 percent for wind in comparison to a 93 percent capacity factor for a natural gas plant. (See *PJM Manual 21, Rules and Procedures for Determination of Generating Capability, Appendix B, at Calculation Procedure,* ¶ *(1)(H)*.)

Thus, any viable plan for the deployment of wind and solar resources must rely on traditional generating resources as a backstop to ensure electrical grid system reliability. Consequently, the "true" cost of intermittent renewables – from both an economic and environmental perspective – includes both the cost of the renewable resource itself and the necessary backup generation. Natural gas-fired plants are often the best solution in this regard because of their low cost and their ability for fast startups and flexible ramping and load following capability,

including the ability to provide ancillary services such as spinning reserves and reactive power. Reactive power must be provided locally and cannot be efficiently imported into an area such as Delmarva Power's service territory. Natural gas-fired generation is flexible, reliable and versatile; it is a natural complement to wind and solar intermittent renewable energy sources.

The IRP fails to address the environmental impacts of power produced beyond the state's borders.

As noted by the Governor's Energy Council, Delaware's dependence on power imports, "indicates that strategies to reduce the environmental footprint of Delaware's energy use need to consider the environmental footprint of electricity supplied from out-of-state, as well as that of EGU's [electric generation utilities] within the State." (*Id.*)

The Commission is mindful of this import imbalance and sought to address it by adopting Rule 6.1.4 which requires an IRP to:

> Include a current evaluation, detailing and giving consideration to environmental benefits and externalities associated with the utilization of specific methods of energy production. This evaluation need not be based on original research by the Company and may rely on published research and peer reviewed scientific and/or medical studies commonly available. To the extent that any reliable, relevant peer reviewed published research and scientific and/or medical studies commonly available include life cycle analyses encompassing energy extraction, transport, generation and/or use, the Company shall include such research and studies in its evaluation. (Emphasis added) (*26 Del. Admin. Code § 3010, ¶ 6.1.4)*

The Department of Natural Resources & Environmental Control (DNREC) is charged with formulating strategies and pollution control initiatives to attain and maintain health and welfare based National Ambient Air Quality Standards ("NAAQS") in order to ensure that Delaware's environment and the health of its residents are not adversely affected by air pollution.

NAAQS are designed to preserve human health and are established on a pollutant-by-pollutant basis for the three Delaware Air Quality Control Regions (New Castle, Kent and Sussex Counties). Each Region may be designated as either "attainment" or "non-attainment" which are the standards measuring air quality data within the geographic boundary. For example, New Castle and Kent Counties are regulated as "severe" non attainment regions for ozone, and all three Delaware Counties have also been designated as being in "moderate" non attainment for the existing 8 hr ozone Standard. (See 40 CFR Part 81)

DNREC has promulgated numerous air quality control regulations limiting the formation of air pollutants, ozone and fine particulate matter in Delaware. For example, DNREC's nitrogen oxides ("NOx") control initiative has resulted in significant NOx emission reductions from Delaware's power plants. (*DNREC Regulation Number 1146, EGU Multipollutant Regulation; Regulation No. 1148 Control of Stationary Combustion Turbine Electric Generating Unit Emissions.*)

Despite efforts such as this to control emissions from major Delaware based sources of ozone precursors - power plants, in particular - Delaware is unable to attain and maintain the ozone (and fine particulate) ambient standards due to sources outside of Delaware's boundaries (upwind sources) not being

adequately controlled. (See *EPA Docket #: EPA-HQ-QAR-2010-0295, "Comments [of DNREC] on Proposed Rule 75 FR 32612, 6/8/10, Standards of Performance for Stationary Compression Ignition and Spark Internal Combustion Engines", August 5, 2010. ("Hughes Letter"); See also, Id., September 8, 2010 ("Mirzakhalili Letter 2010")*

In December 2008 DNREC filed a petition with the Administrator of the EPA requesting that the EPA find that Electric Generating Units ("EGU") in certain states – Maryland, Michigan, New Jersey, New York, North Carolina, Ohio and Pennsylvania, Virginia and West Virginia – are emitting pollutants in violation of the Clean Air Act. (*42 U.S.C. § 7401*) (See *EPA Docket #: EPA-HQ-QAR-2008-0708)* This section of the Act prohibits any source or emission activity within a state "from emitting any air pollutant in amounts which will contribute significantly to non-attainment in, or interfere with maintenance by, any other State with respect to and such primary or secondary ambient air quality standard." (*§ 110(a)(2)(D)(i)*)

While the IRP reviews the environmental attributes of three modeled energy supply scenarios (See *IRP at page 5*), there is no equivalent health effects modeling or ambient air quality assessment related to electric power imports – despite the large impacts that emissions from out-of-state resources can have on air quality in Delaware.

Thus, the IRP does not capture the true costs of electricity transported over high-voltage transmission lines, which must include the overall costs to

Delaware's environment and human health. (See *26 Del. Admin. Code § 3010, ¶ 6.1.4*)

The more Delaware relies on transmission to import its electricity, the more likely these high cost and high polluting coal plants from other states will experience longer run times and further exacerbate Delaware's non-attainment of ambient air quality standards.

The use of localized, clean and energy efficient natural gas-fired generation complies with DNREC's standards and does not aggravate Delaware's non-attainment issues. Newly constructed local natural gas-fired generation, operating to serve the electric demand of Delaware customers, will greatly reduce the likelihood that high polluting out-of-state coal plants will negatively influence Delaware air quality.

The IRP understates the environmental impacts of certain types of Demand Response resources.

As seen in the results of PJM's most recent capacity auction, Demand Response ("DR") resources are becoming more prevalent in the region's overall supply adequacy portfolio. Some types of DR, however, are simply customer-sited "back-up" generators that have less-than-optimal environmental attributes.

Historically, these types of backup generators provided electricity in situations when the regional electric grid fails and electricity is needed to avoid damages and loss. In the case of hospitals, "back-up" generation provides an invaluable mechanism that saves lives. This type of "demand-response"

electrical generation is commonly referred to as Emergency Response Generation.

However, it appears that recently "electric utilities have devised demand response programs that are directly contrary to the anticipated use of emergency power generation and whose impacts are directly and adversely related to increased air emissions." (See EPA Docket #: *EPA-HQ-QAR-2008-0708, DNREC Petition for Reconsideration, April 30, 2010. DNREC Petition 2010*)

The IRP fails to adequately calculate the true cost of demand-response by not factoring in the increased air emissions from customer-sited "back-up" generation resources.

Rather than curtailing actual demand for power, these types of DR resources simply displace electricity that otherwise would be provided via the regional power grid. Moreover, these smaller customer-sited generators can result in an overall increase in emissions because they are not as strictly controlled as traditional generating resources. (See, *DNREC Petition 2010, at p. 5.* See also *"World" of Distributed Generation in Delaware, 2008 Report)* Approximately 97% of Delaware's demand-response generators use diesel fuel to power their on-site generation equipment.

The IRP must adequately account for the true costs of all electrical generation by calculating the net benefits of demand response, including emission impacts from customer sited generation operating under the auspices of demand response, emission from customer sited generation in upwind states,

as well as retail pricing programs that shift customer consumption to base load coal generation resources.

Conclusion

Calpine urges the Commission to take steps to mitigate its growing over-reliance on electricity imports, especially in light of pending environmental regulations that will exert upward pressure on power prices. Such steps could include a procurement process that includes new and existing generation resources to address reliability concerns and mitigate the potential adverse rate cost impacts arising from these regulatory actions. Furthermore, to the extent the Commission finds that there is a specific reliability need in Southern Delaware and that generation resources should be acquired in that area, the process it uses to acquire that generation should be competitive and open to both new and existing resources.

Respectfully submitted,

CALPINE CORPORATION

By: Sarah G. Novosel

Sarah G. Novosel
Senior Vice President, Government Affairs
and Managing Counsel
Calpine Corporation
1401 H Street, NW, Suite 510
Washington, DC 20005

May 31, 2011

CERTIFICATE OF SERVICE

I hereby certify that on May 31, 2011, I served the foregoing comments on each person listed on the official service list for this docket.

John Citrolo