VIA ELECTRONIC MAIL

Ms. Aida Camacho-Welch
Secretary of the Board
New Jersey Board of Public Utilities
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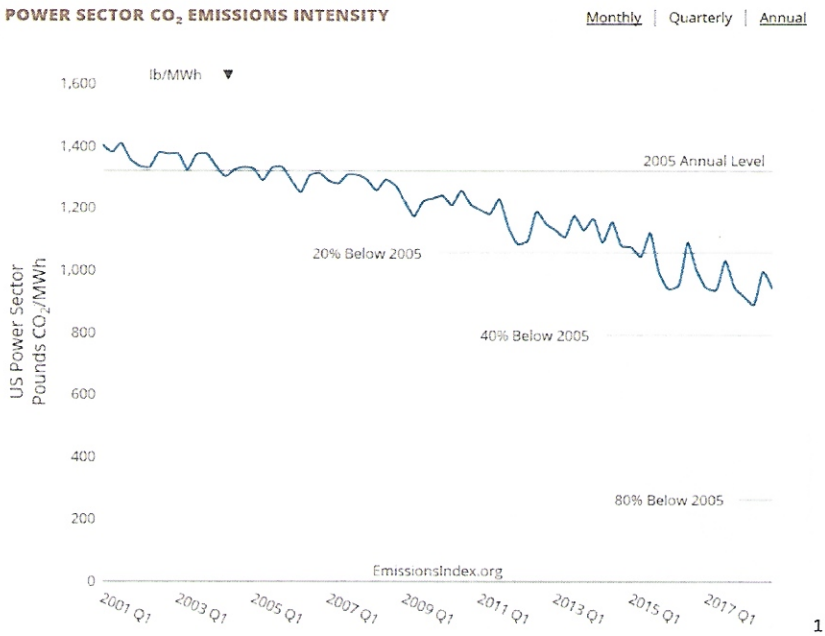
Dear Secretary Camacho-Welch:

Governor Murphy signed Executive Order 28 during May 2018, directing the New Jersey Board of Public Utilities (NJBPU) to update the New Jersey Energy Master Plan (EMP) in 2019. Mitsubishi Hitachi Power Systems Americas, Inc. (MHPS Americas) is submitting comments towards this process for consideration. The information presented herein reflects key public findings along with solutions to enable New Jersey to achieve the stated goal of transitioning toward 100% clean energy by 2050, and provide affordable, reliable and cleaner power generation for electricity customers.

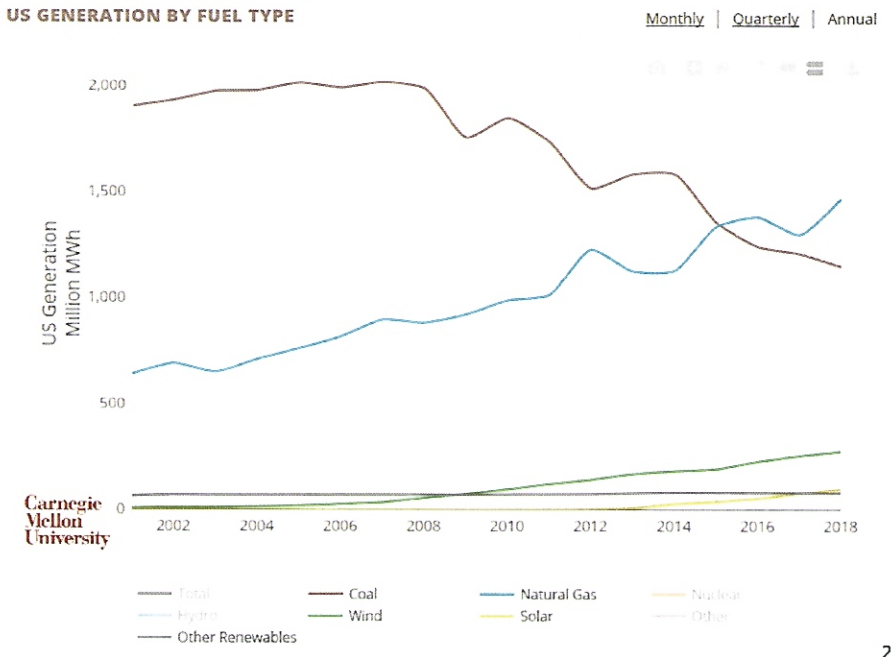
The deployment of natural gas and renewable resources has resulted in unprecedented reductions in carbon emissions throughout the United States. This transformation presented in Carnegie Mellon University's Power Sector Carbon Intensity Index (www.emissionsindex.org), presents publicly available emissions data from the EPA and DOE. Published quarterly, this study illustrates the decline of carbon intensity on the power grid by 29% since 2005. This reduction is due to the use of natural gas in place of coal, improved efficiency of new natural gas plants and deployment of renewables (Q4 2018 data).



[1]

[1] https://emissionsindex.org/#chart-1-view-2

The retirement of older fossil fuel units, that have lower efficiencies, greater emissions liabilities and therefore higher marginal costs, are being replaced throughout the United States with Advanced Class Gas turbine technology that is efficient and provides the flexibility to support nearby renewables. The chart below illustrates the change in generation mix that contributed to the decline in carbon intensity throughout the United States over the past fifteen years. Electricity generation from coal decreased by 757 Million MWh, while generation from natural gas increased by 828 Million MWh, and renewable generation increased by 378 Million MWh.



[2]

Replacing older coal or gas-fired boilers with advanced turbine technology can cut CO_2 emissions by nearly 70%. The advancement of combustor technology, efficiency, and emissions performance result in CO2 reduction. In fact, a .1% improvement in gas turbine efficiency can result in the reduction of CO2 equivalent to 13,000 cars and 4,500 households.

Electricity generated through highly efficient Advanced Class Gas turbines provides a necessary complement to renewable generation. While renewable energy resources dispatch ahead of conventional power plants, they often fail to meet the grid's need for dispatch-able capacity. Since renewables cannot generate in all circumstances, clean dispatch-able power generated with natural gas and other low-carbon fuels can meet the shortfall between renewable supply and demand, providing reliable capacity for the grid operator.

In support of the increased deployment of renewables, MHPS is developing technologies such as Very Low Load (VLL), which enables GTCC plants to produce and sell power complimentary to the dispatching of intermittent renewable resources. The adaptive controls and predictive analytics

[2] https://emissionsindex.org/#chart-2-view-3

associated with such technologies provide greater operational flexibility to support grid volatility. VLL technology allows a plant to scale back generation to a new lower-load within emissions compliance without shutting down. This lower-load operation can eliminate a stop & start cycle that would generate more emissions, and can reduce the emissions when a stop & start cycle is required. This functionality has the potential to significantly reduce a plant's overall emissions footprint. Additionally, this technology minimizes the electricity generated by the plant, therefore reducing the quantity of fuel needed for generation when maximizing renewable utilization.

We support the EMP's goal of protecting low and moderate income customers to ensure an energy transition does not negatively impact vulnerable communities. Based on the US Energy Information Administration, New Jersey ranks as having the 11th highest electricity expenditures in the country.[3] As a result, residential electric customers in New Jersey pay a rate ~20% higher than the national average.[4] As the state transitions toward a clean electricity sector, the increased cost of energy for residential, commercial, and industrial customers is an important factor when making significant changes.

A transition to 100% clean energy is an ambitious goal, and should be implemented in a manner which doesn't increase the cost burden onto New Jersey's low-income citizens. For this reason, the transition to a greener grid must be an all-of-the-above approach. New power generation using the combination of natural gas and renewables will move communities towards a smaller carbon footprint, while still providing a stable and reliable grid is attainable, if the increase in renewable resources are complemented by flexible and efficient gas-powered generation.

We commend the EMP for having the foresight to acknowledge advanced technologies which are in the R & D phase and not yet available, but should be taken into account when considering a state-wide energy plan. Advances in turbine technology and low-carbon fuel sources are continually being made in pursuit of a clean energy future. In fact, there are some technologies such as renewable hydrogen, which has been developed and tested to be capable of producing power with zero carbon emissions. In addition to the benefits of clean power production, renewable hydrogen power utilizes existing assets and infrastructure that were established for gas-powered generation. This enables large-scale clean power to be generated without creating stranded assets, prevents job losses from shuttering plants, and preserves land which would otherwise be required for the build-out of new generation.

For those reasons, we recommend New Jersey take a technology-neutral approach to allow for all options towards the achievement of a clean energy future. The continued advancements in turbine technology will support reduced emissions today, and as new technologies develop New Jersey will be in a position to capitalize on the most efficient, reliable, and economical options the market has to offer.

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[3] https://www.eia.gov/state/rankings/?sid=NJ#series/31

[4] https://www.eia.gov/electricity/monthly/epm_table_grapher.php?t=epmt_5_6_a

MHPS Americas appreciates the opportunity to provide comments on the Draft 2019 EMP. We recognize the importance of low carbon emissions electricity generation, and are committed to the advancement of clean energy technologies.

Sincerely,

Bill McCarthy
General Counsel & Corporate Secretary
Mitsubishi Hitachi Power Systems Americas