SIERRA CLUB

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Via Electronic Mail (emp.comments@bpu.nj.gov)

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Energy Master Plan Committee
State of New Jersey, Board of Public Utilities
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Re: Draft 2019 Energy Master Plan: Policy Vision to 2050

Dear Ms. Power:

On behalf of the Sierra Club and its over 20,000 New Jersey members, we submit the following comments on the Board of Public Utilities' (Board) Draft 2019 Energy Master Plan: Policy Vision to 2050 (Draft Plan). The Draft Plan represents a significant course correction from past plans. We are pleased that, for the first time, the current plan addresses carbon pollution from buildings and the transportation sector, calling for electrification of both.

But more needs to be done, and faster. Indeed, the science tells us that under a business-as-usual scenario the climate crisis will soon leave the New Jersey coast literally underwater. Sea level has already risen faster here than the global average, and that is expected to continue. Every year of delay bakes in more devastating impacts. Because we are out of time, we need to achieve deep cuts in our own carbon pollution thereby setting an example for the rest of the country and the world. With the changes to the Draft Plan suggested below, New Jersey would be well positioned to lead the way on climate mitigation, which will not only help save us from devastating climate impacts, but will also give us the economic advantage of being an early mover in what must be a fundamental shift in our energy economy.

I. General Comments

The Draft Plan states that it is the first phase of the planning process, and that the Final Plan will provide a more detailed implementation roadmap, including policy mechanisms and deadlines. To be sure, the roadmap in the Final Plan should be developed in a transparent manner with additional. meaningful public participation opportunities. That said, we make recommendations below that go

to certain implementation details, and we look forward to further opportunities to provide such recommendations.

A. Definitions

a. Clean Energy

The Draft Plan defines "100% clean energy by 2050" to mean 100% carbon-neutral electricity generation and maximum electrification of the transportation and building sectors (the sectors that produce the greatest carbon emissions in our state) to meet or exceed the GWRA emissions reductions by 2050. Footnote 6 on page 23 defines "carbon-neutrality" as "having a net-zero carbon footprint by eliminating carbon emissions **or balancing carbon emissions with carbon removal**" [emphasis added]. This definition is vague and appears to allow measures with questionable climate benefit, including biomass, trash incineration, carbon capture,[1] and carbon offsets.

We urge the BPU to adopt the traditional definition of 100% clean energy, i.e., energy derived from renewable, zero-pollution sources (wind, solar, geothermal, low-impact hydro, and wave/tidal energy), as well as energy saved through energy efficiency. Zero pollution refers to an engine, motor, process, or energy source that emits no waste products that pollute the environment or disrupt the climate. This will be useful for benchmarking and progress measurement in the future.

There is also nothing in the plan to address the phase out of existing nuclear plants in New Jersey, (or their sizeable subsidies). As producers of large quantities of radioactive waste, these plants do not meet the definition of zero-pollution energy sources. The plants are licensed to operate through 2036 (Salem 1), 2040 (Salem 2), and 2046 (Hope Creek), and this plan should articulate a policy of replacing their generation with a combination of energy efficiency measures and clean, renewable energy upon their retirement.

b. Distributed Energy Resources

The Draft Plan states "Distributed Energy Resources (DER) are on-site systems, equipment, or processes that are appropriately sized, modular, and decentralized, as compared to larger, centralized power plants, that also include transmission and distribution systems. DER can be either grid-connected or off-grid energy systems located in or near the place where energy is used."[2] While the qualifier "carbon-neutral" often precedes references to DER in the plan, this is not always the case. Certain resources such as gas-fired combined heat and power systems, and fossil-fueled emergency generators should be explicitly excluded from the definition. Other resources, such as energy efficiency, energy storage, electric vehicles, should be specifically included, as the California Public Utility Commission has.[3]

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[1] Sierra Club does not categorically oppose carbon capture, but it is not a substitute for clean, renewable energy due to questions about its long term effectiveness.

[2] Draft 2019 Energy Master Plan, p. 10-footnote

[3] See: California's Distributed Energy Resources Action Plan: Aligning Vision and Action. May 3, 2017, at: https://www.cpuc.ca.gov/uploadedFiles/CPUC_Public_Website/Content/About_Us/Organization/Commissioners/Michael_J._Picker/DER%20Action%20Plan%20(5-3-17)%20CLEAN.pdf

B. Identifying a Pathway to 100% Clean Energy

The Draft Plan identifies an overarching goal of 100% Clean Energy by 2050. The Sierra Club supports this as an economy-wide goal, provided that the definition of Clean Energy is changed as described above, and that the electric sector is transitioned to 100% renewable energy much sooner, by 2035. However, there is no clear guidance in the Draft Plan on how and when carbon emitting sources will be phased out and renewable energy will be phased in. The Final Plan should address this deficiency and incorporate the following.

a. Quantify the energy baseline and goals

A sound plan consists of three key elements: a description of the current status and path (baseline), a description of preferred future (goal), and the policy path to reach the goal. The Draft NJ 2019 Energy Master Plan's scope encompasses energy demand and greenhouse gas reduction strategies for transportation, electrical generation, industrial use, and residential and commercial buildings, but nowhere is baseline energy use defined and projected nor is there a quantification of how much clean energy must be deployed to reach the 100% Clean Energy Goal across all these sectors. The U.S. Energy Information Agency publishes an annual Energy Profile describing consumption quantified in Trillion BTU's by source, fuel, electric generation, and prices. This baseline data can be converted to megawatts (MW) or megawatt-hours (MWh) and used to project future values or goals.[4]

The NJ Energy Flow Model, developed by the Sustainability Institute at The College of New Jersey for NJ BPU, is an excellent tool to "Provide a quantitative framework for describing how energy flows in NJ at a given point in time, including identification of all primary sources, a granular view of all end-use consumption sectors, and computation of two primary impact factors: CO2 emissions and the fraction of total energy coming from fossil fuels."[5] The NJ Energy Flow Model provides an orderly display of information to assess planned events such as closure of fossil fuel powered generation plants, the effectiveness of projects, and benchmark comparisons with other States. Sierra Club recommends that the "Phase 2: 2019 Final Energy Master Plan: Implementation Roadmap" provides specific quantitative 2050 goals for all sectors with measurable interim milestones, and clearly describes the rationale for establishing the goals and milestones.

The NJ Energy Flow Model relies heavily on three key sources: the federal DOE Energy Information Agency (EIA), the PJM public record, and information from the NJ Clean Energy Program (CEP). To fully integrate goals pertaining to transportation and industrial sectors, other databases and considerations need to be included. For Transportation, NJDOT archives estimates

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See also See California Public Utilities Code § 769 (a) (2015), CPUC, available at http://leginfo.legislature.ca.gov/faces/codes_displaySection.xhtml?lawCode=PUC&sectionNum=769

[4] https://www.eia.gov/state/?sid=NJ#tabs-2

[5] Overview Of The New Jersey Energy Flow Model: http://www.sustainablejersey.com/fileadmin/media/Grants_and_Resources/Resources/Energy_Flow_Model_Overview.pdf

of vehicle miles traveled (VMT) produced by the Highway Performance Monitoring System (HPMS) Program.[6] CO2 reduction projections and goals will need to consider impacts of increased cargo at our ports, changes in mass transit ridership, transit villages, and land use planning with emphasis on walkability and bike paths. NJ's industrial sector relies on a plethora of oil and gas products to manufacture products. Goal development needs to consider technology roadmaps for "Clean Energy Manufacturing" and Advanced Technologies.

b. Integrated projections of energy demand and supply

In order to set proper interim targets and ensure we stay on track to meet those targets, we need to standardize and integrate the presentation of energy supply and demand. If we are to fully (or nearly fully) electrify the transportation and building sectors, we need to project what the total electricity need will be in terms of energy (gigawatt-hours) and peak demand (gigawatts) once all feasible efficiency measures and demand management measures have been deployed. Then we must project how quickly we can deploy, in a best case scenario, wind, solar, efficiency, electric vehicles (EVs), fully electrified buildings, and storage/smart grid applications. Any identified mismatches between electricity needs and renewable energy supply on an annual (energy) or short-term (demand) basis can inform how long and at what level existing dirty sources of energy (including gas-fired generation, nuclear generation, and direct gas consumption) can be allowed to persist.

c. Phaseout existing coal generation

There are two remaining coal-fired cogeneration plants in NJ: the 242 MW Logan plant, and the 285 MW Chambers plant. Both have power purchase agreements that end in 2024. While they generate a relatively small percentage of New Jersey's electricity, they emit roughly 3,000 lbs of CO2 per MWh, or about four times as much CO2 per MWh as a new combined cycle gas plant. Coal has no place in a carbon-constrained world. The Final Plan should include a policy that New Jersey will be a coal-free state after these power purchase agreements have expired. This could be realized by setting strict carbon emissions rates in the next round of air pollution permitting, which the DEP already has the authority to do.

d. Moratorium on gas infrastructure expansion and new gas generation

The ultimate goal of the Energy Master Plan of decarbonization by 2050 will be harder and more expensive to achieve with each new fossil fuel infrastructure expansion project. Therefore, the Energy Master Plan should include an immediate moratorium on all new fossil fuel infrastructure projects, until regulations covering all GHGs emitted by these projects can be promulgated, and until credible projections can demonstrate that the addition of new infrastructure does not jeopardize New Jersey's long-term and intermediate decarbonization goals. Such analysis must explicitly account for upstream methane emissions and downstream methane and CO2 emissions. It must also consider clean energy, efficiency, and electrification alternatives to the proposed gas infrastructure. New York's Climate Leadership and Community Protection Act (NY CLCPA)

[6] https://www.state.nj.us/transportation/refdata/roadway/vmt.shtm

contains a requirement for all state agencies to evaluate the impact of every decision on the ability of the state to meet its GHG reduction goals.[7]

e. Plant-specific GHG pollution limits on all new and existing stationary sources.

The NJ Air Pollution Control Act gives the DEP broad powers to determine air pollutants that are detrimental to public health and regulate them. In 2005, the DEP declared CO2 an air pollutant that affects public health, enabling it to regulate CO2 emissions. However, DEP has since failed to act on that finding. The Final Plan should direct the DEP to set limits on CO2 emissions from every stationary source that ratchet down over time and phase in carbon capture requirements. Such regulations should require fossil fuel applicants to conduct a comprehensive alternatives analysis of renewable energy technologies and enable the DEP to reject permits for projects that would cause New Jersey to emit GHGs in excess of its goals. Currently, the DEP does not deny permits to any development based on GHG emissions, no matter how high the level. Failure to act on existing authority to regulate CO2 emissions under the Air Pollution Control Act and Global Warming Response Act potentially makes New Jersey vulnerable to lawsuits brought by plaintiffs harmed by climate change, such as those brought in Juliana v. United States.[8]

f. Phase out Gas-burning Electric Generation Plants and fossil fueled Combined Heat-Power facilities

For NJ to achieve 100% Clean Energy by 2050, we must extinguish the fire. The Final Plan needs to include a schedule to decommission gas power plants and convert our 283 fossil fueled Combined Heat-Power sites. These facilities, often located in the vicinity of EJ communities, are a major source of air toxins and carbon pollution. Deployment of renewable energy and development of micro grids will eliminate both the need and economic advantage of gas-fired grid scale and peak power facilities. Dirty gas is already being displaced in energy markets in favor of a combination of renewables and energy storage. New York, a major consumer of NJ exported power, is also aggressively pursuing off-shore wind development and solar goals. Even if NJ allows carbon offsets or carbon capture, dirty gas will soon become noncompetitive in our region. To avoid expensive bailouts similar to the recent nuclear bailout, it is imperative that BPU develop an orderly plan to retire or convert these soon-to-be stranded assets.

C. Integration of Energy Master Plan with other statewide goals and policies.

Even if the carbon footprint of our in-state energy use were reduced to zero, New Jersey would continue to have climate impacts. The Energy Master Plan should include direction to all state agencies and entities to minimize the direct and indirect climate impact of their activities, including but not limited to the following:

- NJ pension funds should divest from companies that generate revenues from fossil fuel projects, as well as banks and insurance companies that finance the fossil industry.

[7] See Section 7, paragraph 2 of S6599: https://legislation.nysenate.gov/pdf/bills/2019/s6599
[8] For filing, see: https://static1.squarespace.com/static/571d109b04426270152febe0/t/57a35ac5ebbd1ac03847eece/1470323398409/YouthAmendedComplaintAgainstUS.pdf

- NJ Forest Service and Division of Fish and Wildlife have adopted forest stewardship policy to develop young forests. These agencies should map out forest acreage designated for preservation of old growth forests with the objective of maximizing carbon sequestration. This practice results in higher levels of carbon sequestration at lower cost than reforesting logged or farmed areas.[9]

Furthermore, integration with other statewide goals and policies requires the Final Plan to look beyond the "least-cost" option, as suggested in Goal 2.1.3, and to consider highest net value. The Clean Energy Economy opens a vast opportunity for improving our environment, society, and economic potential. For instance the Rutgers NJ Energy Storage Analysis noted that battery storage applications that do not yet yield positive returns for investors have social benefits to include increasing hosting capacity for decentralized solar photovoltaics (PV) and increasing resilience in combination with solar PV. Electric buses significantly reduce carcinogenic particulate pollution levels and improve student academic performance. By considering "highest net value" options and not just "least cost" options, we would allow integrative planning to consider economic, environmental, and social costs/benefits to assess alternatives and select the best path forward.[10]

II. Responses to Selected Questions posed by BPU in Comment Solicitation

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?

Strategies for VMT reduction

Goal 1.2.1 aims to "Identify opportunities to reduce vehicle miles traveled (VMT)." This is a laudable goal, but requires additional specific steps. One critical step is to make no further investments to expand roadway capacity. Roadway extension and widening adds capacity for private motorized vehicle travel and generates more VMT, while typically making travel by transit and non-motorized modes less safe and convenient.[11] Furthermore, it is extremely expensive for the minimal and dubious benefit it delivers. Instead, New Jersey should focus on expanding transit

[9] Byers, Michelle, 8/3//2019, Forest Improve with Age. Available at: https://njenvironmentnews.com/2019/08/30/forests-improve-with-age/?fbclid=IwAR3vKOkLk0S9xuHL0SLUx_XlbrceyPV7MYCRLInW15ibC8DIk1bEaLEa-Pk

[10] The need to recognize full net benefits does show up in some sections of the plan, notably in Goal 3.2.1: "Support and incentivize new pilots and programs to manage and reduce peak demand," which includes the instruction: "Importantly, the state must continue to advocate at the regional and federal levels for appropriate compensation for the full value stack that demand response, energy storage, and other forms of DER contribute to the grid."

[11] See, for example: Anthony Downs (1992), Stuck in Traffic, Brookings Institution, and Todd Litman (2019), Generated Traffic and Induced Travel Implications for Transport Planning, Victoria Transport Policy Institute (https://www.vtpi.org/gentraf.pdf).

service and facilities for non-motorized travel, and strictly limit roadway spending to rehabilitating existing infrastructure. NJ needs to develop intrastate transit options since most travel is from point to point within the state, while our current transit system is highly focused on commuters traveling back and forth to New York or Philadelphia.

Significant reductions in VMT will require improving the safety of walking and biking, and the convenience of transit sufficiently to get people out of their cars. The Final Plan should identify steps New Jersey can take to do this, including:

- New Jersey should restore all train service cut since 2006 and improve frequency of service like Metro North with off-peak 20-minute service or better.[12]
- Establish a Frequent Service Network: By 2026, there should be a bus or rail stop with frequent service (defined as once every 15 minutes or better seven days a week) within a ½ mile walk of 70% of New Jersey's population.
- Work with municipalities to ensure that major walking and bicycling paths to transit stops are safe and well-lit.
- There should be shelters at all transit stops with at least 200 boardings a day and these shelters should be lit with solar power where feasible.
- Buses should be sped up through low cost Transportation Systems Management actions such as exclusive bus lanes where a route is faced with congestion (example: using parking lanes for buses in peak periods), bus leading green traffic signals, and keeping a traffic light green if a bus is approaching.
- Commuting and Recreational Bicycling is becoming an important feature of urban landscape. The Final Plan needs to include an affirmative policy statement supporting development of bike trails and lanes for our streets, along rail lines, and major bridge crossings.
- New Jersey needs to identify opportunities to restore passenger rail on existing rail ROWs, possibly in conjunction with trails.
- New Jersey has the authority to require large trip generators to develop and implement trip reduction programs, and should exercise that authority.

Fully participate in and implement the policies of the Transportation Climate Initiative (TCI)

The Draft Plan contains two references to the TCI, but no specific policies detailing what its commitment to TCI will be. It should be explicitly stated that:

1. New Jersey intends to fully participate in the TCI, which will establish an enforceable, declining, regional cap on transportation-related carbon pollution; and

[12] The Regional Plan Association actually called for 10 minute Rail service in NJ urban core and 15 or 20 minute frequencies just outside the urban core.

2. It will invest revenues generated from the sale of carbon allowances in ways that improve equitable access to transportation, and decrease exposure to pollution from transportation, especially in overburdened communities.

TCI represents an important potential revenue stream that can contribute to many of the goals outlined in Strategy 1 of this plan. However, it alone cannot replace the gasoline tax as the primary revenue source for transportation investment. The gasoline tax is already unsustainable, as it has failed to keep pace with inflation. More importantly, as we work toward this plan's goal of an "almost entirely electrified" transportation sector by 2050, gasoline consumption will decline precipitously. Any replacement to the gasoline tax must not interfere with the goal of expanding EV sales and use. In particular, we are opposed to any EV-specific registration fees or sales tax. Mileage-based user fees and congestion pricing are two alternatives, but may need to be combined with other policies as they do not necessarily reflect all cost drivers of the transportation system.[13]

An important use of TCI funding should be to expand transit service and access, but this will only be successful if land use and design is conducive to transit use. Therefore, we support the concept behind Goal 1.2.2: Accelerate the implementation of the Transit Village Initiative. That said, redevelopment with mixed use, higher density, and enhanced walkability can often lead to gentrification, wherein "revitalized" communities become too expensive for long-time residents (often people of color) to live there. Steps to counteract gentrification must be built into the program, and members of the community must be consulted early and often during redevelopment. Inclusionary zoning, which requires a minimum percentage of housing units in a development be designated as affordable, should be the standard. When state programs make grants to designated Transit Villages, they should consider the community's performance in maintaining affordable housing in close proximity to transit, and plans for expanding affordable housing options.

Electrification of Larger Diesel Vehicles

The emissions impacts of electrifying medium and heavy duty vehicles will be significant, and a focus on buses and heavy duty vehicles will directly benefit EJ communities by reducing air pollutants that disproportionately affect them. But range and charging are more challenging issues for trucks than cars. The Draft Plan correctly states that the major difference in purchase cost between fossil-fueled and electric vehicles of many types is the battery. Goal 1.1.8 proposes leasing batteries with the lessees paying for the leased batteries through the operating savings incurred (electric vehicles have significantly lower operating costs than fossil-fueled vehicles). However, the

[13] For summary of issues and alternatives related to funding the transportation system, see July 16, 2019 webinar hosted by Regulatory Assistance Project (slides at: https://www.raponline.org/wp-content/uploads/2019/07/rap-glitman-lebel-lazar-funding-roadway-infrastructure-electrified-world-2019-july-16.pdf)

Draft Plan does not offer a specific strategy for paying for the needed (and preferably renewable energy powered) charging stations.

This cost is not inconsequential, nor is the impact on energy demand. The World Resources Institute has calculated the electricity requirement for large bus systems. Using their figures and adjusting to NJ Transit's fleet size, the electricity needed to recharge those buses is roughly equivalent to the energy used by 150,000 homes in one hour. If we have a major conversion to electric buses, there could be a strain on the state's existing energy grid unless appropriate steps are taken now to ensure that bus charging is staggered and the bulk of it occurs during off-peak hours. Properly designed time of use rates would provide an effective price signal for optimal charging of heavy duty vehicles. Electric utilities must also be involved in planning for these charging facilities to ensure that distribution infrastructure is sufficient for the increased local load.

Light Duty Vehicle Electrification

We suggest that a revolving fund be established by the state that would loan money to all municipalities for charging stations. These charging stations should be powered by solar and wind energy generated locally where possible (for example, solar panels installed on public buildings and over public and employee parking areas). As noted, the savings from electric vehicle operations would make it possible for public entities to pay back the loans.

The commercial market for private EVs is rapidly evolving and will continue to grow rapidly in the coming years. The cost of EVs is declining, however current costs are still too high for many mainstream consumers. New Jersey should establish a $300M or greater program to provide rebates that reduce vehicle purchase costs to increase adoption significantly. These rebates should be carefully tailored to maximize impact by applying them directly to the purchase price of the vehicle (cash on the hood), capping income eligibility and including bonuses for lower income purchasers, and pairing them with cash incentives for dealers (who have been notoriously slow to embrace EVs).

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?

The World Resources Institute issued several reports that examine global experiences with transit bus electrification, and offer lessons for New Jersey as it looks to electrify its own fleet:

- How to Enable Electric Bus Adoption in Cities Worldwide[14]
- Barriers to Adopting Electric Buses[15]

[14] Available for download at: https://www.wri.org/publication/how-enable-electric-bus-adoption-cities-worldwide
[15] Available for download at: https://www.wri.org/publication/barriers-adopting-electric-buses

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.

Beginning immediately, New Jersey should cease buying vehicles powered solely by internal combustion engines (ICE). This should apply to both light duty state fleet vehicles, and transit buses.

Goal 1.1.5 should be strengthened to state that all new light duty state vehicles purchased will be either electric vehicles (EVs) or plug-in hybrid electric vehicles (PHEVs). In analyzing which fleet vehicles to replace, the state needs to consider not just age and mileage of existing vehicles, but the usage characteristics such as daily miles driven (typical and maximum), amount of down time between uses, and whether the vehicle is returned to the same location after each use. The state should replace all ICE vehicles that have optimal usage patterns for EVs, regardless of the age of the existing ICE vehicle, and should then re-allocate used, later-model ICE vehicles to replace end-of-life ICE vehicles, rather than buying any new ICE vehicles to replace them. This will require vehicle transfers across departments and agencies.

The narrative of Goal 1.1.5 implies that high daily mileage vehicles would not be suitable for replacement with EVs, but this is not necessarily the case. A vehicle driven up to 200 miles a day that is returned to the same location and left overnight would be the ideal candidate for replacement with an EV. Vehicles that are operated almost continuously or not regularly returned to the same location would be better candidates for PHEV replacement until charging infrastructure networks are built out. If some applications require vehicles for which EVs and PHEVs do not yet exist, then the state should delay purchase of new ICE vehicles, extend the life of current vehicles, and move used ICE vehicles to the departments and applications where they are needed. Suitable alternatives will be available soon.

By 2025, all new light duty vehicle purchases should be EVs. By the early 2030s, the last of the state's light-duty ICE vehicles should be eliminated by attrition.

Goal 1.1.6 should be revised to state that New Jersey Transit will not purchase any new diesel buses and instead purchase only battery-electric buses (BEBs) from now on. Deployment of BEB's should be a high priority, as every 1,000 electric buses on the road displaces 500 barrels of diesel each day, whereas every 1,000 light-duty battery electric vehicles remove just 15 barrels of oil demand per day.[16] BEBs should be deployed initially to neighborhoods which have been demonstrated to suffer from disproportionately high exposure to diesel particulate pollution.

[16] Per Bloomberg New Energy Finance analysis:
https://www.bloomberg.com/news/articles/2019-03-19/forget-tesla-it-s-china-s-e-buses-that-are-denting-oil-demand

More than 60 transit agencies across the country have begun the transition to BEBs. At least seven of these agencies have made commitments to transition to 100% BEBs by a date certain, including the NY Metropolitan Transit Authority (the largest bus fleet in the nation) and the Los Angeles County MTA.[17]

A complete transition to BEBs should be complete by 2030. It took eight years for Shenzhen, China to become the first city to electrify 100 percent of its public buses, which included 16,359 buses.[18] NJ Transit should be comfortably able to rollover its bus fleet of only 2,500 buses in ten years. If capital funding constraints prevent a complete turnover by 2030, the life of existing diesel buses should be extended rather than wasting money on new diesel buses.

Goal 1.1.6 should also include a statement that by 2030, all transit locomotives will have the ability to run in full electric mode. NJ Transit should immediately stop purchasing locomotives that only run on diesel, and should begin immediately to develop a plan for expanding catenary lines to all train routes by a date certain, and a corresponding plan for phasing out the use of diesel in dual power locomotives.

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

New Jersey should institute a "demand charge holiday" for early adopters of DCFC charging stations (also called "Level 3" chargers). These fast chargers operate at between 50 and 500kW, and are essential for longer trips. If they are subject to demand charges the business case for these stations can be dramatically reduced.

The state should also develop a planning process co-led by electric distribution companies, regional transportation planning agencies, and private Electric Vehicle Supply Equipment (EVSE) providers to identify locations where investment in EVSE is needed as well as funding sources and timetables for deployment.

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?

The Draft Plan does not address school bus electrification beyond the commitment of minimal funds provided via VW settlement money to date. Yet diesel particulate emissions are most damaging to young people. There needs to be a strategy to help school districts and private school

[17] Tri-State Transportation Campaign: http://www.tstc.org/resources/electrify-nj-transits-bus-fleet-now/
[18] https://electrek.co/2017/12/28/shenzhen-electrifies-entire-public-transit-fleet-electric-buses/

bus contractors accelerate electric school bus deployment. The technology exists and since school buses are normally not used continuously during the work day, recharging is less of an issue than with transit buses and many commercial vehicles that are used more steadily throughout the day. Recharging infrastructure needs to be built, and utilities have a role to play in accelerating this buildout as well as ensuring that it doesn't tax the grid. Virginia is leading the way on school bus electrification, with the Commonwealth's largest utility, Dominion, recently announcing an initiative aimed at replacing 100% of school buses is its service territory by 2030.[19] New Jersey should work with its utilities to develop similar initiatives, perhaps via the Clean Energy Program.

6) What policy mechanisms should the state develop to reduce greenhouse gas emissions at its Ports?

The EPA has conducted a national port assessment[20] primarily focused on technological strategies. The categories include replacing older diesel fleets, operational improvements to reduce idling, and switching to cleaner fuels.

The Ports of Oakland[21] and San Diego[22] both have plans that include operational strategies to reduce GHG emissions that may be useful, which include comprehensive electrification and hydrogen from renewable sources.

The American Society of Civil Engineers NJ Infrastructure Report Card 2016 for Ports[23] noted that North Jersey's marine terminals generate nearly 22,000 truck movements each day, and projections show growth up to 62,000 by 2026. We recommend encouraging maximum use of rail freight over trucks to reduce vehicle miles traveled and roadway congestion.

Strategy 2: Accelerate Deployment of Renewable Energy and Distributed Energy Resources

7) New Jersey is currently targeting the installation of 3,500 MW of offshore wind generation by 2030, but there is likely room for much more growth. Can New Jersey achieve more? Why or why not, and if so, how much is feasible? What concerns and barriers must we address in developing this resource?

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[19] See: https://www.utilitydive.com/news/dominion-launches-electric-school-bus-initiative-aims-for-100-electric-fl/562021/

[20] National Port Strategy Assessment: Reducing Air Pollution and Greenhouse Gases at U.S. Ports. Sept 2016. https://nepis.epa.gov/Exe/ZyPDF.cgi?Dockey=P100PGT0.pdf

[21] Seaport Air Quality 2020 and Beyond Plan, June 2019: Strategy #2: Promote the Pathway to Zero Emissions Equipment and Operations: https://www.portofoakland.com/files/PDF/2020%20and%20Beyond%20Plan%20Vol%20I.pdf

[22] See: https://pantheonstorage.blob.core.windows.net/environment/Port-of-San-Diego-Climate-Action-Plan.pdf

[23] See: https://www.infrastructurereportcard.org/wp-content/uploads/2016/10/ASCE-Report-Card-for-NJ-Infrastructure-6.16.16.compressed.pdf

The offshore wind resource potential based on analysis of wind speed interval of 7 mph or greater within 50 nm of New Jersey's shore is just under 100 gigawatts, so the current 3500 MW goal represents only 3.5% of this potential.[24] The Draft Plan states "U.S. DOE estimates that the existing and proposed federal lease areas located off the coast of New Jersey could support up to 12.5 GW of offshore wind energy, using a very conservative power density ratio. Using a more accepted power density ratio could double the amount of offshore wind that could be supported in these lease areas."[25] Assuming a 45% average capacity factor, the fully developed lease area alone could replace 65-110% of the electricity generated in New Jersey in 2017. In terms of potential capacity, there is no barrier; instead, NJ has an opportunity to become a wind energy exporter. In planning for the transmission system that connects offshore wind developments to electric load, we need to consider how to optimize both reliability and wholesale price minimization. We should carefully study the costs and benefits of an offshore wind transmission backbone, which could connect many OSW projects together and have multiple landside connection points. This would ensure that an issue with a single connection point, perhaps due to an extreme weather event or climate change-related coastal flooding, does not result in wasted wind energy.

A recent article in Forbes reported "According to a recent study released by Global Industry Analysis, offshore wind capacity is forecast to grow by over 80 gigawatts (GW) through 2024, achieving an impressive Compound Annual Growth Rate (CAGR) of more than 25% in that period." The article also noted that "According to projections from the International Renewable Energy Agency (IRENA), global growth in offshore wind energy will continue to accelerate, with total installed capacity rising from 19.2 GW in 2017 to 520 GW in 2050." "The United States – one of the world's most prominent wind energy producers – has around 2 GW of offshore wind but could achieve over 20 GW by 2030 under favorable market and regulatory conditions. America's offshore wind potential is estimated to be greater than 22,000 GW (or 22 Terawatts), double the country's current electricity consumption."[26] The projected rapid growth of offshore wind indicates that many of the supply and logistical issues appear to have been resolved. In terms of market availability, there is no barrier; instead, NJ has an opportunity to benefit from anticipated lower costs and improved products.

The support labor and infrastructure developed in the service of the Orsted award of 1100MW in June 2019, with all turbines projected to be up and spinning by 2024, lays a foundation to accelerate deployment of offshore wind. New Jersey's plan to solicit an additional 1200MW each in 2020 and

[24] US Dept. of Energy: https://windexchange.energy.gov/files/pdfs/offshore/offshore_wind_potential_table.pdf
[25] Draft NJ 2019 EMP, p. 51
[26] Ariel Cohen, 3/2019, As Global Energy Demands Grows, So Does Appetite For Offshore Wind, available at: https://www.forbes.com/sites/arielcohen/2019/03/26/as-global-energy-demands-grows-so-does-appetite-for-offshore-wind/#516c0bf65e7c

2022 ignores the learning curve principle that one's performance improves as one gains experience. Instead of leveling off, the procurement and development schedule should ramp up. New Jersey must maximize its first mover advantage to dominate the offshore wind industry and become a net energy exporter.

This plan should set a new offshore wind goal for 2030 of 12.5 GW, enough to utilize all the available capacity offered by the Federal lease, and at least enough to replace all current fossil fuel generated electricity. The suggested solicitation schedule for the additional 11.4 GW is:

- Solicit 2,400 megawatt OREC in 2020 with Commercial Operation Date (COD) 2025.
- Solicit 4,000 megawatt OREC in 2022 with Commercial Operation Date 2028.
- Solicit 6,000 megawatt OREC 2024 with Commercial Operation Date 2030.

8) How should New Jersey address the solar and NJ Class I cost cap established in the Clean Energy Act?

We need to balance the need to maintain and grow a healthy solar industry in NJ, including all types of solar applications, with the need to actually meet all the interim goals of the RPS. We should prioritize meeting the overall Class I requirement of 50% by 2030, and all the interim targets. If we can design a cost effective Successor Program for solar incentives, the cost cap will really only present a challenge during a three-year period from 2021 to 2023, right after the cost cap steps down from 9% to 7%, but before a significant number of existing solar systems become ineligible for Legacy SRECs.

With the cost of solar components down considerably and continuing to decline, the cost of incentives for solar should decline as well. The key to an affordable solar program lies in the predictability of the incentive. The more confidence there is in the revenues a project will generate over its lifetime, the more affordable the financing will be, and thus the lower the project cost.

Therefore, we should be able to maintain a robust in-state solar energy industry through the "lean" years of 2021-2023 by offsetting lower incentives in these years with increased incentives in the following years. These incentives must be lower in overall cost than the Legacy SRECs, but more predictable - perhaps even according to a pre-set schedule.

It is also critical to note that both offshore wind and efficiency deployment make it easier to meet the Class I targets without exceeding the cost cap. ORECs for offshore wind are specifically excluded from the cost cap by the Clean Energy Act of 2018. Efficiency lowers the absolute number of Class I RECs (and solar RECs) required to be purchased. So we should be working to deploy both of these as quickly and comprehensively as possible.

10) Which policy mechanisms do you recommend the state implement to lower the cost of capital for in-state renewable energy power generation?

Solar incentive policy should be designed to help lower costs of development in several key ways:

1. It should include ambitious, consistent targets that grow the industry, expertise, and supply chain, which in turn lower soft costs;
2. It should include financial incentives that are transparent and predictable over the long term, which reduced risk and makes financing available at lower interest rates; and
3. Financial incentives should decline over time as both hard and soft costs of solar energy decline, in order to avoid being saddled with excess legacy costs that could otherwise be spent on additional solar and other decarbonization strategies.

We recommend looking to New York's NY-Sun program[27] as a possible model for a Successor Program to New Jersey's Legacy SRECs. NY-Sun sets a target for overall solar development, and then procures solar capacity to meet that target by issuing RFPs in declining blocks. This way, each project developer or customer generator knows what incentive they will get up front, and the amount of incentive is reduced with each successive procurement. This would likely result in lower costs to ratepayers than NJ's legacy SREC program, because it eliminates the uncertainty associated with constantly fluctuating and unpredictable SREC prices.

11) What policy, legislative, or regulatory mechanisms can New Jersey develop to ensure that it can most cost-effectively pursue a 100% carbon neutral power sector?

We need a moratorium on new fossil fueled generation until rules are developed to regulate and phase out CO2 emissions from all power generation. Any new power plants constructed and their associated transmission interconnection investments will become stranded assets in a very short time. A recent study by the Rocky Mountain Institute evaluated the economics of over 200 planned gas-fired power plants nationwide, and found that 90% of them would be more expensive than a comparably sized clean energy portfolio.[28] This is true for all five planned gas plants in NJ that the authors analyzed. The study found that investing in clean energy portfolios instead of new gas plants nationally would save customers $29 billion and prevent 100 million tons of CO2 emissions annually.

New Jersey needs to expedite the implementation of energy efficiency requirements, and work to exceed the statutory minimum of 2% annual efficiency increases. Efficiency remains the most

[27] https://www.nyserda.ny.gov/All-Programs/Programs/NY-Sun/Contractors/How-the-Dashboard-Works

[28] Teplin, Charles et al. 2019. The Growing Market for Clean Energy Portfolios: Economic Opportunities for a Shift from New Gas-Fired Generation to Clean Energy Across the United States Electricity Industry. Available at: https://rmi.org/insight/clean-energy-portfolios-pipelines-and-plants

cost-effective energy resource, and the more energy we save, the less renewable energy we need to build to replace fossil fueled power plants. This should include electric rate policies such as decoupling and incentive programs that eliminate the utilities' perverse incentive to encourage more electric consumption, and that instead spur the utilities to prioritize efficiency programs and services that deliver the best value to their customers.

The BPU needs to re-evaluate the level and duration of nuclear subsidies it provides. Any funding for these generators in excess of what they need to stay operating long enough to prevent new gas from coming on line represents an opportunity cost, because the funds would be unavailable to accelerate deployment of renewable energy, efficiency, and electrification. We know that new nuclear plants are uncompetitive with clean energy, that our existing plants cannot operate forever, that the older they get the more expensive they become, and the more radioactive waste accumulates. We need a plan to transition out of these plants as soon as possible once the mechanisms for their replacement with clean energy are in place.

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 annually is feasible, and how long of a ramp up period is needed?

The 2% electricity and 0.75% gas annual efficiency gains are defined in statute as minimum targets. Utilities are required to achieve all cost effective efficiency. Other states currently achieving annual electricity savings rates above 2% include Vermont (3.3%), Rhode Island (3%), and Massachusetts (2.6%). States currently achieving 1% or greater annual gas savings include Minnesota (1.4%), Massachusetts (1.1%), Michigan, and Rhode Island (1% each).[29] New Jersey should be able to match the leading states in both efficiency categories before 2030. As we electrify the building sector, we will actually need to shift our focus away from increasing the efficiency of gas use to phasing out its use altogether, which will necessitate a different metric.

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?

Because the statute specifically requires public utilities to reduce energy consumption within their territories, they should be responsible and accountable for developing and implementing plans to meet the targets identified in the statute. The BPU's primary role would be oversight and

[29] ACEEE 2018 State Energy Efficiency Scorecard, available at: https://aceee.org/research-report/u1808

coordination of utility programs. The statewide Clean Energy Program (CEP) could still be continued, but in a reduced or altered role, and there would have to be clear lines delineating the responsibilities of utilities and those of the CEP. The BPU should work to ensure as much consistency as practical among the utility programs, and CEP could serve as a single access point for information by any state resident or business seeking information about efficiency programs, regardless of their utility territory. CEP could identify and fill gaps in utility programs.

For example, the legislature directed the BPU to adopt electric and gas efficiency programs "in order to ensure investment in cost-effective energy efficiency measures, ensure universal access to energy efficiency measures, and serve the needs of low-income communities." Low-income efficiency programs are generally regarded as more difficult and costly for utilities to implement, but are the most important programs with which to achieve universal access so as to reduce rather than increase the energy burdens of customers in this segment. Designing supplemental programs for low-and moderate-income customers and coordinating with utilities to serve this segment as cost-effectively and thoroughly as possible should be a special focus of the CEP going forward.

As utility programs ramp up and become more robust, the role of the CEP could transition away from a supplemental efficiency provider to a greater focus on using Societal Benefit Charge funds for enabling other types of clean energy investments, such as renewable energy, building and vehicle electrification, and storage.

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

Low income renters often have difficulty accessing efficiency programs beyond lighting and behavioral programs because they don't control decisions about building envelope projects or appliance purchases. Nevertheless, they are often the ones who pay electric bills. The Institute for Policy Studies released a 2018 report entitled: Energy Efficiency with Justice- How State Energy Efficiency Policy Can Mitigate Climate Change, Create Jobs, and Address Racial and Economic Inequality.[30] Among the report's recommendations are inclusive financing for energy efficiency upgrades tied to utility meters, and targeted incentives for owners of low-income rental housing to upgrade the energy efficiency of their buildings in order to address the needs of renters. Programs to ensure that all cost-effective efficiency projects are implemented in public housing projects will help lower costs and improve comfort for their residents.

15) Which states or cities have successfully implemented stronger-than-average building and energy codes? How should New Jersey seek to strengthen its building and energy codes, and over what timeline?

[30] https://ips-dc.org/wp-content/uploads/2018/08/Basav-report-final-online-1.pdf

ACEEE's Energy Efficiency Scorecard for 2018[31] cites California, Maryland, Illinois, and Texas as good examples to emulate. California recently adopted net-zero energy building codes requiring all new single-family and low-rise multi-family residential units to use solar and efficiency to eliminate the buildings' electricity demand. Maryland and Illinois are required by state statute to adopt the latest International Energy Conservation Codes (IECC) within one year of their release. At minimum, New Jersey should adopt this practice. Code adoption is only one side of the equation, however. Code compliance is important as well, as contractors require training in new codes, and municipalities often lack adequate resources to inspect new construction to ensure IECC compliance. There is a role for utility efficiency programs to play in achieving higher rates of code compliance than would be otherwise expected.

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

Sierra Club supports many of the strategies and goals related to building emissions reduction and electrification, including the goal of near-complete electrification by 2050. We believe more concrete interim milestones should be identified, and goals related to new construction should be more aggressive because it is much more cost effective to fully electrify new construction than it is to retrofit existing buildings.

We also want to clarify the basis for the cost comparison of the four major heating fuels in Table 1 on page 68. Electricity is more expensive than heating oil according to this analysis. We suspect this figure may include houses that utilize electric resistance heat. If so, this is a relatively meaningless comparison for the purposes of this plan. Electrification of space heat should utilize heat pumps almost exclusively, which would have much lower fuel costs than electric resistance heating, and would likely be closer in cost to heating with gas.

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?

The most important step to achieving net zero carbon construction is to quickly phase out new gas connections and efforts to convert existing energy systems within buildings to gas. New Jersey should immediately allow local jurisdictions to adopt stretch codes for net zero carbon construction

[31] https://aceee.org/sites/default/files/publications/researchreports/u1808.pdf

that prohibit gas hookups.[32] These codes should become the standard statewide within the next one to two code update cycles (which equates to roughly 4-8 years).

In addition to updating codes, the following policies should be incorporated into the Final Plan related to achieving building electrification and net-zero construction and retrofits:

- Goal 4.1.3 should be expanded to include all new construction, including single family residential.
- All existing programs that offer incentives for fuel switching from oil, propose, wood or electricity to gas should be immediately terminated, and replaced with incentives to switch to electric heat pumps.
- Beginning immediately for state government buildings, all new construction and major retrofits should be built to net-zero carbon standards, and no new gas hookups or fuel conversions to gas should be permitted.
- New Jersey should implement performance standards for existing buildings. New York City and Washington DC are now the first jurisdictions to make such standards mandatory for a significant percentage of existing buildings.[33] We recommend a similar to Washington DC, which ranks each building's energy performance using the Dept of Energy's Energy Star system, and requires buildings below the median in their class to reduce normalized energy consumption by 20% over five years.
- Until building codes are in effect that ban new gas hook-ups, the Final Plan should set near term numeric goals for heat pump deployment for both space and water heating. The actual goal should be informed by the modeling currently underway.
- Incentives for solar solar water heaters should be developed. According to the US Department of Energy, "water heating accounts for 18% of a typical US home energy use"[34] and "solar water heaters can be a cost-effective way[35] to generate hot water for your home. They can be used in any climate."[36]

17) What barriers exist that could hinder successful implementation of new net zero carbon Construction?

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[32] Washington DC included a Net Zero Energy Compliance Pathway as Appendix Z of its Climate and Energy Action Plan known as Clean Energy DC. The full plan is available here: https://doee.dc.gov/sites/default/files/dc/sites/ddoe/page_content/attachments/Clean%20Energy%20DC%20-%20Full%20Report_0.pdf Appendix Z is available here: https://dgs.dc.gov/sites/default/files/dc/sites/dgs/publication/attachments/Amendment%204%20Attachment%20C%20%20-%20NetZero%20Energy%20Compliance%20Path.pdf

[33] For evaluation and comparison of NY and DC existing building performance standards, see: https://www.greenbiz.com/article/what-you-need-know-about-bold-new-building-laws-new-york-and-dc

[34] https://www.energy.gov/energysaver/heat-and-cool/water-heating

[35] https://www.energy.gov/energysaver/estimating-cost-and-energy-efficiency-solar-water-heater

[36] https://www.energy.gov/energysaver/water-heating/solar-water-heaters

Ground source heat pumps are extremely efficient and reliable, and a great option for building owners who can finance the relatively high capital cost and accommodate the land footprint requirement, but universal application appears unlikely. Air source heat pumps (ASHPs) are much more accessible, and are a rapidly developing technology for cold-weather applications. Earlier generation heat pumps did not perform well in extreme cold, leaving some adopters to utilize backup heat from fossil fuels, wood stoves, or resistance heat. But this is changing. Rocky Mountain Institute has added a Cold Climate Addendum to its Economics of Zero-Energy Homes analysis,[37] that documents good performance of air-source heat pumps in IECC climate zones 6 and 7 (New Jersey is in warmer climate zones 4 and 5). In climate zone 6, ASHPs optimized for cold weather required resistance heat backup only 4% of the time. But the right models need to be used, and certain system design considerations are necessary (for example, locating heat pump water heaters indoors instead of in garages). Some contractors and builders may require education on cold weather heat pumps and associated design considerations, and supply chains for these cold-weather systems may need to be built out. Northeast Energy Efficiency Partnerships (NEEP) maintains a Cold Climate Air Source Heat Pump (ccASHP) Specification (now on V3.0) and Product List that are useful in accelerating the learning curve.[38]

18) What policy, legislative, or 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.

Incentivizing the conversion of existing heating systems from various fossil fuels to electric heat pumps could represent a good niche for a revamped Clean Energy Program using SBC funds. There could be benefits to having a single statewide program for conversions, in terms of marketing, contractor education, and market development.

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)

Utility rates create incentives or disincentives for fossil fuel consumption by encouraging or discouraging investments in energy efficiency, distributed solar, transportation electrification, and

[37] Jacob Corvidae, Michael Gartman, Alisa Petersen, 2019, The Economics of Zero-Energy Homes, available at: https://rmi.org/insight/economics-of-zero-energy-homes/
[38] https://neep.org/ASHP-Specification

building electrification. As the state agency responsible for setting distribution rates, and also for cost-effectively implementing state level efficiency and renewable energy policy, the BPU has an obligation to ensure that the incentives created by rates do not run counter to the achievement of these policy objectives.

Historically, the BPU has used a fairly limited set of rate designs. The predominant rate design is a flat volumetric rate, wherein a customer is charged a fixed amount per unit of energy consumed, on top of a small fixed monthly fee. This rate design is problematic insofar as it does not reflect cost differentials depending on time of use, and offers no customer incentive to shift consumption behavior to less costly times. It is therefore unhelpful in addressing issues of system capacity utilization, which will only become more important to address as the transportation and building heating are electrified. Time of use rates that reflect the actual cost of electricity distribution, and that send signals that customers can actually respond to with their consumption behaviors, will be critical.

Also critical is revenue decoupling, as allowed under the Clean Energy Act of 2018. We agree with the Regulatory Assistance Project (RAP) that "a well-designed decoupling mechanism both removes the utility throughput incentive and allows rates to be set at or very near long-run marginal costs. These are the two key policy objectives that are integral to the successful implementation and sustainability of energy efficiency."[39] Decoupling can also ensure that when per-customer consumption and capacity utilization increases, as is expected under electrification projections, utilities do not receive windfall profits and savings are returned to customers (even customers who do not increase their consumption), via a reduced volumetric rate.

Smart ratemaking that encourages optimal utilization of the grid will not only send price signals to consumers, it will enable technologies that automatically shift vehicle charging to lower cost times, and stagger heat pump, air conditioner, and refrigerator operation to shave peak demand.
When we combine time of use rates with smart grid technologies to create price-responsive demand, we significantly reduce the need for bulk electricity storage and make higher levels of renewable energy more affordable.

Even still, modest amounts of storage can have economic and reliability benefits.[40] Pairing storage with solar can provide ancillary services to distribution grids and an opportunity for additional revenue for customer generators. This could be an important component of resilience for

[39] Migden-Ostrander, J., and Sedano, R., Regulatory Assistance Project, Decoupling Design: Customizing Revenue Regulation to Your State's Priorities, at 39 (2016).
[40] For example, the Massachusetts Energy Storage Study estimates 600 MW of advanced energy storage captures $800 million in system benefits. See: https://www.mass.gov/service-details/energy-storage-study

micro-grids serving critical facilities like hospitals and emergency response. There may also be some opportunities to take advantage of low-impact pumped hydro storage.

For routine balancing of electric supply and demand, thermal storage at larger buildings offers great promise. Bi-directional vehicle chargers at workplaces enable employees and the public an opportunity to buy their electricity when it is cheap and plentiful, and sell it when it is expensive and in-demand.

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

23) How can NJBPU continue to engage with communities to support local energy planning?

Sound community energy planning requires an inclusive process that engages community members and leaders early on and throughout the process. It will often require meeting people where they are, in less formal settings, rather than expecting them to come to a BPU meeting. The process should also be holistic in its scope in order to be responsive to local community needs and address systemic problems beyond just energy and decarbonization. For instance, a community may be a "food desert" in which access to healthy fresh food is difficult. Addressing this issue could help community members stay healthier and save them time and money by reducing travel needs, thereby lowering the cumulative community burden. It would also have the benefit of reducing VMT and associated energy consumption. This may not be the most cost-effective way to lower VMT from a narrow energy-focused cost-benefit perspective, but from a holistic perspective it may be what the community needs.

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?

One of the most important things our energy policy can do is to ensure that efficiency investments and distributed solar programs reach nearly every low-income household so that their energy burden can be reduced and that any electric rate increases resulting from clean energy and efficiency investments are more than offset by lower levels of energy consumption. Many studies have examined how to achieve higher participation rates by LMI customers in efficiency programs, and we recommend two in particular, from the California Energy Commission regarding access to distributed energy resources,[41] and from ACEEE regarding energy efficiency.[42]

[41] Haramati, M, et al.2018. Clean Energy in Low-Income Multifamily Buildings Action Plan. California Energy Commission. Publication Number: CEC-300-2018-005-SF. Available at: https://ww2.energy.ca.gov/sb350/barriers_report/

25) What best practices utilized in other states or municipalities should New Jersey consider to support Community Energy Planning?

A recent report shows that 47 percent of black-majority census tracts have zero solar installed, compared to only 21 percent of majority white census tracts.[43] The report also finds that when low-income communities of color are initially "seeded" with a solar projects, deployment significantly increases, even compared with white communities. Seeding is the idea that if you add one new solar installation to a neighborhood without any, solar will grow faster than if you install solar where it is already popular. Leaders of color have seeded solar successfully in black and brown communities in Minneapolis and Connecticut. In Minneapolis, the Center for Earth, Energy and Democracy and Renewable Energy Partners are two people of color-led groups that helped design, advocate, and implement "green zones" that target solar incentives in overburdened neighborhoods. Connecticut's Solar For All program targets solar and energy efficiency efforts in disadvantaged neighborhoods.[44]

In addition to the above examples, we recommend consulting a toolkit developed by the Center for Community Change and the Partnership for Working Families.[45] The toolkit was initially developed with a goal of equitable implementation of the Clean Power Plan, but many of its recommendations apply to implementing the Final Plan. It discusses strategies and best practices that deliver high quality jobs with career pathways accessible to workers in low-income communities and communities of color.

Strategy 7: Expand the Clean Energy Innovation Economy

26) What industry sectors or job occupations are expected to see growth? Which industry sectors and job occupations are expected to need job training support to ensure an appropriate workforce is available to meet the needs of a growing economy?

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[42] Drehobl, Ariel and Lauren Ross. 2016. Lifting the High Energy Burden in America's Largest Cities: How Energy Efficiency Can Improve Low Income and Underserved Communities. Available at: https://aceee.org/research-report/u1602.

[43] Sunter, Deborah, et al. 2019. Disparities in rooftop photovoltaics deployment in the United States by race and ethnicity. Nature Sustainability vol 2, p. 71-76. Available at: https://rael.berkeley.edu/wp-content/uploads/2019/01/Sunter-Castellanos-Kammen-Nature-SustainablityDisparitiesPVDeploymentRaceEthnicity.pdf

[44] Lynch, Kelly. 2019. Clean Energy Beyond 'Trickle-Down Environmentalism. Available at: https://nextcity.org/daily/entry/clean-energy-beyond-trickle-down-environmentalism

[45] Worker, J, et al. 2017. Good Jobs in a Clean Energy Economy Through the Clean Power Plan. Available at: https://communitychange.org/wp-content/uploads/2017/09/Good-Jobs-in-a-Clean-Energy-Economy.pdf

The Brookings Institute has done a forward-looking analysis of the changing workforce needs associated with the clean energy economic transition, with a particular focus on the extent to which the transition offers inclusive opportunities. The analysis found that the clean energy economy will produce growth in "320 unique occupations spread across three major industrial sectors: clean energy production, energy efficiency, and environmental management."[46]

27) What industry sectors or job occupations are expected to stagnate as we get closer to 2050 and beyond, and what retraining tools and strategies can the state use to support transferable skills to new industries?

All technological innovation creates new employment opportunities in some areas while lowering demand for other jobs. In the economy-wide transition from fossil fuels to clean energy, we should anticipate the likely changes and adjust our support for training and education programs accordingly, so that worker skills are aligned with employment demands. For example, we know that electric vehicles require less maintenance than gasoline and diesel vehicles, but also require the buildout of a vast network of charging infrastructure. Therefore, vocational programs should adapt to train fewer auto and heavy duty repair technicians, and more electricians.

From an employment perspective, New Jersey should have a relatively easy time transitioning away from the oil and gas industry compared to other states, as we are not a major producer. According to the American Petroleum Institute (API), the oil and gas industry accounts for about 5.6% of jobs nationally (including direct, indirect, and induced), but only 2.7% of jobs in New Jersey.[47] The indirect and induced jobs in particular, such as manufacturing, transportation, warehousing, and retail should be easily transferable to a clean energy economy. Still, the impacts of implementing the Final Plan will be disruptive for workers and communities directly impacted by expected facility closures, even if employment gains outweigh losses overall.

In the context of the federal Clean Power Plan, the Labor Network for Sustainability recommended that the Base Realignment and Closure (BRAC) Commission be studied as a model for helping ease economic transition.[48] For communities facing hardship when military bases closed, BRAC offered planning and economic adjustment assistance, environmental cleanup, Community Development Block Grants, Community Service Grants, and extensive support to individual displaced workers. New Jersey should consider what a state level energy transition fund could provide, and also consider partnering with neighboring states planning similar ambitious energy plans, especially in the event that the federal government continues to lag behind on this issue.

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[46] Muro, Mark, et al. 2019. Advancing Inclusion Through Clean Energy Jobs. Available at: https://www.brookings.edu/wp-content/uploads/2019/04/2019.04_metro_Clean-Energy-Jobs_Report_Muro-Tomer-Shivaran-Kane.pdf

[47] https://www.api.org/~/media/Files/Policy/Jobs/Oil-and-Gas-2015-Economic-Impacts-Final-Cover-07-17-2017.pdf

[48] https://www.labor4sustainability.org/wp-content/uploads/2015/07/pdf_07272015_final-2.pdf

III. Conclusion

Sierra Club appreciates the opportunity to provide feedback on the Draft Energy Master Plan. We support many of the goals outlined in the plan, especially transportation and building sector electrification, and decarbonization of the energy economy. We hope that the modeling exercise being undertaken will lead to a final plan in December that includes more specific, quantitative, and ambitious short- and medium-term interim goals. We no longer have the luxury of waiting to address the climate crisis. We must drive innovation now, while addressing long-standing inequities and protecting people who are most vulnerable to climate change.

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