October 12, 2018

Grace Power
NJBPU Chief of Staff
Energy Master Plan Chair

Re: 2019 New Jersey Energy Master Plan

Dear Energy Master Plan Chair Grace Power:

The Alliance for Industrial Efficiency appreciates the opportunity to comment on the 2019 New Jersey Energy Master Plan (the "Energy Plan"). The Alliance for Industrial Efficiency is a diverse coalition that includes representatives from the business, labor, contractor, and academic communities, including nearly 200 member companies with a footprint in New Jersey. We are committed to enhancing manufacturing competitiveness and reducing emissions through industrial energy efficiency, particularly through the use of clean and efficient power generating systems, such as combined heat and power (CHP) and waste heat to power (WHP).

We commend New Jersey's leadership on energy efficiency by passing Assembly Bill 3723 (A-3723) and by re-entering the Regional Greenhouse Gas Initiative (RGGI). As the state continues to develop its Energy Plan and seeks to reduce its greenhouse gas (GHG) emissions, we encourage you to build upon these recent successes and to promote CHP and WHP deployment within the plan. In particular, we recommend the 2019 Energy Plan:

1. Commit the state to invest RGGI auction revenue in energy efficiency, defined to include CHP and WHP systems;
2. Reaffirm the state's CHP deployment target, as outlined in the 2015 Energy Plan; and
3. Include a plan to develop a CHP roadmap to increase accountability and ensure the target is achieved.

By generating both heat and electricity from a single fuel source, CHP dramatically lowers emissions and increases overall fuel efficiency – allowing utilities and companies to effectively "get more with less." CHP can operate using more than 70 percent of fuel inputs – compared to fossil-fueled power plants, which have an average efficiency of 33 percent.[1] As a consequence, CHP can produce electricity with roughly one-quarter the emissions of an existing coal power plant.[2] Due to its scale, a single CHP investment can achieve significant emissions reductions.

[1] U.S. EPA, Mar. 21, 2016, "CHP Benefits" (https://www.epa.gov/chp/chp-benefits).
[2] Natural Resources Defense Council (NRDC), Apr. 2013, "Combined Heat and Power Systems: Improving the Energy Efficiency of Our Manufacturing Plants, Building, and Other Facilities" (http://www.nrdc.org/energy/files/combined-heat-power-ip.pdf); David Gardiner & Associates and Institute for Industrial Productivity, Jul. 2015, "Combined Heat and Power as a Compliance Option under the CPP" (reporting incremental emissions of natural gas CHP of 450 to 600 lbs/MWh, compared to 2000 to 2200 lbs/MWh for coal) (http://www.dgardiner.com/wp-content/uploads/2015/08/CHP-Pathway-Final-Report-8-18-15.pdf).

WHP, which uses waste heat as its energy source to generate electricity and requires no additional fuel and generates no incremental emissions, provides similarly significant benefits. CHP and WHP can produce electricity while lowering costs for both host companies and all of New Jersey's utility customers.

Further, CHP enhances electric resiliency and reliability in two major ways.[3] First, because CHP systems have the ability to operate independently of the grid, they can provide reliability during a power outage. For example, while more than eight-million residents in the Mid-Atlantic lost power during Hurricane Sandy in October 2012 (2.6 million facilities being in New Jersey), CHP systems helped several large energy users, including Princeton University and The College of New Jersey, stay warm and bright. These islands of power acted as places of refuge for emergency workers, displaced people, and evacuated patients from medical facilities without power.[4] Critical infrastructure, such as hospitals, military installations, and manufacturing facilities with CHP have been able to keep the lights on during power outages that occurred during this disaster and others like it throughout the region.[5]

Second, CHP and WHP systems alleviate burdens on transmission and distribution lines because they depend on localized, on-site electricity generation. In this way, CHP and WHP can help avoid costs associated with investment in and construction of transmission infrastructure. Because of its resiliency and reliability benefits, CHP should be a key element of New Jersey's broader efforts to modernize its electric grid and make it more reliable.

The Energy Plan provides a timely opportunity for New Jersey to tap into its substantial remaining opportunity to increase deployment of CHP and WHP. According to a technical potential study from the Department of Energy, New Jersey has 3,796 MW of CHP technical potential capacity identified at 8,649 sites with 1,456 MW of remaining onsite technical potential in the industrial sector alone.[6] Yet, deployment lags behind this potential. Currently, the state has 250 CHP sites, generating 3,183 MW of clean and efficient power and no WHP sites.[7] A report from the Alliance for Industrial Efficiency found that if an economically viable portion of the state's CHP and WHP was deployed,[8] New Jersey's industrial sector customers would save

[3] Alliance for Industrial Efficiency, 2018, "CHP Response in Natural Disaster Mitigation: Delivering Reliability, Saving Lives" (https://bit.ly/2mTDsmk).
[4] *See, e.g.,* U.S. EPA, June 18, 2014, 79 Fed. Reg, 34830, 34899, "Carbon Pollution Emission Guidelines for Existing Stationary Sources: Electric Utility Generating Units" (noting that CHP "reduce[s] demand for centrally generated power and thus relieve[s] pressure on the grid.")
[5] U.S. Department of Energy, U.S. Department of Housing and Urban Development, and U.S. Environmental Protection Agency, Sep. 2013, "Guide to Using Combined Heat and Power for Enhancing Reliability and Resiliency in Buildings" (https://www.hud.gov/sites/documents/ENERGY_CHP_FOR_RC.PDF).
[6] U.S. Department of Energy, Mar. 2016, "Combined Heat and Power (CHP) Technical Potential in the United States," Table 2 (https://bit.ly/2N7QfN0).
[7] U.S. DOE Combined Heat and Power Installation Database (https://doe.icfwebservices.com/chpdb/state/NJ).
[8] Percentage of the state's technical potential for CHP with less than 10-year payback period.

approximately $10 billion on electricity costs from 2016 to 2030,[9] demonstrating the importance of CHP to increasing manufacturing competitiveness.

For these reasons, we encourage you to promote the deployment of CHP and WHP in the 2019 Energy Plan. One way to do so is to invest RGGI auction proceeds in energy efficiency and CHP programs in particular. For example, auction revenues could be leveraged to invest in CHP and WHP, expand the reach of utility energy efficiency programs, and provide technical assistance for energy efficiency projects in the commercial and industrial sectors. Other RGGI states have experienced many benefits from investing RGGI funds in energy efficiency. From the latest RGGI investment data, energy efficiency represents the largest portion of both 2016 and cumulative RGGI investments.[10] Energy efficiency makes up 55 percent of 2016 RGGI investments and 58 percent of cumulative investments. Programs funded by these investments in 2016 are expected to return $822.8 million in lifetime energy bill savings to over 176,000 participating households and 2,430 businesses in the region.[11] Further, CHP programs are included within the energy efficiency programs of several of these states. For example, the Maryland Energy Administration's Combined Heat and Power Grant Program is funded through RGGI proceeds and resulted in 16.5 MW of CHP capacity installed in 2016, through 10 awards of over $4 million combined.[12] New Jersey should likewise use a portion of its RGGI auction revenue to support CHP.

Another approach is to reaffirm the state's CHP deployment target. New Jersey's 2015 Energy Master Plan established a goal to develop 1,500 MW of new CHP by 2021.[13] This target is approximately 40 percent of remaining technical potential, as identified by the Department of Energy. Several other states have established similar CHP targets, as summarized in the table below.

Table 1. States with CHP Deployment Targets in Energy Plans

State	CHP Technical Potential[14]	CHP Deployment Target	Percentage of Remaining Technical Potential
Rhode Island	616 MW	400 MW by 2035[15]	65%

[9] The Alliance for Industrial Efficiency, Sep. 2016, "State Ranking of Potential Carbon Dioxide Emission Reductions through Industrial Energy Efficiency" (http://alliance4industrialefficiency.org/wp-content/uploads/2016/09/FINAL-AIE-State-Industrial-Efficiency-Ranking-Report_9_15_16.pdf). Unpublished data on results from CHP and WHP deployment alone.
[10] The Regional Greenhouse Gas Initiative, Sep. 2018, "The Investment of RGGI Proceeds in 2016" (https://www.rggi.org/sites/default/files/Uploads/Proceeds/RGGI_Proceeds_Report_2016.pdf).
[11] *Id.*
[12] RGGI, *supra* note 10.
[13] New Jersey Board of Public Utilities and New Jersey Department of Environmental Protection, Dec. 2015, "New Jersey Energy Master Plan Update" (https://nj.gov/emp/docs/pdf/New_Jersey_Energy_Master_Plan_Update.pdf).
[14] DOE, *supra* note 6.
[15] Rhode Island Division of Planning, Oct. 8, 2015, "Energy 2035: Rhode Island State Energy Plan" (http://www.planning.ri.gov/documents/LU/energy/energy15.pdf).

State	CHP Technical Potential[14]	CHP Deployment Target	Percentage of Remaining Technical Potential
California	11,772 MW	6,500 MW by 2030[16]	55%
Virginia	4,308 MW	750 MW by 2030[17]	17%
New Jersey	3,796 MW	1,500 MW by 2021[18]	40%

Since New Jersey's target expires in 2021, we recommend that the 2019 Energy Plan reaffirm the target on a longer timeframe. As the 2015 Energy Plan states:

> Of all the DG systems promoted and advanced by New Jersey, including solar, CHP is the most energy efficient and cost effective in terms of emission reductions. Because of its ability to run continuously, it also improves and enhances local energy resiliency and reliability and can provide the basis for a microgrid.[19]

Recognizing that New Jersey has not yet met the target that was set in its 2015 Energy Master Plan, we further encourage the state to develop a CHP roadmap to identify a path forward. As an example, Michigan recently released a "CHP Roadmap for Michigan."[20] This Roadmap was developed in response to the Michigan Legislature's interest in developing a new comprehensive energy plan for Michigan and Governor Snyder's goal of meeting 30 to 40 percent of Michigan's energy demand by a combination of energy waste reduction efforts and renewable energy by 2025. Likewise, a New Jersey CHP and WHP Roadmap would be an appropriate next step. We recommend that a working group inform the plan, while New Jersey explores the possibility of funding it with potential assistance from the Department of Energy.[21]

Ultimately advancing CHP and WHP in New Jersey will enhance the resiliency, competitiveness, availability and security of the state's energy infrastructure. We commend the New Jersey Board of Public Utilities and the New Jersey Department of Environmental Protection for their work in drafting the Energy Plan and believe these three recommendations will ensure that CHP and WHP are a part of the state's clean energy future. We welcome further discussion on how we can support your efforts to advance CHP and WHP deployment in the state.

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[16] California Energy Commission, "2015 Integrated Energy Policy Report" (http://www.energy.ca.gov/2015_energypolicy/).
[17] Virginia Office of the Secretary of Commerce and Trade, Department of Mines, Minerals and Energy, Oct. 2, 2018, "The Commonwealth of Virginia's 2018 Energy Plan" (https://bit.ly/2E0iH47).
[18] New Jersey Board of Public Utilities and New Jersey Department of Environmental Protection, Dec. 2015, "New Jersey Energy Master Plan Update" (https://nj.gov/emp/docs/pdf/New_Jersey_Energy_Master_Plan_Update.pdf).
[19] NJBPU and NJDEP, *supra* note 13.
[20] Michigan Agency for Energy, 5 Lakes Energy, Sustainable Partners LLC, Energy Resources Center, NextEnergy, Feb. 2018, "CHP Roadmap for Michigan" (https://bit.ly/2viAH1L).
[21] Note that the Michigan CHP Roadmap was supported by the U.S. Department of Energy and the Michigan Agency for Energy under Award No. DE-EE0006226.

Thank you for the opportunity to comment.

Sincerely,

Jennifer Kefer
Executive Director
Alliance for Industrial Efficiency