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New Jersey Board of Public Utilities
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Re: Comments of Center for Sustainable Energy® regarding the Draft New Jersey Energy Master Plan

I. INTRODUCTION

The Center for Sustainable Energy® (CSE; energycenter.org) appreciates the opportunity to provide comments regarding the Draft 2019 New Jersey Energy Master Plan (EMP).[1] CSE applauds Governor Murphy's office, the New Jersey Board of Public Utilities (NJBPU), and additional state agencies and EMP Committee Members' development of a comprehensive blueprint for how the State plans to reach its ambitious goal of 100% clean energy by 2050, as set by Governor Murphy's Executive Order 28.[2]

CSE is a 23 year-old national nonprofit driven by one simple mission – decarbonize. We provide program administration, technical assistance and policy advisement, and serve as a trusted and objective resource helping government agencies implement successful sustainable energy programs that use public funds appropriately and in the best interest of its communities. Our vision is a future with sustainable, equitable, and resilient transportation, buildings, and communities, and as such, we are encouraged by New Jersey's leadership in outlining strategies to support that vision.

Overall, CSE commends the broad scope of the Draft EMP and believes New Jersey has taken an important step in setting the State on a path to be a leader in clean energy through the proposed strategic vision. CSE strongly supports the seven strategies outlined in the Draft EMP and the detailed approach in identifying both existing efforts and new initiatives needed to achieve State goals. CSE encourages the NJBPU and EMP Committee to take a holistic view of the seven strategies and accompanying goals and seek ways to integrate efforts across sectors and disciplines to maximize benefits within the greater energy system.

CSE is pleased to respond to the request for stakeholder feedback on the Draft EMP and the specific questions from the NJBPU.[3] CSE provides the following comments based on our experience administering statewide, regional and local clean vehicle and distributed energy resources (DER) programs. This work includes administering statewide plug-in and fuel-cell electric vehicle (EV) rebate programs in California, Connecticut, Massachusetts, and New York; California's flagship electric vehicle

[1] *Draft 2019 New Jersey Energy Master Plan Policy Vision to 2050,* June 10, 2019.
[2] New Jersey, Office of the Governor [Phil Murphy]. Executive Order No. 28. May 23, 2018, available at https://nj.gov/infobank/eo/056murphy/pdf/EO-28.pdf
[3] *Id.* at 95-97.

infrastructure program, CALeVIP, and New York's Charge Ready program; and DER programs, demonstration projects, and advisory services throughout California, New York and Massachusetts. As such, CSE has focused our comments on Strategies 1, 3 and 4, as outlined in the Draft EMP, in our responses below.

II. RESPONSES TO SPECIFIC QUESTIONS IN REQUEST FOR FEEDBACK

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

- *Question 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?*

CSE commends Governor Murphy and the State of New Jersey for committing to reducing emissions from the transportation sector. In particular, CSE applauds the Governor for establishing a goal of deploying 330,000 zero-emission vehicles (ZEVs) by 2025, and the Legislature for passing Senate Bill 2020, which establishes a $30 million program to support the deployment of ZEVs and ZEV infrastructure. CSE applauds the State for identifying a dedicated funding source for this program through the Clean Energy Fund and recommends establishing a long-term funding plan to ensure stability and certainty to the State's nascent EV market. Providing funding stability will send a strong market signal to automakers, customers, and charging infrastructure providers and will ensure that these actors are confident in investing in this market in the long-term. Finally, CSE encourages New Jersey to incorporate equity principles into the initial design and implementation of this program and build these considerations into any future EV or EV infrastructure programs. Specific provisions around equity will ensure that the communities most disproportionately impacted by air pollution stand to benefit from emission reduction programs.

Permitting is a major barrier to the deployment of EV charging infrastructure, and additional guidance and resources can streamline this onerous process. CSE recommends New Jersey consider incentivizing municipalities to expedite the permitting process for EV charging stations. Municipalities could also consider adopting building codes with provisions that require EV infrastructure in new construction. In addition, municipalities in New Jersey could seek to standardize permitting processes across the State, to allow for consistent and convenient EV charger installation practices. Finally, municipalities and utilities need to coordinate their efforts and ensure that developers and consumers have the appropriate resources necessary to install EV infrastructure.

There are a number of additional transportation policy measures that could help New Jersey meet its emissions reduction goals. Increasing the renewable fuel content of rail and transit operations can simultaneously promote clean energy and reduce emissions. For example, CSE worked with the Bay Area

Rapid Transit (BART) agency to utilize solar energy in powering rail operations.[4] This project constitutes a valuable case study in effective integrated energy planning at the regional level. Finally, as New Jersey develops long-term plans to address the transportation sector, one important consideration is how to measure and reduce emissions from transportation network companies (TNCs) and other ride-sharing applications. The California Clean Miles Standard, which is jointly administered by the California Air Resources Board (CARB) and the California Public Utilities Commission (CPUC), seeks to identify the baseline emissions associated with TNC fleets, establish an emissions reduction target, and develop implementation strategies for achieving this target.

- *Question 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 electrification of fleet vehicles is an important step in reducing emissions from the transportation sector. State vehicles in particular are an easy market segment to address through fleet procurement mandates, fuel economy standards for state vehicles, performance-based goals for fleets, and policies requiring gradual petroleum displacement over time. Implementing these policies can accelerate fleet electrification and facilitate EV market growth.

CSE recommends that New Jersey establish goals to transition fleet vehicles to ZEVs. For example, California Governor Jerry Brown's Executive Order B-16-2012 required California state fleets to increase the procurement of ZEVs over time. The Order specified that 10 percent of fleets' light-duty vehicle purchases be ZEVs by 2015, and at least 25 percent of purchases be ZEVs by 2020. California's AB 739 (Chau, 2017) further establishes goals for ZEV purchases in the medium- and heavy-duty weight classes. Similarly, the Washington State EV Initiative directs that at least 50% of all new state passenger vehicle purchases be electric vehicles by 2020. Finally, New Jersey should consider agency-specific actions to increase the fuel economy of state vehicles. For example, Section 3620.1 of the California State Administrative Manual establishes a minimum fuel economy standard for passenger vehicles (at 38 miles per gallon) as well as light-duty trucks, vans, and SUVs (at 22.2 miles per gallon).[5] Incorporating policy objectives into agency directives is an effective strategy, since it is not predicated on legislative or regulatory changes and can be implemented relatively easily.

- *Question 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.*

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[4] *Center for Sustainable Energy, Case Study: Integrated Energy Planning,* available at https://energycenter.org/business/energy-advisory-services/integrated-energy-planning

[5] *California State Administrative Manual Section 3620.1, revised June 2016,* available at https://www.dgsapps.dgs.ca.gov/documents/sam/SamPrint/new/sam_master/sam_master_File/chap3600/3620.1.pdf

Transitioning the State's vehicle fleet to EVs will take time, coordination, and investment. CSE commends Governor Murphy for establishing a goal of 330,000 zero-emission vehicles by 2025. However, there is significant work to do in order to meet this target. According to data from the Advanced Technology Vehicle Sales Dashboard, prepared by the Auto Alliance and CSE, there were approximately 30,000 EVs in New Jersey as of May 2019.[6] Reaching the Governor's goals will require New Jersey to deploy an additional 300,000 EVs over the next six years, or roughly 50,000 EVs per year. In 2017, there were approximately 581,000 new car sales in New Jersey.[7] Of these, less than one percent (approximately 5,300) were battery electric vehicles or plug-in hybrid electric vehicles.[8] Therefore, to reach the Governor's goals and deploy 50,000 EVs per year, New Jersey will need to increase the rate of EV sales by a factor of nearly 10. In other words, EVs must comprise approximately 10 percent of all new vehicles sales in the State. A well-funded, statewide program will be necessary to achieve this ambitious target.

California's EV deployment efforts offer several valuable lessons for New Jersey. Through Executive Order B-16-2012, California established a target of deploying 1 million ZEVs by 2020 and 1.5 million ZEVs by 2025. This EV targets assumes an increase of approximately 100,000 EVs per year between 2020 and 2025. In addition, California Executive Order B-48-18 established a goal of 250,00 EV charging stations by 2025.

To achieve these EV and EV infrastructure adoption goals, California created two landmark incentive programs: The California Clean Vehicle Rebate Project (CVRP), which offers rebates for the purchase or lease of EVs, and the California Electric Vehicle Infrastructure Project (CALeVIP), which offers incentives for the installation of EV charging infrastructure. CSE administers both of these programs on behalf of the State. Since 2010, CVRP has issued or approved over $720 million in incentive funding, corresponding to over 319,000 individual EV rebates.[9] Since 2018, CALeVIP has issued or approved nearly $36 million in incentive funding.[10] Both programs have seen accelerated incentive uptake over time, indicating greater consumer awareness and interest in participating in the EV market.

As a result of California's aggressive EV deployment efforts, coupled with technological advancements, California is currently expected to meet both the 2020 and 2025 EV deployment goals; however, EVI goals are not yet projected to be met. While New Jersey can take advantage of the improvements in EV technology over the last few years, CSE recommends that the State commit to this EV deployment target by ensuring that incentive funding will be available for both EVs and EV charging infrastructure. A secure

[6] *Advanced Technology Vehicle Sales Dashboard,* available at https://autoalliance.org/energy-environment/advanced-technology-vehicle-sales-dashboard/
[7] *Autos Drive New Jersey Forward,* available at https://autoalliance.org/in-your-state/NJ
[8] *Advanced Technology Vehicle Sales Dashboard,* available at https://autoalliance.org/energy-environment/advanced-technology-vehicle-sales-dashboard/
[9] *CVRP Rebate Statistics,* available at https://cleanvehiclerebate.org/eng/rebate-statistics
[10] *Available Funding,* available at https://calevip.org/available-funding

funding stream will provide market stability and send a strong signal to both automakers and consumers.

With regards to transitioning bus fleets, one model policy New Jersey could consider is the Innovative Clean Transit Regulation approved by the California Air Resources Board (CARB) in 2019. This regulation requires public bus fleets to transition to zero-emission buses by 2040, with increasing purchase requirements over the course of 20 years. In addition to reducing emissions of greenhouse gases (GHGs) and nitrogen oxides, this regulation will also stimulate the growth of the zero-emission bus industry and generate ancillary economic development opportunities for manufacturers and technicians. New Jersey could work with local transit agencies to identify a comparable timeline for transitioning existing public bus fleets to zero-emission buses.

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

Deploying publicly-accessible EV charging infrastructure is a key requirement for widespread EV adoption. CSE recommends that New Jersey consider developing an incentive program for EV charging infrastructure with co-funding requirements. This program could be used to deploy the full 15 percent of Volkswagen settlement funds allocated for EV charging and could also incorporate any future settlement funds. One good example is CALeVIP, which is implemented by CSE on behalf of the California Energy Commission. CALeVIP funds up to 80 percent of the cost of the cost of charging infrastructure, with private developers or site hosts responsible for paying the remaining 20 percent. This program is successful because it leverages state funding and private capital, while sending a clear signal to private developers and stimulating the EV infrastructure market. Finally, CSE's streamlined incentive processing platform has expedited the rate at which applications are processed and approved, resulting in a faster-than-expected uptake of incentive funding. This platform has been successful at incorporating multiple functionalities into a single tool, including the ability to support multiple technology providers, ensure charging infrastructure is placed in priority geographic regions, and offer different incentive payment structures. This multi-faceted framework ensures accelerated incentive uptake and optimizes the deployment of EV charging infrastructure.

CSE also recommends that New Jersey evaluate barriers to the deployment of EV charging infrastructure. One way to identify barriers is through the development of regional EV readiness plans, such as those funded by the California Energy Commission's Clean Transportation Program (previously known as the Alternative and Renewable Fuel Vehicle Technology Program or ARFVTP). These plans can also be effective in soliciting interest from industry stakeholders and raising awareness of forthcoming incentive programs for EV charging infrastructure. In addition, New Jersey could also consider assessing zoning and parking requirements to determine if these policies inadvertently hinder the installation of EV chargers. For example, the California Governor's Office of Business and Economic Development recently released the Electric Vehicle Charging Station Permitting Guidebook, which compiles

information on permitting policies.[11] Finally, New Jersey could consider evaluating barriers in specific settings that have historically experienced difficulty in installing EV chargers. For example, CSE is currently working on a project funded by the U.S. Department of Energy (DOE) to evaluate barriers to EV charger deployment in multi-unit dwellings across specific regions around the country. While each region presents unique challenges, this project will seek to compile information and highlight best practices that can be leveraged across sectors.

- *Question 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?*

Medium- and heavy-duty (MD/HD) vehicles are significant sources of GHG emissions and criteria air pollutants. Advancing the market for alternative-fueled MD/HD vehicles will require coordinated investment from the State of New Jersey. Specifically, a State-funded program can be a good way to showcase new vehicle technologies and demonstrate the business case for owning and operating these vehicles, as well as the corresponding charging infrastructure.

One type of model policy that New Jersey could consider are voucher programs for trucks and buses. For example, the New York Truck-Voucher Incentive Program (NYT-VIP), administered by CSE, offers voucher incentives that reduce the cost of alternative fuel trucks and buses at the point of purchase, making these vehicles cost-competitive with conventional fossil-fuel powered equivalents. Vehicles eligible for NYT-VIP include hybrid, all-electric, and compressed natural gas (CNG) trucks and buses. California's Hybrid and Zero-Emission Truck and Bus Voucher Incentive Project (HVIP) is an analogous program that also offers funding for charging infrastructure for MD/HD vehicles. While programs like NYT-VIP and HVIP have demonstrated successful incentive uptake for the vehicles themselves, there are less incentive funds dedicated to the infrastructure necessary to charge these vehicles. CSE recommends that New Jersey consider adopting a voucher program for MD/HD vehicles that also includes funding for the requisite fueling infrastructure.

Finally, certain utilities in California are exploring the development of pilot projects to deploy MD/HD vehicles coupled with vehicle-grid integration technologies.[12] These projects can provide a good opportunity to highlight and test new technologies in a contained setting, which could then set the stage for more commercial-scale projects. The investor-owned utilities in California were authorized to file applications for these transportation electrification pilots through Senate Bill 350 (de León, 2015). New Jersey could also consider authorizing utilities to fund these transportation electrification pilots.

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[11] *Governor's Office of Business and Economic Development, EV Charging Station Permitting Guide,* available at http://businessportal.ca.gov/wp-content/uploads/2019/07/GoBIZ-EVCharging-Guidebook.pdf

[12] *SDG&E Gets Greenlight to Launch Major Program to Build Chargers for Electric Buses, Trucks and More,* available at http://www.sdgenews.com/article/sdge-gets-greenlight-launch-major-program-build-chargers-electric-buses-trucks-and-more

- *Question 6: What policy mechanisms should the state develop to reduce greenhouse gas emissions at its ports?*

Ports across the country are implementing a number of innovative carbon reduction programs. Investments in the electrification of trucks, yard tractors, forklifts, and gantry cranes can help reduce ports' reliance on fossil fuels and result in substantial emissions reductions. The Port of Long Beach, California, has established a number of electrification strategies, including an objective of deploying zero-emissions trucks and terminal equipment over the next 15 years. The Port of Long Beach's Port Community Electric Vehicle Blueprint[13] discusses these strategies in detail and describes the methodology behind how they were identified. The Port of Los Angeles and Long Beach's joint Clean Air Action Plan 2017 Update called for 100% zero-emission trucks operating at the ports by 2035. The Ports are considering various funding mechanisms, such as a surcharge on containers, to help fund this transition. CSE recommends that New Jersey consider some of these targets, strategies, and funding mechanisms when seeking to reduce emissions from ports. In particular, the Port of Newark constitutes an opportunity to leverage Volkswagen settlement funds to electrify port operations and reduce GHG emissions and criteria air pollutants.

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

- *Question 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?*

CSE strongly supports New Jersey's establishment of mandatory energy efficiency targets for electric and gas utilities through the Clean Energy Act. Setting specific targets is an important step in achieving necessary energy efficiency gains by allowing for goals to be incorporated into planning processes, setting a clear signal to the market, and helping ensure accountability among responsible actors. Moreover, energy efficiency resource standards (EERS) have proven to be a valuable policy for meeting state goals. According to the American Council for an Energy-Efficient Economy (ACEEE), "[i]n 2017, states with an EERS in effect achieved incremental electricity savings of 1.2% of retail sales on average, compared with average savings of 0.3% in states without an EERS," and 19 of the top 20 electricity-saving states had an EERS in place.[14]

While CSE commends New Jersey's mandatory targets established in the Clean Energy Act, we believe there is an opportunity for the State to be more aggressive in its goals in order to continue to establish

[13] *Port of Long Beach Port Community Electric Vehicle Blueprint,* available at http://www.polb.com/civica/filebank/blobdload.asp?BlobID=15071
[14] ACEEE, *Next-Generation Energy Efficiency Resource Standards (Report U1905),* August 2019, page 5, available at https://aceee.org/research-report/u1905.

itself as a leader in energy efficiency. For example, Massachusetts, Rhode Island, and Vermont achieved annual electricity savings targets greater than 2.0% in 2016 and 2017, demonstrating the feasibility of ambitious goals.[15] While New Jersey passed legislation to establish its first energy efficiency portfolio standard in 2018, the State has a robust history and infrastructure in place for supporting energy efficiency, and therefore does not require a lengthy ramp-up period in its goal setting process.

When establishing energy efficiency targets, CSE recommends looking at the energy sector holistically, recognizing that energy efficiency targets do not operate in isolation. Rather, energy efficiency becomes increasingly important as other climate strategies are implemented, such as electrifying the transportation sector and energy end-uses in buildings. As new electric loads are added to the grid to meet climate goals, energy efficiency efforts are essential to substantially offset the added load. Therefore, integration of energy efficiency and demand management is essential to unlocking deeper energy savings and will require increased training on the load management concepts, controls integration, and the interaction of building systems. Moreover, energy efficiency targets should be developed within the broader framework of statewide climate goals. To quantify the contribution of energy efficiency among other climate strategies, CSE suggests NJBPU work back from these statewide climate goals to determine the energy savings needed each year to achieve the necessary GHG emissions reductions.

In addition to the broad energy efficiency targets, CSE recommends NJBPU consider additional goals to be embedded within the targets. For example, carve-outs for environmental justice communities can be used to ensure Governor Murphy's promise for a Stronger and Fairer New Jersey is reflected within utility energy efficiency programs, and additional goals can target promising markets, such as heat pumps or specific GHG emissions reductions. Similarly, establishing multi-factor performance incentives can help New Jersey drive specific energy-saving activities, including peak demand reductions.

- *Question 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?*

Many states, such as New York,[16] California,[17] Vermont[18] and Hawaii[19] have entrusted third-party administrators with energy efficiency and distributed energy resources programs. These states have

[15] *Id.* at 6.
[16] *See* various energy efficiency programs administered in the State of New York, available at https://database.aceee.org/state/new-york.
[17] *See* the Solar On Multifamily Affordable Housing (SOMAH) Program, a statewide third party administered solar incentives program for multifamily-low income tenants in California, available at https://www.cpuc.ca.gov/General.aspx?id=6442454736.
[18] *See* Efficiency Vermont, the statewide energy efficiency utility administered by an independent entity, available at https://puc.vermont.gov/energy-efficiency-utility-program/history-and-structure.
[19] *See* Hawaii Energy, the statewide third-party administrator for energy efficiency program deployment in Hawaii, available at https://hawaiienergy.com/.

discovered that independent statewide administrators are traditionally better equipped to achieve state policy objectives and respond to shifting market demands when compared to investor-owned utilities (IOUs). For example, a third-party administrator can centralize core program functions across the entire State rather than through merely one IOU service area. This leads to less consumer confusion and more direct "decision to marketplace" deployment of effective programs that meet the policy goals of lawmakers and regulators. Conversely, New Jersey's four major IOUs, which operate under separate corporate cultures, structures, and timelines, may find it challenging to collaborate to deploy an energy efficiency program that functions cohesively and consistently for all customers across the State. In addition, statewide administration allows for greater flexibility in targeting specific communities, such as low- and moderate-income and environmental justice communities, which may be concentrated differently across IOU service territories.

Other states have also discovered that third-party administrators are subject to less conflicts of interest when attempting to meet state energy policy and efficiency goals. Simply stated, "choosing an independent (meaning non-IOU) administrator allows for the selection of an entity with a mission fully aligned with promoting energy efficiency and conservation".[20] Whereas IOUs may possess a multitude of competing objectives that are inherently driven by the need to build more electric energy infrastructure, a third-party administrator can singularly dedicate itself to obtaining the goals of New Jersey's energy efficiency transformation. For example, in 2006, the Hawaii State Legislature recognized this inherent conflict of interest and authorized the Hawaii Public Utilities Commission to transfer energy efficiency program funds to a third-party administrator.[21] This regional third-party administrator has been incredibly successful in deploying energy-efficient technologies to the marketplace.[22] In addition, the selection and funding of third-party administrators can be tied to performance-based goals to ensure programs are meeting specific State targets and policy priorities.

- *Question 14: How can the state ensure equitable access to and benefit from energy efficiency programs for all residents?*

CSE recommends that energy efficiency programs incorporate the feedback from low- and moderate-income and environmental justice communities at all phases of program development. One way to gather this feedback is for a program to establish an advisory committee – composed of representatives from these communities – to inform program design and implementation. This type of committee would

[20] *CAEECC-Hosted Transformation Working Group Report and Recommendations to the California Public Utilities Commission*, March 18, 2019, page A-36, available at http://docs.cpuc.ca.gov/PublishedDocs/Efile/G000/M281/K395/281395459.PDF.
[21] *See* HRS Section 269-121-124, available at https://www.capitol.hawaii.gov/hrscurrent/Vol05_Ch0261-0319/HRS0269/HRS_0269-0121.htm.
[22] *See* AEG Applied Energy Group, *Evaluation of the Hawaii Energy Conservation and Efficiency Programs*, Program year 2017, April 16, 2019, available at https://hawaiienergy.com/files/about/information-and-reports/PY2017_EMV_Report.pdf.

help ensure that a program is accessible to these communities and is meeting community-identified needs.

Another approach to ensure that energy efficiency programs are equitable and benefiting all residents is to set aside funds for education and outreach activities targeted specifically for low- and moderate-income and environmental justice communities. Based on our experience as the administrator for California's EV program, which has an equity component, these targeted activities require a comprehensive in-person and community-based education and outreach strategy, which is more labor-intensive than a traditional marketing plan. A key component of this strategy is to partner with community-based organizations (CBOs) and to compensate them for their time and expertise.

Education and outreach efforts for low- and moderate-income and environmental justice communities are more effective when they are delivered by CBOs because these organizations are trusted and credible sources of information. CBOs are also experts in providing meaningful outreach that meets their communities' multilingual and cultural needs. Furthermore, CSE has found that partnerships with CBOs are more successful when these organizations are included in the design phase of an outreach and education plan prior to implementation.

Research conducted by CSE on energy efficiency programs and Latino households offers additional program recommendations.[23] Energy efficiency programs should offer options for low-income households through varied financing options, phased whole-house retrofit programs, low-cost measures (e.g., lightbulbs, HVAC filters), and expanded direct install programs. Programs can be designed to facilitate upgrade work by a broader network of contractors and do-it-yourself (DIY) homeowners, especially for homeowners who are less likely to hire from a program's participating contractor list. Energy efficiency should be integrated with other programs to offer more holistic home improvement services that address health and safety issues (e.g., lead and mold) and to achieve zero net energy and climate resiliency goals through multiple technologies (e.g., solar, storage).

- *Question 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?*

CSE believes New Jersey has already achieved an important step in strengthening the State's building and energy codes through the Clean Energy Act's requirement that commercial buildings over 25,000 square feet benchmark their energy and water consumption via the US Environmental Protection Agency's (EPA) ENERGY STAR® Portfolio Manager. Whole building energy benchmarking lays the foundation for effective energy efficiency market transformation by illuminating current building

[23] Center for Sustainable Energy, Social Science Research: Latino Homeowners and Energy Efficiency Retrofits, available at https://sites.energycenter.org/program/social-science-research-latino-homeowners-and-energy-efficiency-retrofits.

performance to identify savings opportunities and to better plan for a more efficient building stock. Building energy benchmarking is a key strategy in both ensuring building codes are realizing the anticipated savings, as well as quantifying the requirements to pursue net zero energy and net zero carbon goals for the existing building stock. CSE recommends the State seek opportunities to expand its requirements, as its benchmarking program is rolled out, by reducing the square footage threshold, including multifamily buildings, implementing disclosure requirements, and learning from successful policies in other jurisdictions, such as the District of Columbia, Boston, and Washington State[24]

Additionally, an important component to building energy benchmarking initiatives are regulations that provide building owners access to whole-building energy data without requiring individual tenant permissions, provided certain data aggregation thresholds are met to protect privacy. For example, California adopted whole-building energy data access policies for all commercial, multifamily, and mixed-use property owners that meet certain aggregation thresholds. By providing data access, regulators can ensure building owners have access to the information they need to accurately track and report on their building's energy performance.

While jurisdictions that have benchmarking policies in place do see trends in increased energy savings, many are implementing specific performance targets or audit requirements to further drive the building stock towards increased energy efficiency. These include mandatory requirements such as energy audits, performance targets, data verification by third parties, lighting upgrades, retrocommissioning, and/or submetering. For example, in 2019, the Washington State Legislature passed House Bill (HB) 1257 which represents the first ever statewide adoption of an energy performance standard for existing buildings.[25]

CSE also recommends New Jersey look to California's Building Energy Efficiency Standards ("Energy Code" or "Title 24, Part 6") and Green Building Standards ("CALGreen" or "Title 24, Part 11") for examples of building and energy codes that exceed current national standards, such as those established by the American Society of Heating, Refrigerating and Air-Conditioning Engineers (ASHRAE) and the International Energy Conservation Code (IECC). Both standards include mechanisms for local jurisdictions to go above-and-beyond statewide requirements; CALGreen includes mandatory requirements, along with voluntary tiers that local jurisdictions can make mandatory, while local jurisdictions may propose amendments to the state Energy Code that require buildings to be designed to consume no more energy than permitted by Title 24, Part 6. These options allow for the development and testing of more aggressive standards to help drive the efficiency markets, as well as to integrate building and energy codes with other local climate strategies. For example, CSE worked with the City of Carlsbad, CA to adopt ordinances that addressed mandatory solar requirements, alternative energy

[24] *See* BuildingRating.org, available at www.buildingrating.org/jurisdictions.
[25] The National Law Review. *New Washington Legislation Drives Energy Conservation in Commercial Buildings.* July 10, 2019, available at https://www.natlawreview.com/article/new-washington-legislation-drives-energy-conservation-commercial-buildings.

water heating, energy efficiency, and electric vehicle (EV) charging infrastructure standards.[26] Providing technical assistance and support is an important component to strengthening local building and energy codes, and local governments can benefit from statewide resources funded by IOUs or State agencies. States including Massachusetts[27] and California[28] have successfully encouraged local "reach" or "stretch" codes through such support, while New York[29] and Rhode Island are in the process of implementing stretch codes that will result in energy savings of more than 10 percent above state code.[30] Lastly, it is essential that building and energy code development is accompanied by incentive structures or enforceability mechanisms, as well as training and resources for code officials, to help ensure compliance and achievement of intended savings goals. CSE has learned the effectiveness of one-on-one and group hands-on training for local plans examiners and inspectors. CSE's Energy Code Coach program provided support and opportunities to increase collaboration among the local jurisdiction building department staff and applicants, which successfully helped build capacity for compliance with the energy code.[31]

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

- *Question 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?*

State building codes and appliance standards are the principal regulatory mechanisms for achieving net zero carbon construction. As such, much of the discussion in our response to Question 15 regarding benchmarking, stretch codes, and technical support is relevant to New Jersey's transition to net zero carbon construction. In addition to codes and standards, this transition should be complemented by a robust portfolio of incentive programs for energy efficiency, on-site renewable energy, and energy storage projects. Similarly, supportive policies such as streamlined permitting and interconnection for energy efficiency and renewable energy projects, as well as favorable rate structures and demand-side

[26] City of Carlsbad. *Climate Action Plan Ordinances,* available at https://carlsbadca.gov/services/depts/pw/environment/cap/ordinances.asp.
[27] Adoption of the Massachusetts stretch energy code accounts for more than 70 percent of the state population. *See* Massachusetts Department of Energy Resources, *Building Energy Code*, available at https://www.mass.gov/info-details/building-energy-code.
[28] *See* California Statewide Codes & Standards Program, Local Energy Codes for example of technical support, available at https://localenergycodes.com; *See* California Energy Commission, Local Ordinances for example of approved reach codes, available at https://ww2.energy.ca.gov/title24/2016standards/ordinances/.
[29] *See* New York State Energy Research and Development Authority (NYSERDA), NYStretch Code-20, available at https://www.nyserda.ny.gov/All-Programs/Programs/Energy-Code-Training/NYStretch-Energy-Code-2020.
[30] *See* Rhode Island Stretch Codes, available at http://www.energy.ri.gov/policies-programs/lead-by-example/rhode-island-stretch-codes.php.
[31] Center for Sustainable Energy, Energy Code Coach, available at https://energycenter.org/program/energy-code-coach.

management programs create a more favorable environment for reaching net zero carbon construction goals. As acknowledged in Goal 4.1.3 of the Draft EMP, demand response ready technologies will enable buildings to interact with the modernized grid[32] and therefore respond to real-time signals about the carbon-intensity of the electricity mix to reduce a building's carbon emissions. CSE recommends New Jersey support the continued development and advancement of standardized communications protocols that are user-friendly and designed with integration in mind, as well as programs that provide training in load management and integration of controls and drive the adoption of these technologies to help meet net zero carbon goals.

To ensure a holistic policy framework, CSE recommends New Jersey develop a net zero carbon construction roadmap and adopt official goals. Because every new building that is not built to be zero net carbon locks in GHG emissions for future decades, it is important that New Jersey set near-term, actionable goals to begin the transition. Incremental goals can be set for different market segments and building types. For example, public buildings provide an opportunity to lead by example in high visibility facilities to demonstrate technical feasibility, cost-effectiveness, and best practices. It is important that these interim milestones create a glide path to achieve long-term State goals. Specifically, code updates should provide a clear path to net zero carbon construction, such as has been demonstrated in British Columbia with Canada's Energy Step Code, which commits the Province to taking incremental steps to make buildings net zero energy ready by 2032 and provides voluntary standards to help local jurisdictions advance toward that goal.[33] Upon adopting statewide goals, CSE recommends New Jersey support local jurisdictions in developing accelerated pathways to help lead the market. A 2015 report developed by CSE outlines nine policy recommendations for local jurisdictions in California, several of which may provide useful insights for New Jersey.[34]

- *Question 17: What barriers exist that could hinder successful implementation of new net zero carbon construction?*

Implementing new net zero carbon construction is technically feasible but still faces several barriers. However, CSE believes New Jersey can overcome such barriers through thoughtful, targeted policies. First, transitioning to net zero for new construction will result in increased upfront costs in many applications, which can be especially difficult for affordable housing units. As discussed in our response to Question 16, incentive programs are an essential component to moving the market forward, and energy efficiency incentives can help bridge the gap to achieve the significant life-cycle benefits of building net carbon zero, such as health cost savings and dramatically reduced energy bills. Similarly, CSE

[32] *Draft 2019 New Jersey Energy Master Plan Policy Vision to 2050,* June 10, 2019, page 71.
[33] *British Columbia Energy Step Code*, available at https://www2.gov.bc.ca/gov/content/industry/construction-industry/building-codes-standards/energy-efficiency/energy-step-code.
[34] Center for Sustainability. 2015. *Zero Net Energy Buildings: How California's Local Jurisdictions Can Lead the Way,* available at https://sites.energycenter.org/sites/default/files/docs/nav/programs/sd-regional-partner/zero_net_energy_buildings_sdrep_may2015.pdf.

recommends New Jersey consider enacting Property Assessed Clean Energy (PACE) lending or other financing programs to allow property owners to finance energy efficiency, renewable energy or water efficiency projects with little or no up-front costs. In addition, as noted in our response to Question 16, additional project costs caused by lengthy and resource-consuming permitting processes can be addressed through streamlined permitting processes.

In addition to barriers associated with costs, a 2015 study performed on behalf of California IOUs on current zero-net energy (ZNE) market characteristics found a lack of consumer demand and qualified building professionals.[35] As such, workforce training and education will be critical to overcoming similar challenges in the New Jersey market and building consumer awareness.

- *Question 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.*

CSE fully supports New Jersey's proposed transition to a largely electrified building sector by 2050. Developing a transition plan, as outlined in Goal 4.2.2, will be important for meeting 2050 goals. However, CSE believes the roadmap should also include incremental milestones that track market transformation metrics, such as market share of heat pump technologies and size of skilled workforce. While initially targeting new residential construction is the most cost-effective option, achieving the State's building decarbonization goals will require significant investments in existing buildings. CSE agrees with the Draft EMP's strategy to prioritize existing buildings with oil and propane heating systems for electrification but encourages the State to begin supporting this transition within targeted existing natural gas-heated buildings sooner than 2030, as suggested in the Draft EMP.[36] Heating systems are most often replaced at the point of failure, resulting in limited opportunities to switch to high efficiency electric equipment. Accordingly, the State should begin efforts to start developing this market immediately rather than locking in future GHG emissions from new natural gas heating equipment. This effort will include incentive programs, educational resources, and contractor training and certification to build-up the value of high efficiency electric heating systems and establish a workforce that is prepared to sell and install such equipment at the time of the customer's need.

Similarly, to support a transition to a largely electrified building sector, CSE recommends New Jersey avoid new investments in natural gas infrastructure and equipment. While the Draft EMP notes ramping down the approval of new subsidies that incentivize building owners to retrofit from oil heating systems

[35] *Residential ZNE Market Characterization*, February 27, 2015, available at http://www.calmac.org/publications/TRC_Res_ZNE_MC_Final_Report_CALMAC_PGE0351.01.pdf.

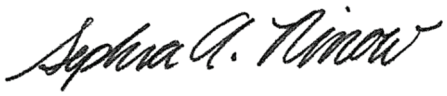
[36] *Draft 2019 New Jersey Energy Master Plan Policy Vision to 2050,* June 10, 2019, page 72.

to natural gas heating systems,[37] such subsidies should be eliminated as soon as possible to send a strong market signal that natural gas should not be treated as a bridge fuel. Rather, the State should strategically regulate investments in new gas infrastructure to avoid the cost-shifting of stranded assets to remaining gas customers, such as targeting communities with aging gas infrastructure. As discussed in our response to Question 15, the State should work with local jurisdictions to support the development of stretch codes that encourage all-electric construction and retrofits. In addition, the State's building decarbonization efforts should be integrated with other complementary initiatives, such as rate structures that account for all-electric buildings,[38] policies that support installation of solar PV, and demand response programs that consider marginal GHG emissions.

III. CONCLUSION

CSE appreciates the opportunity to provide these comments regarding the Draft EMP. We look forward to collaborating with State agencies and stakeholders in supporting New Jersey's vision of a sustainable future.

Sincerely,



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[37] *Id.* at 71.
[38] Building Decarbonization Coalition. 2019. *Report: Rate Design for Building Electrification, a*vailable at http://www.buildingdecarb.org/uploads/3/0/7/3/30734489/bdc_report_2_rate_design.pdf.