



September 13, 2019

RE: Energy Master Plan
Via Electronic Mail

Dear Energy Master Plan Committee Members:

Environmental Defense Fund (“EDF”) commends Governor Murphy and his administration for the thoughtful and thorough approach they have taken to develop the Draft 2019 Energy Master Plan: Policy Vision to 2050 (“Draft Plan”), and thanks the Energy Master Plan Committee (the “Committee”) for this opportunity to provide responses to questions posed in connection with its development. EDF is a national non-profit membership organization engaged in linking science, economics and law to create innovative, equitable and cost-effective solutions to society’s most urgent environmental problems. EDF has more than 2.5 million members and activists nationwide and over 90,000 in New Jersey. EDF has been active in New Jersey on environmental issues since the 1970’s.

Overall Feedback

Since the Energy Master Plan process commenced last year, New Jersey has continued on its path toward a 100% clean energy economy by awarding its first offshore wind development project, strengthening the Global Warming Response Act (“GWRA”) by prioritizing short-lived climate pollutants like methane and requiring interim emissions reduction targets, and adopting the rules to rejoin RGGI. But as devastating storms like Hurricane Dorian and floods and fires become the norm, we are increasingly reminded that there is much more to do and that it must be done quickly.

In comments submitted on October 12, 2018 (the “EDF October Comments”), we provided extensive recommendations re: “building a modern grid.” The June 2019 Draft EMP captures many important pathways for modernizing the grid. However, a recommendation not captured and one that we hope the New Jersey Board of Public Utilities (“BPU”) will further consider is to first develop a grid modernization roadmap “including guiding principles and priorities through robust stakeholder input” before proceeding with utility-specific mandates. Goal 5.1.1 of the Draft EMP, requiring the utilities to develop Integrated Resource Plans (“IRPs”) is welcome. However, we reiterate the need to establish a well-defined starting point and that “the utilities and stakeholders perform a self-assessment to understand what the present state of the grid is, including grid functionalities and distribution system planning; what and where the data gaps are

and how much work needs to be done to reach state goals. Such a process is important because of how different distribution systems are across territories and because it will help prioritize the key functionalities and technologies NJ's future grid must have.”

Concerning natural gas, we would like to comment on two matters: (1) advanced leak detection and leak quantification methods, which is addressed in the Draft EMP, and (2) gas supply planning, a matter that is not addressed in the Draft EMP.

Advanced Leak Detection. At pages 79-80, the Draft EMP recognizes the importance of eliminating methane leaks from the state's gas distribution system as “crucial to meeting the 80x50 greenhouse gas emission reductions,” and recommends that the BPU instruct all gas distribution utilities to incorporate advanced leak detection technology into their operations. The Final EMP should adopt this recommendation. Use of advanced leak detection techniques can maximize cost effective methane reductions consistent with the State's climate goals—both its general greenhouse gas emissions reductions goals and the goals for short-lived climate pollutants that will be adopted under the new amendment to the GWRA. Utilities in New Jersey and elsewhere have already demonstrated how this technology can provide a triple win—leading to reduced emissions, improved safety, and cost savings. For example, Public Service Electric & Gas Company (“PSE&G”), in coordination with EDF, used advanced leak detection technology to quantify methane emissions in its service territory to inform prioritization of its gas system modernization program. In reporting on this effort, PSE&G concluded that the use of advanced leak detection technology is “better for the environment, [provides] less chance of non-hazardous leaks getting worse, [and results in] fewer potential customer calls/complaints.”¹ In a settlement approved by the BPU on June 12, 2019, Elizabethtown Gas recently committed to integrating advanced leak detection technology into its operations and has acknowledged that advanced leak detection technology can “drive the state's emission reduction goals.”²

In further support of the benefits advanced leak detection can provide, EDF is attaching the expert affidavit of Virginia Palacios (Attachment A). Ms. Palacios first explains how gas distribution companies' use of advanced leak detection technology and leak quantification methods can maximize cost effective methane reductions consistent with the State's climate goals. Next, Ms. Palacios describes the opportunities these technological advancements are creating for gas distribution companies—in New Jersey and elsewhere. Finally, Ms. Palacios explains the benefits of this cutting edge technology and using its resulting data to prioritize leak abatement and pipeline replacement decisions. For all of these reasons, the Final EMP should

¹ PSE&G, Presentation: Replacement Main Prioritization -- A Practical Application of Using Risk and Methane Emissions, at 26 (May 2, 2019) (attached as Exhibit VP-4).

² EDF, Press Release: New Jersey Gas Utilities Embrace New Technology to Cut Greenhouse Emissions (Aug. 7, 2019) (quoting Elizabethtown Gas President Christie McMullen), <https://www.edf.org/media/new-jersey-gas-utilities-embrace-new-technology-cut-greenhouse-emissions>.

adopt the recommendation that all gas distribution utilities should incorporate advanced leak detection technology into their operations.

Gas Supply Planning. Although New Jersey’s natural gas system is implicitly raised as an issue in the Draft EMP (in connection with the section on decarbonizing heat and the section on decarbonizing electric generation, both of which envision reduced reliance on natural gas, as well as in connection with the requirement that gas utilities reduce natural gas consumption), the document does not address how the State’s natural gas policies will or will not interfere with attainment of the State’s climate goals. We would encourage the Committee to recognize that this is a challenge in its own right, which will need to be addressed, and to that end we offer some particular recommendations for the Committee’s consideration.

The strategies and goals in the Draft EMP touching on natural gas underscore the importance of considering the impact of current and future state policies on gas utilities’ prospective demand and supply needs. Rigorous electrification targets will impact gas capacity needs and uses, which will in turn require thoughtful planning of the rate recovery of gas infrastructure, including considering whether creative financing mechanisms such as accelerated depreciation are needed in order to calculate the appropriate useful life of an asset.³

To date, there remains a significant disconnect between New Jersey’s natural gas policies and its ambitious climate goals. For example, New Jersey’s policy is to “foster the production and delivery of electricity and natural gas in such a manner as to lower costs and rates and improve the quality and choices of services for all of the State’s consumers.”⁴ Additionally, the BPU is tasked with establishing programs that foster a competitive natural gas environment.⁵ Furthermore, natural gas line extensions are a clear priority for New Jersey gas utilities, and under their BPU-approved tariffs, utilities often incentivize new pipeline construction projects by offering to install the infrastructure free of charge if the cost of installation does not exceed ten times the estimated annual distribution revenue to be realized from the extension.⁶ Shielding individual ratepayers from the cost of extending gas lines to their premises—which may in many cases be substantial—may bias building owners’ decisions in favor of natural gas building heat, undermining any efforts that may be undertaken to encourage building owners and developers to rely on electric heating systems, whose entire upfront cost is borne by such building owners or

³ See generally Environmental Defense Fund, *Managing the Transition -- Proactive Solutions for Stranded Gas Risk in California* (2019),

https://www.edf.org/sites/default/files/documents/Managing%20the%20Transition_1.pdf.

⁴ N.J. Stat. Ann. § 48:2-21.24 (West).

⁵ *Id.*

⁶ See, e.g., NJNG Tariff, available at <https://www.njng.com/regulatory/pdf/Tariff%207-1-19.pdf>; Elizabethtown Gas Company Tariff, available at

<https://www.elizabethtowngas.com/Elizabethtown/media/PDF/Regulatory%20Info/Elizabethtown-Gas-TARIFF-NO-16.pdf>; and South Jersey Gas Tariff, available at

<https://southjerseygas.com/SJG/media/pdf/SJG-Tariff-No-12-Effective-07-1-19-Pricing.pdf>.

developers. A continued business-as-usual approach to gas expansion could hinder the State from meeting its emissions limits and interfere with the specific strategies proposed in the Draft EMP (such as targeting new construction for electrification of heating).

The Draft EMP also underscores the importance of requiring gas utilities to demonstrate that their gas portfolio decisions conform to and are consistent with State climate policy and greenhouse gas reduction goals. To date, however, gas utilities have generally not provided the tools or means to assess and weigh climate impacts of new natural gas infrastructure. As one example, several of New Jersey's gas utilities have signed up for 15 years of transportation service on the PennEast Pipeline,⁷ despite the significant estimated emissions associated with this project.⁸ Without quantitative or empirical tools to assess whether energy supply choices are consistent with ambitious state climate goals, New Jersey will be making crucial energy decisions in the dark. The Final EMP should require that any proponent of prospective natural gas supply infrastructure must demonstrate that such infrastructure conforms to, and is consistent with, State climate policy and greenhouse gas reduction goals.⁹

In addition to considering the climate impacts of new natural gas infrastructure, the Final EMP should also institute refinements to the gas supply planning process in New Jersey more generally. The current process is replete with deficiencies. To begin, significant infrastructure decisions are being made before state regulators have an opportunity to assess whether it is prudent for gas utilities to take service on new pipelines, including those pipelines developed by the gas utilities' midstream affiliates. Although the risks associated with affiliate transactions have been well documented,¹⁰ the Federal Energy Regulatory Commission ("FERC") has refused to look beneath affiliate precedent agreements, explicitly relying on state regulators to oversee

⁷ *PennEast Pipeline Company, LLC*, Order Issuing Certificates, 162 FERC ¶ 61,053 (Jan. 19, 2018), <https://www.ferc.gov/CalendarFiles/20180119195524-CP15-558-000.pdf>.

⁸ The Federal Energy Regulatory Commission ("FERC") estimates that full combustion of the Project's gas capacity would emit 21.3 million metric tons of carbon dioxide equivalent emissions per year. PennEast Pipeline Project Final Environmental Impact Statement, FERC Docket No. CP15-558 at 4-254 (April 7, 2017).

⁹ National Grid has put forth a model for how this could be accomplished in the context of a long-term transportation contract, providing an evaluation of the life cycle greenhouse gas emissions associated with operation of the Northeast Supply Enhancement Project. https://www.mjbradley.com/sites/default/files/MJBA_NESE_LCA_06112019.pdf.

¹⁰ *Cross-Subsidization Restrictions on Affiliate Transactions*, Order No. 707, 122 FERC ¶ 61,155 at P 4 (2008) ("a franchised public utility and an affiliate may be able to transact in ways that transfer benefits from the captive customers of the franchised public utility to the affiliate and its shareholders."); *Office of the Pub. Counsel v. Missouri Pub. Serv. Comm'n*, 409 S.W.3d 371, 377 (Mo. 2013) ("[a]s long as a [utility] is engaged in both monopoly and competitive activities, it will have the incentive as well as the ability to 'milk' the rate-of-return regulated monopoly affiliate to subsidize its competitive ventures"); *Midland Cogeneration Venture Ltd Partnership v Public Service Comm'n*, 501 N.W.2d 573, 586 (Mich. Ct. App. 1993) ("it is well recognized that expenses incurred in transactions between utilities and their affiliates deserve special scrutiny, given the potential lack of arms-length bargaining and improper subsidization of the affiliate's unregulated operations through the utility's rates").

and review these arrangements.¹¹ State utility commission review of the prudence of these types of contracts, however, does not occur until after the pipeline is placed into service. These are not merely abstract concerns but have been raised repeatedly in the context of the PennEast Pipeline, where several New Jersey gas utilities are both owner and shipper.¹² Heightened BPU review of these affiliate relationships is warranted, especially in light of the record evidence submitted to FERC demonstrating that no market need exists for PennEast’s capacity¹³ and that the PennEast Pipeline is not needed to meet peak winter demand, not even for a single day, during extreme weather events.¹⁴ But to date, there appears to be no forum to address these concerns before the pipeline is built.¹⁵

In addition, gas supply decisions are largely made behind closed doors, with little opportunity for stakeholders to provide input. An audit report conducted by NorthStar Consulting Group of New Jersey Natural Gas and its affiliates concludes that “the current planning process is inadequate to support portfolio decisions,”¹⁶ citing a plethora of concerns, including:

¹¹ *PennEast Pipeline Company, LLC*, 164 FERC ¶ 61,098 at P 18 (2018) (FERC explaining that its “jurisdiction does not extend to costs incurred by LDCs or the rates they charge their retail customers...state regulatory commissions will be responsible for approving any expenditures by state-regulated utilities.”); *Spire STL Pipeline LLC*, 164 FERC ¶ 61,085 at P 85 (2018) (“oversight of the procurement decisions of local distribution companies is best left to state regulators.”).

¹² *PennEast Pipeline Company, LLC, Order Issuing Certificates*, Docket No. CP15-558-000, 162 FERC ¶ 61,053 (January 19, 2018), at 2 (fn 3) (“PennEast is a joint venture owned by Red Oak Enterprise Holdings, Inc., a subsidiary of AGL Resources Inc. (20 percent interest); NJR Pipeline Company, a subsidiary of New Jersey Resources (20 percent interest); SJI Midstream, LLC, a subsidiary of South Jersey Industries (20 percent interest); UGI PennEast, LLC, a subsidiary of UGI Energy Services, LLC (20 percent interest); and Spectra Energy Partners, LP (20 percent interest)”). PennEast shippers include New Jersey Natural Gas Company, South Jersey Gas Company, Elizabethtown Gas, among others.

¹³ *PennEast Pipeline Company, LLC*, FERC Docket No. CP15-558, Affidavit of David E. Dismukes, Ph.D. at P 10 (September 12, 2016) (“I have analyzed the forecasted peak day requirements of PSE&G, SJG, Elizabethtown, UGI Utilities, UGI Central Penn Gas, and PECO through 2020” which “show that these LDCs have stable loads with little forecasted growth.”), <https://elibrary.ferc.gov/idmws/common/opennat.asp?fileID=14353576>.

¹⁴ Greg Lander for the New Jersey Conservation Foundation, *Analysis of Regional Pipeline System’s Ability to Deliver Sufficient Quantities of Natural Gas During Prolonged and Extreme Cold Weather*, FERC Docket No. CP15-558 (February 11, 2018), <https://elibrary.ferc.gov/idmws/common/opennat.asp?fileID=14820469>.

¹⁵ EDF sought to intervene and raise these concerns in three gas utilities’ Basic Gas Supply Service proceedings, arguing that the annual BGSS proceedings should involve review of gas utility “overall gas purchasing strategies.” See BPU Docket No. GR19050675, BPU Docket No. 19050678, and BPU Docket No. GR19050679. The Board recently denied EDF’s interventions in all three proceedings, noting that EDF could raise its issues in “other appropriate proceedings” such as the Energy Master Plan, among others. See *Decision and Order Approving Stipulation for Provisional BGSS, BSC, and CIP Rates* at 7, Docket No. GR19050675 (Sept. 11, 2019); *Decision and Order Approving Stipulation Regarding Provisional BGSS Rate* at 6, Docket No. GR19050678 (Sept. 11, 2019); *Decision and Order Approving Stipulation for Provisional BGSS, BSC, and CIP Rates* at 8, Docket No. GR19050679 (Sept. 11, 2019).

¹⁶ NorthStar Consulting Group, *Audit of Affiliated Transactions between New Jersey Natural Gas Company and New Jersey Resources and Affiliates* at 108 (June 26, 2014),

- There is no consideration of year-round system capacity relative to non-peak system requirements, no assessments of alternative delivery options (e.g., winter only or peaking contracts), and no consideration of uncertainties in future demand, market prices or other supply risks.¹⁷
- Because of the limitations of the Peak Day study and BGSS projection process, NJNG is not able to consider the cost to ratepayers of its continued reliance on year-round contracts compared to other supply delivery options, such as winter season-only contracts or multi-day peak period contracts with firm delivery to a city gate.¹⁸
- The documentation supporting procurement decisions made by NJNG during the audit period is insufficient to confirm that the decisions made were the best among available options.¹⁹

Finally, while some utilities have started to consider and rely on non-pipeline alternatives to satisfy needs,²⁰ these types of solutions are not being integrated into utilities' formal planning and needs assessments or being compared to traditional solutions on an apples-to-apples basis.

As these deficiencies demonstrate, ratepayers and the public interest would be served by a more robust and transparent gas supply planning process. The Final EMP should consider three types of changes to improve this process: (1) procedural changes to allow for increased stakeholder participation and input; (2) changes to how the BPU should review and consider gas supply information, by explicitly linking a utility's long-term gas supply plan to the ultimate costs that are recovered; and (3) changes to the types of information utilities should submit to better inform gas supply decision-making. In Attachment B, EDF provides an excerpt of Gregory Lander's testimony in Consolidated Edison Company of New York Inc.'s pending gas and electric rate case before the New York Public Service Commission, where Mr. Lander outlines suggested refinements to the New York gas supply planning process. In Attachment C, EDF provides a Joint Memorandum submitted to the Rhode Island Public Utilities Commission by the Public Utilities Commission's Division of Public Utilities and Carriers (i.e., the Staff) and Narragansett

<https://www.bpu.state.nj.us/bpu/pdf/auditpdfs/NorthStar%20NJNG%20Audit%20Final%20Report%206-26-14%20double%20sided.pdf>.

¹⁷ *Id.* at page 108.

¹⁸ *Id.*

¹⁹ *Id.* at page 109.

²⁰ For example, building upon the efforts of its upstate utility, National Grid filed a Non-Pipeline Alternative Incentive Mechanism as part of its 2019 rate case, acknowledging the "societal benefits of adopting more modern, cost-effective alternatives to traditional gas supply and gas transmission/distribution system solutions." *Proceeding on Motion of the Commission as to the Rates, Charges, Rules, and Regulations of KeySpan Gas East Corp. d/b/a National Grid for Gas Service*, Case No. 19-G-0310 *et al.*, Future of Heat Panel, Exhibit FOH-11 at page 3. Central Hudson Gas & Electric Corporation proposes a non-pipeline alternative called a "Transportation Mode Alternative," which would retire non-essential sections of leak prone pipe and convert existing natural gas users to alternate forms of energy sources. Central Hudson Gas & Electric Corporation's Compliance Filing of its 2020-2024 Corporate Capital Forecast, Cases 17-E-0459 and 17-G-0460 at page 1 (July 1, 2019).

Electric Company (a National Grid company) setting forth revisions to the gas supply planning process in Rhode Island. Both of these examples could inform an approach for New Jersey and would lead to numerous benefits, including a more thorough framework for utilities to consider alternatives that would have lower all-in costs to consumers and that would help the State achieve its climate goals.

Specific Questions Posed in the Notice

Below, EDF responds to particular questions posed in the Notice of Draft Energy Master Plan Stakeholder Meetings, dated June 10, 2019. Although we are not including every question, we are retaining the original numbering of the questions as set forth in the notice.

Strategy 1: Reduce Energy Consumption and Emissions from the Transportation Sector

1) In considering the policy mechanisms suggested in Strategy 1, how should the state seek to implement the policies to reduce transportation-related emissions? What policy mechanisms have we missed?

There are a plethora of vitally important policy mechanisms suggested in Strategy 1, but one that is not addressed expressly is a price on greenhouse gas emissions. The transportation sector is the source of 42% of New Jersey's greenhouse gas emissions,²¹ making emissions from this sector a high priority if New Jersey is to achieve its greenhouse gas reduction goals. The ability of fossil-fueled vehicles to pollute for free will soon give them an unfair advantage over vehicles whose emissions are subject to a carbon price -- i.e., electric vehicles, whose energy source will soon be subject to a price on carbon via the RGGI. The Transportation and Climate Initiative ("TCI"), of which New Jersey is a member, is currently the most likely source of a price on carbon in the transportation sector. New Jersey should remain an active participant in the TCI process to ensure that TCI continues to move forward to the state's satisfaction.

2) The state seeks to "lead by example" in the electrification of its fleet. What case studies, cities, states, etc. should New Jersey look to and learn from as it rolls out clean light-duty vehicles and buses?

Globally, electrification of buses is well underway. For a particularly informative case study, we suggest the rollout currently underway in Antelope Valley, CA. Although Antelope Valley does not have a climate like that of New Jersey, this rollout includes many of the attributes that support successful rollouts.

²¹ N.J. Department of Environmental Protection, Transportation and Emissions webpage, available at <https://www.state.nj.us/dep/aces/opea-trans-emissions.html> (last visited Sept. 13, 2019).

Antelope Valley Transit Agency (“AVTA”) has had marked success in rolling out its electric bus fleet. It started out with 30 electric buses, which collectively passed the 1 million mile mark this past spring. AVTA plans to have a 100% electric fleet of 75 BYD buses by the end of this year. Its initial order of buses included sixteen 45-foot commuter coaches and thirteen 60-foot articulated buses.²² The Agency worked with its electric utility, Southern California Edison, to understand the electric supply to its facility, and with I.O. Controls to manage peak charging requirements and take advantage of lower electric prices in the evenings.²³ AVTA’s comparatively mindful approach to its rollout, which allowed it to consider and account for key factors including actual road conditions and electric supply issues prior to committing to a full rollout, appears to have been a recipe for success.

3) Over what timeline should the state seek to rollover its light-duty (passenger) fleet to EV? Over what timeline should the state rollover its bus fleet? Please also consider incremental milestones.

We would recommend the following timeline for electrification of buses, including transit buses, school buses, and airport shuttle buses:

- 2025: 50% of new vehicles should be electric.
- 2030: 100% of new vehicles should be electric.
- 2040: 100% of all vehicles should be electric.

This timeline is based on the expectation that electric buses will reach upfront price parity with diesel buses by 2030, as forecasted by BloombergNEF.²⁴

4) How can the state work with the private sector to increase publicly-accessible EV charging infrastructure?

Although publicly accessible fast charging is often thought of primarily as an issue for passenger vehicles, range anxiety is an issue for the owners of medium- and heavy-duty vehicles as well. The state should work with commercial fleets to understand their needs for opportunity charging to complement depot charging.

Additionally, as a general matter, availability of fast charging stations may also be influenced by the electric service pricing applicable to such fast charging stations.

Especially early on, high demand and low overall consumption may make demand-based

²² Antelope Valley Transit Authority, Electric Bus Fleet Conversion webpage, available at <https://www.avta.com/electric-bus-fleet-conversion.php> (last visited Sept. 13, 2019).

²³ *Best Practices: Operating a Fleet of Electric Buses*, MASS TRANSIT (Apr. 23, 2018), available at <https://www.masstransitmag.com/technology/article/12404881/best-practices-operating-a-fleet-of-electric-buses>.

²⁴ Bloomberg New Energy Finance, ELECTRIC VEHICLE OUTLOOK 2019 at 69.

rates financially unmanageable for owners of publicly-accessible fast charging infrastructure – and, if price signals are passed onto the customer, could be a disincentive for electrification for the customer. The State can help overcome this potential disincentive to developing fast charging infrastructure by providing bill protection and/or rate structures that insulate the owners of fast charging stations from this effect, and/or by working with those owners to develop battery storage to be used in tandem with the fast charging, to simultaneously build up battery storage in New Jersey and provide a way to manage the demand patterns of DCFC stations.

- 5) How can the state work with the private sector to advance the technology for medium- and heavy-duty vehicles and incentivize private sector adoption of alternative fuel vehicles?

Incentivizing Private Sector Adoption. At the present time, high upfront costs are a significant barrier to uptake, despite potentially lower lifetime costs due to cheaper energy and maintenance. Many of the most salient tools for overcoming this barrier are mentioned in the Draft EMP, and our main recommendation would be to proceed to adopt those tools. For example, at page 34, the Draft EMP proposes that “New Jersey should... consider truck and bus voucher programs to significantly reduce the incremental cost of purchasing EVs over their conventional counterparts, or explore a state-wide procurement mechanism wherein the batteries in EVs are leased, thereby reducing the up-front cost of one comparable to a new diesel vehicle, and allowing the reduced operating costs... to cover the battery lease payments over time.” Voucher programs are currently operational in the region and technical experts like CALSTART could be mobilized to support quick implementation and leverage local fleets’ familiarity with this mechanism making New Jersey the next leading market for zero-emission commercial vehicles. Another useful tool for increasing uptake would be competitive grant and loan programs to which fleet owners can apply for funding for electrification projects. Such programs can go beyond the assistance provided by vouchers insofar as they can be designed to fund infrastructure projects as well as the purchase of actual vehicles. Such programs can be described with prescriptive features, such as targeting deployment to communities with particularized environmental justice or public health needs.

Advancing Technology. Different types of medium- and heavy-duty vehicles are in need of different types of R&D. In the specific case of electric transit buses, EDF recommends communication between New Jersey Transit and bus manufacturers. New Jersey Transit should discuss with manufacturers the conditions in which transit buses need to be able to operate. For example, New Jersey faces both extreme heat and extreme cold. Extreme temperatures can affect battery performance and affect bus range. In addition, the terrain and duty cycles applicable in different parts of the state may be somewhat divergent. The best way to ensure that bus manufacturers are in a position to

focus R&D on learning what they need to provide suitable buses for New Jersey is to keep manufacturers well apprised of New Jersey's needs.

Strategy 3: Maximize Energy Efficiency and Conservation and Reduce Peak Demand

12) New Jersey is currently targeting annual energy efficiency gains of 2% in the electricity sector and 0.75% in the gas sector. Do you recommend that New Jersey be more aggressive in approaching its energy efficiency goals? Why or why not, how much is annually feasible, and how long of a ramp up period is needed?

Yes, we do recommend that NJ be more aggressive in approaching its energy efficiency goals. Energy efficiency is foundational to reducing greenhouse gas emissions, improving air quality and saving residential and business customers money.²⁵ Well-designed and implemented energy efficiency programs can significantly contribute to the deferral of utility infrastructure investment helping to drive down customer bills.²⁶ Therefore, the state must move quickly, thoughtfully and with adequate stakeholder input and discussion, to establish the new Clean Energy Act-required energy efficiency program.

The Energy Efficiency Potential Study prepared for the BPU by Optimal Energy found that there are significant benefits for all New Jerseyans if all parties can reach consensus on a clear, cost-effective, and equitable energy efficiency program design. Specifically, the study finds an overall benefit of \$2.57 for every dollar spent on efficiency projects, and \$14 billion in overall net benefits to the state. The study also finds maximum achievable potential for 2.8 percent average electric savings and 1.4 percent average annual gas savings confirming that the Clean Energy Act baseline savings targets are financially and logistically feasible and that there is much higher potential to achieve greater savings and benefits. These benefits will also result in a reduction in energy demand, which will help the state reach its climate goals by reducing statewide emissions. The 2020-2024 ramp up is appropriately ambitious. However, the state is currently at risk of not only failing to meet these targets in the 2020-2024 ramp up period, but losing ground due to process delays and inadequate stakeholder engagement. Additionally, we have some concerns with the study that if not rectified could result in sub-optimal program design and subsequent failure to meet the ramp up timetable; these concerns, which we share with other environmental parties, were memorialized in our May 2019 Clean Energy Advocates comments on the Energy Efficiency Potential Study, which are appended to these comments as Attachment D.

²⁵ Energy Star, Why Energy Star webpage, available at https://www.energystar.gov/index.cfm?c=about.ab_learn_more (last visited Sept. 13, 2019).

²⁶ See, e.g., Consolidated Edison, BQDM Quarterly Expenditures & Program Report Q1-2010, available at <http://documents.dps.ny.gov/public/Common/ViewDoc.aspx?DocRefId=%7BA54CCEC7-8867-46DF-8D01-F34891C9F7E5%7D>.

We would also note that special attention must be paid to energy efficiency for natural gas. On the one hand it is especially important because of the need to avoid increasing reliance on natural gas and weaning off of it. On the other hand some no-regrets measures are no longer no-regrets if they have the effect of extending dependence on natural gas. Additionally, the BPU should initiate a stakeholder process to explore policies that will ensure that electric heat pumps are recognized as gas efficiency measures if fuel switching benefits both electric and gas ratepayers. (See more on fuel switching under Question #18).

13) What are the strengths and weaknesses of the utility-run energy efficiency programs, third-party supplier-run energy efficiency programs, and state-run programs that NJBPU should consider?

Achieving the CEA energy efficiency savings targets will make New Jersey one of the highest-performing energy efficiency states in the nation. Therefore, it's instructive and perhaps illuminating for New Jersey to review and consider the administrative structures of other high-performing states. National organizations like ACEEE and RAP are available to work with states like New Jersey and can provide information on administrative "best practices" and advise on future administrative structure.

EDF believes that the Board should transition away from direct program administration to a role of policy and oversight. The Clean Energy Program has achieved modest savings and there are structural deficiencies like contract approval and payment delays that are barriers to better results. Additionally, the Clean Energy Act puts responsibility on the utilities to meet the ambitious savings targets and therefore the utilities need to have the authority and flexibility in order to meet the targets and then must be held accountable by the BPU. The Clean Energy Act also mandates performance incentives and penalties. It is unclear how such incentives and penalties will be applied to a hybrid program with the Clean Energy Program as the main program administrator, and the utilities serving a secondary role.

14) How can the state ensure equitable access to and benefit from energy efficiency programs for all residents?

Additional and deliberate work will be needed to address the barriers that prevent low-income and environmental justice communities from participating in and benefiting from the clean energy transition. To ensure that energy efficiency program design addresses the barriers found in low & moderate income and environmental justice communities, the BPU should convene a multi-agency stakeholder group that includes utility representatives and representatives from low & moderate income and environmental justice communities. Identifying low- and moderate-income customers and developing specific savings targets for this market segment will be an important component of any

program design. Additionally, performance incentives should be structured to maximize investment in efficiency for low and moderate-income customers and to scale investment in those market segments quickly.

Strategy 4: Reduce Energy Consumption and Emissions from the Building Sector

16) What policy, legislative, or regulatory mechanisms can New Jersey develop to successfully transition the building industry to develop net zero carbon construction? Over what timeline should the building industry seek to make this transition? What incremental goals and milestones should it set?

All relevant agencies should immediately study the cost effectiveness of requiring that all construction/buildings that are to or will be newly constructed in the future be reliant on electricity for all of their ongoing energy needs.

18) What policy, legislative, regulatory mechanisms can New Jersey develop to incentivize and accelerate the transition from oil, propane, and natural gas heating systems to electrified heating systems? Please consider appropriate mechanisms for residential, commercial and industrial buildings. Over what timeline is this achievable? Please also consider incremental milestones for the different fuels and technologies.

As discussed in the introduction to these comments, aligning New Jersey's natural gas policy with its clean energy policy is no small task, and although New Jersey's natural gas system is implicitly raised as an issue in the Draft EMP (in connection with the section on decarbonizing heat and the section on decarbonizing electric generation, both of which envision reduced reliance on natural gas, as well as in connection with the requirement that gas utilities reduce natural gas consumption), the document does not address how the State's natural gas policies will or will not interfere with attainment of the State's climate goals. Rigorous electrification targets will impact gas capacity needs and uses, which will in turn require thoughtful planning of the rate recovery of gas infrastructure, including considering whether creative financing mechanisms such as accelerated depreciation are needed in order to calculate the appropriate useful life of an asset.²⁷

Whereas on-site natural gas combustion was for a long time believed to be the most efficient, least polluting way to use energy for thermal applications such as space heating and water heating, current electric end use technologies have changed the paradigm, pitting electricity and natural gas against one another as alternative solutions to the same space and water heating needs. Legacy utility industry practices often do not account for

²⁷ See generally Environmental Defense Fund, *Managing the Transition -- Proactive Solutions for Stranded Gas Risk in California* (2019), https://www.edf.org/sites/default/files/documents/Managing%20the%20Transition_1.pdf.

this reality, and may act as a barrier to giving proper consideration to some non-pipeline solutions. The BPU should initiate a stakeholder process to explore its existing policies and programs to determine whether or not electric heat pumps are recognized as a gas energy efficiency measure, when substituting an electric heat pump system for a gas furnace may significantly reduce the amount of fuel needed to heat a building. To the extent fuel switching to heat pumps benefits both electric and gas ratepayers, then pooling of electric and gas energy efficiency funds should be allowed, and beneficial electrification should not count against the electric energy efficiency goals. Without such policies, the bias against gas to electric fuel switching drastically limits the opportunity that a utility seeking to make do without additional natural gas pipeline capacity could reasonably be expected to identify.

The significant disconnect between New Jersey’s natural gas policies and its ambitious climate goals which exists today can be expected to undermine efforts to electrify building heating. For example, natural gas line extensions are a clear priority for New Jersey gas utilities, and under their BPU-approved tariffs utilities often incentivize new pipeline construction projects by offering to install the infrastructure free of charge if the cost of installation does not exceed ten times the estimated annual distribution revenue to be realized from the extension.²⁸ Shielding individual ratepayers from the cost of extending gas lines to their premises, which may in many cases be substantial, may bias building owners’ decisions in favor of natural gas building heat, undermining any efforts that may be undertaken to encourage building owners and developers to rely on electric heating systems, whose entire upfront cost is borne by such building owners or developers. A continued business-as-usual approach to gas expansion could hinder the State from meeting its emissions limits and interfere with the specific strategies proposed in the Draft EMP (such as targeting new construction for electrification of heating). This disconnect is also manifested in the emerging area of non-pipeline solutions, which may in part be driven by building heating requirements; while some utilities have started to consider and rely on non-pipeline solutions to satisfy needs,²⁹ these types of solutions are

²⁸ See, e.g., NJNG Tariff, available at <https://www.njng.com/regulatory/pdf/Tariff%207-1-19.pdf>; Elizabethtown Gas Company Tariff, available at <https://www.elizabethtowngas.com/Elizabethtown/media/PDF/Regulatory%20Info/Elizabethtown-Gas-TARIFF-NO-16.pdf>; and South Jersey Gas Tariff, available at <https://southjerseygas.com/SJG/media/pdf/SJG-Tariff-No-12-Effective-07-1-19-Pricing.pdf>.

²⁹ For example, building upon the efforts of its upstate utility, National Grid filed a Non-Pipeline Alternative Incentive Mechanism as part of its 2019 rate case, acknowledging the “societal benefits of adopting more modern, cost-effective alternatives to traditional gas supply and gas transmission/distribution system solutions.” *Proceeding on Motion of the Commission as to the Rates, Charges, Rules, and Regulations of KeySpan Gas East Corp. d/b/a National Grid for Gas Service*, Case No. 19-G-0310 *et al.*, Future of Heat Panel, Exhibit FOH-11 at page 3. Central Hudson Gas & Electric Corporation proposes a non-pipeline alternative called a “Transportation Mode Alternative,” which would retire non-essential sections of leak prone pipe and convert existing natural gas users to alternate forms of

not being integrated into utilities' formal planning and needs assessments or being compared to traditional solutions on an apples-to-apples basis.

EDF has developed detailed recommendations for transforming natural gas supply planning to achieve the alignment that is needed; these recommendations are relevant not only to the relationship between the gas system and electrified heating (the subject of this question), but, rather, concern the future of the gas system itself. These recommendations are set forth in the introductory section of these comments at pages 3-7.

Strategy 5: Modernize the Grid and Utility Infrastructure

19) How should New Jersey approach the modernization of the current utility model (e.g., decoupling or performance incentives, rate design, smart grid technology, demand response)

A utility business model that is in sync with the 21st century information economy and climate goals must align monopoly utility interests with enabling clean energy services instead of simply delivering electricity, making the grid steadily more reliable, affordable and clean. There are many paths to achieve this, including: smart innovations in rate design; integrated resource planning; rules and utility earnings tied to performance rather than investments in new infrastructure; and a platform for large scale adoption of clean distributed energy resources.

One important utility business model mechanism that helps align utility earnings with state clean energy goals is decoupling. Decoupling provides an alternative business model for utilities by severing the link between energy sales volumes and revenue, eliminating a disincentive to pursuing or promoting energy efficiency programs and other distributed energy resources to help customers save energy. The profitability of the utility under decoupling is determined by how well it operates within the revenue requirement, not by how much energy it sells.

The traditional utility business model, which rewards utilities for energy throughput, is incompatible with reducing energy sales. New Jersey's current practice of having energy efficiency programs administered by a non-utility third party limits the ability of a utility to act on (or respond to) its throughput incentive in the context of energy efficiency programs, but it does not eliminate the throughput incentive that may otherwise pervade all utility operations.

A utility has many levers, other than energy efficiency programs, for influencing the volume of energy sales, including, for example, how aggressively it promotes or how well it accommodates distributed generation; whether it supports improvements to

energy sources. Central Hudson Gas & Electric Corporation's Compliance Filing of its 2020-2024 Corporate Capital Forecast, Cases 17-E-0459 and 17-G-0460 at page 1 (July 1, 2019).

building codes; or whether it provides timely, useful information to customers and third party providers on energy efficiency opportunities. Decoupling can further reduce the pro-throughput bias for the utilities, clearing the way for achieving high levels of energy savings through other complementary public policies that require/incentivize energy efficiency and other distributed energy resources.

20) How should NJBPU consider planning and paying for upgrades to the electricity distribution system, including Distributed Energy Resource (“DER”) connections; EV charging; and utilities recuperation of cost?

Suitable rate design is a key tool for planning and paying for electric distribution system upgrades while ensuring utilities have the opportunity to recover their costs. As a general matter, electric rate design should be cost-reflective, and should enable the owners of resources capable of providing services to the system to actually provide those services and be paid a fair value for the services they provide. Truly cost-reflective rates must necessarily be time-variant; since generation costs vary dramatically with the time of energy consumption and long-run distribution costs vary with peak demand, no flat per-kWh rate can reasonably be considered to be cost-reflective.

In the case of EV charging, especially the charging of MD/HD vehicles -- any of which can constitute a significant load, and a fleet all the more so -- additional considerations apply because the need for rapid transformation is pressing. We would urge the BPU to deploy rates for charging that balance the need for price signals that incentivize the most efficient use of the system (i.e., price signals that discourage on-peak charging and excessive simultaneous charging) with the need for bill management (i.e., the need to make sure early adopters are not blindsided by high bills that they did not anticipate and don't know how to avoid), while meeting diverse customers where they actually are in terms of rate complexity. A major aspect of this is ensuring that customers have the required education and outreach available to them such that they can understand how to optimize their consumption to reduce their bills. This should minimize costs of infrastructure deployment and allow utilities to be confident of their cost recovery, while maximizing the palatability of charging rates for customers to avoid poisoning the well and slowing the transition.

22) What best practices should New Jersey consider and which pitfalls should the state avoid regarding data ownership and privacy as it pertains to Advanced Metering Infrastructure?

We applaud the Committee and the Draft EMP for recognizing the importance of Advanced Metering Infrastructure (AMI) as “a foundational component of a modernized distribution grid” and further highlighting that AMI will “enable the state’s transition to a dynamic, bidirectional electricity grid.” The EDF October Comments go into some detail

on the importance of AMI to a 21st century grid and the system and customer benefits that AMI will enable.³⁰

The Draft EMP stresses the importance of data standards and recommends that the BPU establish such standards for utilities and third-party providers and “may consider industry standard “Green Button Connect My Data.” EDF supports the adoption of Green Button Connect My Data. EDF’s October Comments said, “Most importantly the customer should have free, easy, timely, and secure access to his or her energy usage data and be able to share that data seamlessly with a third-party of their own choosing in a standardized format. To this end, the industry standard Green Button Connect My Data (“GBC”) should be considered as the primary pathway for offering secure, convenient, and standardized methods to access and share data. GBC was recently adopted by RECO in New Jersey and has been adopted by utilities in California, Colorado, Illinois, Texas, and New York.³¹

Additionally, in the EDF October Comments we highlighted the Open Data Access Framework (“ODAF”) that can support the state’s efforts to establish easy and secure access to data:

“More broadly speaking, the Open Data Access Framework (“ODAF”), developed by EDF and the Citizens Utilities Board for use in Illinois provides a good reference point, and sets out the guiding principles for access to customer energy usage data.³² Addressing issues such as types of data, third party authorization and access, data format, methods of delivery, timeliness, billing quality data, data security, the ODAF offers utilities and regulators the underpinnings for a robust data access policy.”

Strategy 6: Support Community Energy Planning and Action in Low-and-Moderate-Income and Environmental Justice Communities?

24) How can New Jersey ensure that LMI households and environmental justice communities benefit from the goals and policies established in the Energy Master Plan?

The first step to ensure that low and moderate income (LMI) households and environmental justice (EJ) communities benefit from the goals and policies established in

³⁰ EDF October Comments on scoping of Energy Master Plan re: AMI, Pgs. 16 and 19

³¹ New Jersey Board of Public Utilities, *IN THE MATTER OF THE PETITION OF ROCKLAND ELECTRIC COMPANY FOR APPROVAL OF AN ADVANCED METERING PROGRAM; AND FOR OTHER RELIEF*, August 23, 2017, Docket No. ER16060524, available at: <https://www.state.nj.us/bpu/pdf/boardorders/2017/20170823/8-23-17-2F.pdf>.

³² See EDF and CUB, *Open Data Access Framework*, available at: http://blogs.edf.org/energyexchange/files/2014/08/14-_-CUB-EDF-Exhibit-1-1-Open-Data-Access-Framework-FINAL.pdf.

the Energy Master Plan is to make certain that those communities are fully represented in the processes that will determine the implementation of the EMP policies and that their voices inform program design and community outreach and engagement approaches.

Workforce development programs are key to ensuring job opportunities are equally accessible by members of these communities. The Draft EMP highlights the need for workforce development programs, but does not detail how new programs will be integrated with other existing energy efficiency, weatherization and other programs to ensure program optimization that will maximize the creation of good local jobs from the clean energy transition. This gap must be addressed in order to provide communities with a clear path to job training and employment.

Costs related to health and safety issues are another major barrier to LMI communities benefiting from energy efficiency programs. There may be high-cost structural issues like deficient roofs that must be corrected prior to installing energy efficiency measures. Other sources of funding should be located to address these issues in order to enable cost-effective energy efficiency delivery.

Attachment E, a report prepared for EDF, “Low-Income Energy Efficiency Opportunities Study,” provides examples of programs that have coordinated funding in order to address health and safety issues and provide energy efficiency services.

Another opportunity to ensure that environmental justice communities benefit from the goals and policies established in the Energy Master Plan is to take the fullest possible advantage of the fact that the electrification of medium- and heavy-duty vehicles has the potential to yield enormous public health benefits in these communities, by targeting the early deployment of those electric vehicles to places where the removal of diesel vehicles will have the most palpable public health benefits.

Strategy 7: Expand the Clean Energy Innovation Economy

28) What are best practices, financial tools, and financial infrastructure that New Jersey should consider in supporting the clean energy economy, attracting private investment, and enabling clean energy opportunities to become more affordable for all?

We applaud the EMP Committee for including the establishment of a New Jersey Green Bank in its Draft EMP recommendations and we urge the Administration to move forward quickly. Limited public capital can catalyze private investment and drive clean energy market development helping achieve the state’s climate and clean energy goals.

Financing can address a variety of barriers, including high up-front costs and the inability to access private capital--barriers that no New Jersey program or institution presently addresses comprehensively. A green bank can address these barriers and fill these gaps.

Some early green banks, including New York's and Connecticut's, were formed as public entities and seeded with significant public funding. More recently, a new model has emerged – an independent, non-profit green bank that doesn't require significant public funding but has the strong support of, and sometimes some governance from, local or state governments. This approach is used in Maryland, Nevada and Colorado, and would allow New Jersey to reap the benefits of a green bank without a massive injection of public money.

Though a huge financial investment wouldn't be necessary to create and reap the benefits of a green bank, a strong commitment from the State of New Jersey would be. Like all financial institutions, green banks thrive when investors and borrowers have confidence in long-term performance and potential. If New Jersey were to commit to a non-profit green bank as a central component of its aggressive clean energy agenda, lenders and borrowers could have confidence in the long-term viability of the market. Meanwhile, proponents of New Jersey's clean energy plan would have a robust and reliable funding mechanism for the myriad investments needed to make the plan a reality.

Respectfully submitted,

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