



State of New Jersey
DIVISION OF RATE COUNSEL
140 EAST FRONT STREET, 4TH FL
P.O. BOX 003
TRENTON, NEW JERSEY 08625

PHIL MURPHY
Governor

SHEILA OLIVER
Lt. Governor

STEFANIE A. BRAND
Director

March 6, 2019

Via Electronic Mail and USPS Regular Mail

Mr. Peter Van Brunt
Deputy Attorney General
Department Of Law and Public Safety
Division of Law
P.O. Box 45029
Newark, New Jersey 07101

**Re: I/M/O the Implementation of L. 2018, C. 16 Regarding the
Establishment of a Zero Emission Certificate Program for Eligible
Nuclear Power Plant
BPU Dkt. No. EO18080899**

Dear Mr. Van Brunt:

Enclosed for please find the Division of Rate Counsel's response to Staff's discovery request in the above matter. The question was numbered as RC-S-1 for reference purposes. Please contact me if you have any questions or concerns. Thank you.

Very truly yours,

STEFANIE A. BRAND
DIRECTOR, DIVISION OF RATE COUNSEL

By:



Brian O. Lipman, Esq.
Litigation Manger

Enclosure
BOL/lg

**I/M/O THE IMPLEMENTATION OF L. 2018,
C. 16 REGARDING THE ESTABLISHMENT
OF A ZERO EMISSION CERTIFICATE
PROGRAM FOR ELIGIBLE NUCLEAR
POWER PLANTS
BPU Dkt. No.: EO18080899
CONFIDENTIAL LIST**

Stefanie Brand, Director
Division of Rate Counsel
140 E. Front St., 4th floor
P O Box 003
Trenton, NJ 08625

Brian O. Lipman, Esquire
Division of Rate Counsel
140 E. Front St., 4th floor
P O Box 003
Trenton, NJ 08625

Felicia Thomas-Friel, Esquire
Division of Rate Counsel
140 E. Front St., 4th floor
P O Box 003
Trenton, NJ 08625

Ami Morita, Esquire
Division of Rate Counsel
140 E. Front St., 4th floor
P O Box 003
Trenton, NJ 08625

Sarah Steindel, Esquire
Division of Rate Counsel
140 E. Front St., 4th floor
P O Box 003
Trenton, NJ 08625

Diane Schulze, Esquire
Division of Rate Counsel
140 E. Front St., 4th floor
P O Box 003
Trenton, NJ 08625

Lisa Gurkas
Division of Rate Counsel
140 E. Front St., 4th floor
P O Box 003
Trenton, NJ 08625

Debora Layugan
Division of Rate Counsel
140 E. Front St., 4th floor
P O Box 003
Trenton, NJ 08625

Celeste Clark
Division of Rate Counsel
140 E. Front St., 4th floor
P O Box 003
Trenton, NJ 08625

Max Chang
Synapse Energy Economics, Inc.
485 Massachusetts Ave., Suite 2
Cambridge, MA 02139

Andrea Crane
The Columbia Group
2805 East Oakland Park Boulevard, #401
Ft. Lauderdale, FL 33306

Robert Fagan
Synapse Energy Economics, Inc.
485 Massachusetts Ave., Suite 2
Cambridge, MA 02139

Benjamin Witherell
NJ Board of Public Utilities
44 So. Clinton Avenue, Ste. 314
P O Box 350
Trenton, NJ 08625

Thomas Walker, Director
NJ Board of Public Utilities
44 So. Clinton Avenue, Ste. 314
P O Box 350
Trenton, NJ 08625

Noreen Giblin, Esquire
NJ Board of Public Utilities
44 So. Clinton Avenue, Ste. 314
P O Box 350
Trenton, NJ 08625

Aida Camacho Welch
NJ Board of Public Utilities
44 So. Clinton Avenue, Ste. 314
P O Box 350
Trenton, NJ 08625

Paul Flanagan, Executive Director
NJ Board of Public Utilities
44 So. Clinton Avenue, Ste. 314
P O Box 350
Trenton, NJ 08625

Stacy Ho Richardson, Esq.
NJ Board of Public Utilities
44 So. Clinton Avenue, Ste. 314
P O Box 350
Trenton, NJ 08625

Stacy Peterson, Director
NJ Board of Public Utilities
44 So. Clinton Avenue, Ste. 314
P O Box 350
Trenton, NJ 08625

Kevin Nedza
NJ Board of Public Utilities
44 So. Clinton Avenue, Ste. 314
P O Box 350
Trenton, NJ 08625

Bethany Rocque Romaine, Esq.
NJ Board of Public Utilities
44 So. Clinton Avenue, Ste. 314
P O Box 350
Trenton, NJ 08625

Joseph Snow, AAG
Department of Law & Public Safety
124 Halsey Street, 5th Floor
Newark, NJ 07101

Alex Moreau, DAG
Department of Law & Public Safety
124 Halsey Street, 5th Floor
Newark, NJ 07101

Caroline Vachier, DAG
Department of Law & Public Safety
124 Halsey Street, 5th Floor
Newark, NJ 07101

Timothy Oberleiton, DAG
Department of Law & Public Safety
124 Halsey Street, 5th Floor
Newark, NJ 07101

Geoffrey Gersten, DAG
Department of Law & Public Safety
124 Halsey Street, 5th Floor
Newark, NJ 07101

Carolyn McIntosh, DAG
Department of Law & Public Safety
124 Halsey Street, 5th Floor
Newark, NJ 07101

Renee Greenberg, DAG
Department of Law & Public Safety
124 Halsey Street, 5th Floor
Newark, NJ 07101

Charlie Gurkas
NJ Board of Public Utilities
44 So. Clinton Avenue, Ste. 314
P O Box 350
Trenton, NJ 08625

Cindy Bianco
NJ Board of Public Utilities
44 So. Clinton Avenue, Ste. 314
P O Box 350
Trenton, NJ 08625

Danny Wong
NJ DEP
401 East State Street
Trenton, NJ 086258

Bachir Bouzid
NJ DEP
401 East State Street
Trenton, NJ 086258

David Owen
NJ DEP
401 East State Street
Trenton, NJ 086258

Ed Tsikirayi
Levitan & Associates
20 Custom House Street, Suite 830
Boston, MA 02110

Seth Parker
Levitan & Associates
20 Custom House Street, Suite 830
Boston, MA 02110

John Bitler
Levitan & Associates
20 Custom House Street, Suite 830
Boston, MA 02110

Peter Van Brunt, DAG
Department of Law & Public Safety
124 Halsey Street, 5th Floor
Newark, NJ 07101

Jeffrey W. Mayes, General Counsel
Monitoring Analytics, LLC
2621 Van Buren Avenue, Suite 160
Eagleville, PA 19403

Philip J. Passanante, Esq.
500 No. Wakefield Dr., P O Box 6066
Newark, DE 19714

Steven Goldenberg, Esq.
Giordano, Halleran & Ciesla
125 Half Mile Road, Suite 300
Red Bank, NJ 07701

Susan DeVito, Director
Pepco Holdings LLC
500 No. Wakefield Dr., P O Box 6066
Newark, DE 19714

Gregory Eisenstark
Windels Marx Lane & Mittendorf
120 Albany Street Plaza
New Brunswick, NJ 08901

Robert Oostdyk, Jr., Esq.
Murphy McKeon
51 Route 23 So., P O Box 70
Riverdale, NJ 07457

Jason Lampmann
Borough Administrator
One JCP&L Road
Butler, NJ 07405

Mark Mader, Director
JCP&L
300 Madison Avenue
Morristown, NJ 07962

Tom Donadio
JCP&L
300 Madison Avenue
Morristown, NJ 07962

Sally Cheong
JCP&L
300 Madison Avenue
Morristown, NJ 07962

Caitlyn White
PSE&G
80 Park Plaza, P O Box 570
Newark, NJ 07102

Joseph Accardo, Jr.
PSE&G
80 Park Plaza, P O Box 570
Newark, NJ 07102

Matthew Weissman,
PSE&G
80 Park Plaza, P O Box 570
Newark, NJ 07102

Justin Incardone, Esq.
PSE&G
80 Park Plaza, P O Box 570
Newark, NJ 07102

Michele Falcao
PSE&G
80 Park Plaza, P O Box 570
Newark, NJ 07102

Hesser McBride, Jr., Esq.
PSE&G
80 Park Plaza, P O Box 570
Newark, NJ 07102

Michael McFadden
PSE&G
80 Park Plaza, P O Box 570
Newark, NJ 07102

Bernard Smalls
PSE&G
80 Park Plaza, P O Box 570
Newark, NJ 07102

Steven Swetz
PSE&G
80 Park Plaza, P O Box 570
Newark, NJ 07102

William Atzl
Rockland Electric Company
4 Irving Place
New York, NY 10003

Cheryl Ruggerio
Rockland Electric Company
4 Irving Place
New York, NY 10003

Margaret Comes, Esquire
Rockland Electric Company
4 Irving Place
New York, NY 10003

President Joseph L. Fiordaliso
NJ Board of Public Utilities
44 So. Clinton Avenue, Ste. 314
P O Box 350
Trenton, NJ 08625

Evelyn Liebman
Director of Advocacy
AARP New Jersey State Office
303 George Street, Suite 505
New Brunswick, NJ 08901

Janine Bauer, Esq.
Szaferman, Lakind, Blumstein & Blader
101 Grovers Mill Road, Suite 200
Lawrenceville, NJ 08648

Paul F. Forshay, Esq.
Eversheds-Sutherland (US) LLP
700 Sixth Street, N.W.
Suite 700
Washington, DC 20001-3980

Naju R. Lathia, Esq.
Day Pitney LLP
One Jefferson Road
Parsippany, NJ 07054

Glen Thomas
GT Power Group, LLC
101 Lindenwood Drive, Suite 225
Malvern, PA 19355

Jeanne Dworetzky
Exelon Corporation
101 Constitution Avenue, Suite 400 E
Washington, DC 20001

Sierra Club
New Jersey Chapter
145 West Hanover Street
Trenton, NJ 08618

Doug O'Malley, Director
Environment New Jersey
104 Bayard Street, Fl. 2
New Brunswick, NJ 08901

Florence Davis
Day Pitney LLP
242 Trumbull Street
Hartford, CT 06103

James Blackburn
Day Pitney LLP
1100 New York Avenue, NW
Washington, DC 20005

William Harla, Esq.
Decotiis, Fitzpatrick, Cole & Giblin, LLP
Glenpointe Centre West
500 Frank W. Burr Boulevard
Teaneck NJ 07666

Jennifer S. Hsia, Esq.
NRG Energy, Inc.
804 Carnegie Center
Princeton, NJ 08540

Martin Rothfelder, Esquire
Rothfelder Stern, LLC
407 Greenwood Avenue
Trenton, NJ 08609

**In the Matter of the Implementation of L. 2018, c. 16 Regarding the Establishment of a
Zero Emission Certification Program for Eligible Nuclear Power Plants
BPU Docket No. EO18080899**

RATE COUNSEL RESPONSE TO STAFF'S DISCOVERY REQUEST

RC-S-1 *Please describe how generators bidding into the PJM Energy and Capacity Markets typically cover their operational and market risks. Specifically, please discuss whether these risks are built into pricing bids (as defined by the PJM market guidelines), or assumed by the bidder?*

Response: We believe that there are three components to the answer to this question. These three parts are (1) PJM Energy Market Rules, (2) PJM Capacity Market Rules, and (3) PSEG's Processes.

PJM Energy Market Rules

Messrs. Fagan and Chang provide a very high level overview of the PJM energy market in their Certification that emphasized the concept of Locational Marginal Price (LMP).¹ To expand this discussion, PJM defines LMP as:

the marginal price for energy at the location where the energy is delivered or received. LMP is expressed in dollars per megawatt-hour (\$/MWh). LMP is a pricing approach that addresses Transmission System congestion and loss costs, as well as energy costs. Therefore, each spot market energy customer pays an energy price that includes the full marginal cost of delivering an increment of energy to the purchaser's location.²

PJM explicitly states that the components of LMP include:³

1. **System Energy Price:** the price at which the Market Seller has offered to supply an additional increment of energy from a generation resource or decrease an increment of energy being consumed by a Demand Resource. The System Energy Price may include a portion of the defined reserve penalty factors should a reserve shortage exist.
2. **Congestion Price:** the effect on transmission congestion costs (whether positive or negative) associated with increasing the output of a generation resource or decreasing the consumption by a Demand Resource, based on the effect of increased generation from or consumption by the resource on transmission line loadings. The Congestion Prices may include a portion of the defined reserve penalty factors should a reserve shortage exist.
3. **Loss Price:** is the effect on transmission loss costs (whether positive or negative) associated with increasing the output of a generation resource or decreasing the

¹ Fagan and Chang, Certification, page 9.

² PJM Manual 11: Energy & Ancillary Services Market Operations Revision 104, February 7, 2019, page 18. Available at: <https://www.pjm.com/~media/documents/manuals/m11.ashx>

³ Ibid. Page 19.

consumption by a Demand Resource, based on the effect of increased generation from or consumption by the resource on transmission losses.

In of itself, LMPs do not explicitly incorporate either market or operational risk for the marginal unit that determines the LMP. In wholesale markets such as PJM, all units that are below the marginal unit are inframarginal units, which PJM simply defines as “a unit that is operating, with an accepted offer that is less than the clearing price.”⁴ Importantly, PSEG operates its nuclear units as baseload units that are constantly in operation regardless of LMPs. Since the baseload units operate generally regardless of LMPs, their profitability relies upon the difference between their costs and realized prices.

The Company’s summary of wholesale energy markets mirrors this premise as well:

Typically, the bid price of the last unit dispatched by an ISO establishes the energy market-clearing price. After considering the market-clearing price and the effect of transmission congestion and other factors, the ISO calculates the LMP for every location in the system. The ISO pays all units that are dispatched their respective LMP for each MWh of energy produced, regardless of their specific bid prices. Since bids generally approximate the marginal cost of production, units with lower marginal costs typically generate higher gross margins than units with comparatively higher marginal costs.⁵

PJM Capacity Market Rules

Messrs. Fagan and Chang provide an overview of the PJM capacity market in their Certification that emphasized the concept of market-clearing prices for capacity.⁶ Wholesale capacity markets also follow the general premise that the capacity clearing price is paid to all accepted bids regardless of specific bids.

PJM explicitly states that the components of Zonal Capacity Price include:⁷

1. The marginal value of system capacity for the PJM Region;
2. The Locational Price Adder, if any, for such zones in a constrained Locational Deliverability Area (LDA);
3. An adjustment in the Zone, if required, to account for any resource make-whole payments; and
4. An adjustment, if required, to account for price adders/decrements paid to product-specific resources

⁴ PJM Glossary. <https://www.pjm.com/Glossary.aspx?p=1>

⁵ PSEG 2018 10-K. February 28, 2019. Page 8. Available at: <https://investor.pseg.com/sec-filings>

⁶ Fagan and Chang. Certification, page 10.

⁷ PJM Manual 18: PJM Capacity Market Revision 41. January 1, 2019. Page 242. Available at: <https://www.pjm.com/-/media/documents/manuals/m18.ashx>

Similar to the energy market, the current components of costs in the PJM capacity market do not explicitly factor either market or operational risk for the marginal unit that determines the market-clearing prices for capacity markets.

Although the marginal unit cost components for the energy or capacity markets do not explicitly incorporate operational or market risk; the Company explicitly identifies and manages risks as part of its normal business operations.

PSEG's Process of Managing Risks

PSEG is a sophisticated participant in wholesale energy and capacity markets. The Company recognizes the risks associated with its business. In its most recent 10-K filing for the Securities Exchange Commission for 2018, the Company states:

The revenues provided by the operation of our generating stations are subject to market risks that are beyond our control. Generation output will either be used to satisfy wholesale contract requirements or other bilateral contracts or be sold into competitive power markets. Participants in the competitive power markets are not guaranteed any specified rate of return on their capital investments. Generation revenues and results of operations are dependent upon prevailing market prices for energy, capacity, ancillary services and fuel supply in the markets served. Changes in prevailing market prices could have a material adverse effect on our financial condition and results of operations.⁸

The Company then enumerates several of the operational and market risk factors:

- increases and decreases in generation capacity, including the addition of new supplies of power as a result of the development of new power plants, expansion of existing power plants or additional transmission capacity;
- power transmission or fuel transportation capacity constraints or inefficiencies;
- power supply disruptions, including power plant outages and transmission disruptions;
- weather conditions, particularly unusually mild summers or warm winters in our market areas;
- quarterly and seasonal fluctuations;
- economic and political conditions that could negatively impact the demand for power;
- changes in the supply of, and demand for, energy commodities;
- development of new fuels or new technologies for the production or storage of power;
- federal and state regulations and actions of the ISOs; and
- federal and state power, market and environmental regulation and legislation, including financial incentives for new renewable energy generation capacity that could lead to oversupply.⁹

The Company then goes on to state how it manages those risks :

⁸ PSEG 2018 10-K. Page. 26.

⁹ Ibid.

*Our generation business frequently involves the establishment of forward sale positions in the wholesale energy markets on long-term and short-term bases. To the extent that we have produced or purchased energy in excess of our contracted obligations, a reduction in market prices could reduce profitability. Conversely, to the extent that we have contracted obligations in excess of energy we have produced or purchased, an increase in market prices could reduce profitability. If the strategy we utilize to hedge our exposure to these various risks or if our internal policies and procedures designed to monitor the exposure to these various risks are not effective, we could incur material losses. Our market positions can also be adversely affected by the level of volatility in the energy markets that, in turn, depends on various factors, including weather in various geographical areas, short-term supply and demand imbalances, customer migration and pricing differentials at various geographic locations. These risks cannot be predicted with certainty.*¹⁰

Further in the same document, the Company explains that it manages risk through:

*The operations of PSEG, Power and PSE&G are exposed to market risks from changes in commodity prices, interest rates and equity prices that could affect their results of operations and financial condition. Exposure to these risks is managed through normal operating and financing activities and, when appropriate, through executing derivative transactions. Derivative instruments are used to create a relationship in which changes to the value of the assets, liabilities or anticipated transactions exposed to market risks are expected to be offset by changes in the value of these derivative instruments.*¹¹

While Rate Counsel does not have access to any specific generator's bidding strategies, it is clear that market revenues are meant to cover any bidder's costs and risks. Indeed, but for a subsidy, market revenues, including spot market sales, short-term contracts, long-term contracts, hedging instruments, derivatives, and operational efficiencies are a generator's source of income. That income presumably covers any risk the generator perceives, and will likely be part of its bidding strategy when participating in the PJM markets. Generators have done so, without subsidies, since the inception of wholesale markets, and those participants without subsidies will continue to do so.

While PJM does not explicitly include cost adders for market or operational risk in its energy and capacity market cost components, PSEG actively manages such risks as part of its operations. The Company manages those risks through a combination of spot market sales, short-term contracts, long-term contracts, hedging instruments, derivatives, and operational efficiencies. With or without the ZECs, we would expect PSEG to manage its operations to maximize shareholder value.

¹⁰ *ibid.* (emphasis added).

¹¹ PSEG 2018 10-K. Page. 66 [emphasis added?].