



June 11, 2024

New Jersey Board of Public Utilities  
Submitted electronically to Docket No. Q024020126

**RE: New Jersey Board of Public Utilities' 2024 New Jersey Energy Master Plan**

Environmental Defense Fund appreciates the opportunity to provide comments on the Board of Public Utilities' 2024 Energy Master Plan. The Environmental Defense Fund ("EDF") is a membership organization with over 3 million members globally and more than 110,000 New Jersey members and activists, whose mission is to preserve the natural systems on which all life depends. Guided by expertise in science, economics, law, and business partnerships, EDF seeks practical and lasting solutions to address environmental problems. EDF conducts extensive research around the environmental, climate, and social implications of various climate initiatives, some of which are touched upon in the BPU's Energy Master Plan – we have organized our comments around the relevant sections of the EMP for which EDF has expertise.

We would be glad to clarify or provide further details on any of the points made in the comments below. If there are any questions, BPU staff should contact Karla Sosa ([ksosa@edf.org](mailto:ksosa@edf.org)), Project Manager, New York – New Jersey State Affairs.

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

EDF commends the administration for the ambitious transportation objectives it adopted in the 2019 EMP, and the meaningful steps it has taken since to achieve them. New Jersey adopted the Advanced Clean Trucks (NJAC 7:27-31) rule in 2021; and the Heavy-Duty Low NOx Omnibus (NJAC 7:27-28A) and Advanced Clean Cars II (NJAC 7:27-29A) Rules in 2023. These rules will help ensure the availability of low- and no-emissions vehicles to New Jerseyans. NJEDA also established a top-tier vehicle purchase incentive program through the New Jersey Zero-Emission Incentive Program (NJ ZIP), discussed further below.

Developments at the federal level have confirmed the wisdom of prioritizing transportation in the 2019 EMP. The IIJA and IRA are making billions of dollars available for transportation electrification, including through the Department of Energy GRIP program; EPA Clean Ports program; EPA Clean Heavy-Duty program; and many others. The Joint Office's National Zero-Emission Freight Corridor Strategy also selected several sites in New Jersey as key transportation hubs to be decarbonized in the near-term,<sup>1</sup> and has signaled that such key hubs should be given "priority weighting" in federal grant funding opportunities. New Jersey's

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<sup>1</sup> Joint Office of Energy and Transportation, "National Zero-Emission Freight Corridor Strategy" (2024), <https://driveelectric.gov/files/zef-corridor-strategy.pdf>

efforts to develop a supportive regulatory environment make it well-positioned to take advantage of these unprecedented opportunities.

The value proposition for decarbonizing transportation has only improved since the 2019 EMP. Many light-duty electric vehicles are already cheaper, on a 10-year total cost of ownership basis, than their fossil-fueled counterparts.<sup>2</sup> Medium- and heavy-duty vehicles are following suit. As battery costs continue to decrease faster than expected,<sup>3</sup> battery-electric trucks are now expected to be cheaper to own than diesels for most truck classes by 2030,<sup>4</sup> or even sooner when factoring in IRA tax credits.<sup>5</sup> And this is before considering indirect benefits: as the 2019 EMP correctly observes, cleaning up transportation “provid[es] large, direct health savings, with outside benefits to environmental justice communities currently burdened by poor air quality.”<sup>6</sup> Moreover, vehicle electrification also benefits electric ratepayers, including those who do not own electric vehicles. Electric vehicle customers tend to pay more in utility bills than the utility’s corresponding incremental cost to serve them. This spreads grid costs across more electric sales and puts downward pressure on electric rates. Multiple studies have demonstrated this impact,<sup>7</sup> including a 2024 study by Synapse suggesting that electric vehicles have already generated over \$80 million in electric rate benefits for New Jerseyans since 2011.<sup>8</sup>

For these reasons (among many others), New Jersey should continue to make transportation decarbonization a priority in the 2024 EMP. The below recommendations are intended to help New Jersey build on its prior successes and focus its future efforts to optimize benefits to residents.

**a. The EMP should prioritize medium- and heavy-duty vehicle segments.**

In its Request for Information issued May 14, 2024, the NJBPU asked, *inter alia*:

On which sectors should the State focus for spurring electrification (for instance, used EVs, medium- and heavy-duty vehicles, and/or ports)?

EDF encourages New Jersey to prioritize electrifying the medium- and heavy-duty transportation sectors – which includes port operations such as drayage – in the near-term. To be clear: light-duty vehicle electrification is also critically important, and the State should not slow its efforts to make electric passenger vehicles widely available and affordable,

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<sup>2</sup> EDF, “Driving change: How electric vehicles are benefiting Americans across the country” (2024), <https://www.edf.org/driving-change-how-electric-vehicles-are-benefiting-americans-across-country>

<sup>3</sup> Bloomberg New Energy Finance, “Fast-Falling Battery Prices Boost Economic Benefits Expected from Heavy-Duty Vehicle Electrification” (2024), <https://energyinnovation.org/publication/fast-falling-battery-prices-boost-economic-benefits-expected-from-heavy-duty-vehicle-electrification/>

<sup>4</sup> *Id.* at 17.

<sup>5</sup> Roush, “Impact of the Inflation Reduction Act of 2022 on Medium- and Heavy-Duty Electrification Costs for MYs 2024 and 2027” (2023), [https://www.edf.org/sites/default/files/2023-05/Impact\\_of\\_IRA\\_MHD\\_Electrification\\_Costs\\_MYs\\_2024\\_and\\_2027\\_Roush.pdf](https://www.edf.org/sites/default/files/2023-05/Impact_of_IRA_MHD_Electrification_Costs_MYs_2024_and_2027_Roush.pdf)

<sup>6</sup> 2019 EMP at 61.

<sup>7</sup> See, e.g., Public Advocates Office at the California Public Utilities Commission, “Distribution Grid Electrification Model Findings” (2024), <https://www.publicadvocates.cpuc.ca.gov/press-room/reports-and-analyses/distribution-grid-electrification-model-findings>; Li, Yanning and Jenn, Alan, “Impact of electric vehicle charging demand on power distribution grid congestion” 121 PNAS 18 (2024), <https://www.pnas.org/doi/10.1073/pnas.2317599121>

<sup>8</sup> Shenstone-Harris et. al, “Electric Vehicles Are Driving Rates Down for All Customers” (2024), <https://www.synapse-energy.com/evs-are-driving-rates-down>

particularly for residents of multifamily housing. But, all else equal, medium- and heavy-duty vehicles (MHDVs) face unique decarbonization challenges – and electrifying them produces substantial benefits – sufficient to warrant extra attention.

With respect to potential benefits: MHDVs comprise 4% of on-road vehicles in New Jersey, but because they remain heavily dependent on diesel fuel, make up nearly 25% of the transportation sector's greenhouse gas emissions and disproportionate shares of its NO<sub>x</sub>, SO<sub>x</sub>, and particulate emissions.<sup>9</sup> These emissions cause a wide array of negative health outcomes. Though these concerns are particularly acute in overburdened communities close to trucking routes, the NJ Department of Health recognizes that “All New Jersey counties exceed the health benchmark of 0.0033 micrograms of diesel particulate matter per cubic meter of air.”<sup>10</sup> (emphasis added) Transitioning MHDVs from diesel to non-emitting fuels such as electricity therefore stands to produce outsized impacts.

With respect to challenges: the electric MHDV segment is generally less mature, and faces more practical barriers to procurement and operation, than the electric light-duty vehicle segment. For example, the 1<sup>st</sup> and 3<sup>rd</sup> highest-selling light-duty vehicles in New Jersey in 2023 were EVs.<sup>11</sup> Light-duty vehicles comprise 98.7% of EV registrations in New Jersey.<sup>12</sup> Factors that contribute to comparatively slower electric MHDV growth to date include:

- Higher relative cost of ownership. As discussed above, electric MHDVs are rapidly approaching cost parity with diesel equivalents but remain a few years behind LDs.
- More concentrated charging needs. A single electric MHDV fleet depot can produce multi-megawatt charging loads, which can come online much more quickly (MHDV vehicles can typically be delivered within 6-12 months) than comparably-sized traditional electric loads such as office buildings. This places increased pressure on utilities to anticipate and prepare for MHDV charging loads. While there exist policy tools that can help ease these pressures, they have not yet been widely adopted in New Jersey.<sup>13</sup>
- Operational needs. Compared to light-duty vehicles, MHDV fleets are more likely to have relatively inflexible operational requirements, such as fixed delivery schedules or long routes, which make electric fueling comparatively more difficult. Compounding this issue, the network of en-route charging facilities suitable for light-duty vehicles is considerably further developed than that for MHDVs, due in part to the National Electric Vehicle Infrastructure's (NEVI) historical focus on light-duty charging.

The EMP should seek to address these barriers to accelerate deployment of electric MHDVs. As an immediate next step, this should include completing the proceeding at NJBPU Docket No. Q021060946, “In the Matter of Medium and Heavy-Duty Electric Vehicle Charging Ecosystem,” and requiring electric utilities to submit plans consistent with parties' comments therein.

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<sup>9</sup> See generally <https://dep.nj.gov/drivegreen/mhdv-why/>

<sup>10</sup> NJ DOH, “Diesel Particulate Matter in Outdoor Air” (2022), [https://www.doh.state.nj.us/doh-shad/indicator/complete\\_profile/DieselPM.html](https://www.doh.state.nj.us/doh-shad/indicator/complete_profile/DieselPM.html)

<sup>11</sup> Edmunds, “Most popular cars in America” (2023), <https://www.edmunds.com/most-popular-cars/#:~:text=1.,vehicle%20in%20America%20for%202023>

<sup>12</sup> Atlas, “EvaluateNJ” (2023), <https://atlaspolicy.com/evaluateni/>

<sup>13</sup> See, e.g., Comments of Environmental Defense Fund and CALSTART, filed January 24, 2023, at NJBPU Docket No. Q021060946.

**b. The EMP should describe the state's efforts to implement the National Zero Emission Freight Corridor Strategy.**

The National Zero Emission Freight Corridor Strategy, discussed above, provides a clear roadmap for phasing in MHDV electrification across priority corridors, including many locations in New Jersey. EDF understands that New Jersey agencies are already engaged in two DOE-funded stakeholder planning initiatives to flesh out this roadmap at a more-granular level, which should help pinpoint exactly where and how priority sites will be electrified over time. The EMP represents an opportunity to explain how the state will iterate upon and apply these planning efforts' findings. The EMP should also affirm that such plans (including the EMP itself) can and should be used to inform subsequent actions of agencies and regulated entities. For example, the NJBPU should require electric utilities to align their grid deployment efforts with the needs identified through these planning initiatives. In other words: utilities should plan to meet these objectives; they should not plan to *not* meet them.

**c. New Jersey should redouble its efforts to modernize electric distribution systems to support faster vehicle electrification.**

The electric utility grid is the backbone of the electrification economy and will often set the pace at which New Jerseyans can electrify their vehicles, homes, and businesses. The EMP should describe how state agencies will coordinate efforts to support improved utilization and efficient expansion of the grid in preparation for electrification loads. These efforts should include:

- Incorporation of additional data sources (e.g., geospatial analyses of fleet depots and truck route patterns) in utility planning to better identify future load sources.
- Expanded use of cost-effective non-wires utility-side solutions, such as energy storage, to defer or mitigate the need for traditional grid infrastructure.
- Programs to enable greater load flexibility, such as flexible interconnections<sup>14</sup> and structured utility management of customer-side DERs, to enable more customers to connect to the grid without triggering the need for capital upgrades.
- Express consideration of community benefits in the development, evaluation, construction, and operation of major grid projects.
- Coordinated, aggressive pursuit of federal funding opportunities.

**d. New Jersey should adopt the Independent Source Review rule.**

Due to the e-commerce boom, nearly 1 in 3 New Jersey residents now lives within a half mile of a mega-warehouse. Daily, each warehouse generates hundreds of truck trips, which as discussed above predominantly rely on diesel fuel and therefore emit pollution linked to fetal and infant mortality, birth complications, asthma, and cancer. The neighborhoods where warehouses are built tend to be communities of color or low wealth, and those disproportionately impacted by air pollution.

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<sup>14</sup> Horan, "Flexible interconnection can optimize the grid and speed deployment of charging infrastructure" (2024), <https://blogs.edf.org/energyexchange/2024/01/30/flexible-interconnection-can-optimize-the-grid-and-speed-deployment-of-charging-infrastructure/>

The EMP can help protect the health of warehouse neighbors, support emissions reductions, and maximize the health benefits of medium- and heavy-duty vehicle electrification by calling for the adoption of an Indirect Source Review (ISR). An ISR regulates the emissions generated by trucks traveling to and from facilities by regulating the facility as an “indirect source” of pollution; the concept is similar to how power plants and factories are regulated as “direct sources” of pollution. This policy has been implemented by California’s South Coast Air Quality Management District and is under consideration in New Jersey, New York, and Illinois. ISRs focused on construction have been successfully implemented across the country.

An ISR that adequately addresses climate and health impacts from the e-commerce industry would assess and call for emission reduction plans from new and existing warehouses as well as other major truck-attracting facilities like ports. It would achieve this by establishing a points system where facilities earn points by taking concrete mitigation actions to reduce their pollution through concrete actions over time. These actions could include:

- Acquiring and using zero-emissions trucks, yard equipment and electric charging infrastructure.
- Using alternatives to truck trips for incoming or outgoing trips such as e-cargo bikes, light-duty electric vehicles or electric ferries.
- Installing on-site solar power generation, electricity storage and managed charging systems.
- Installing and maintaining MERV 16 or greater filter systems in schools, daycares, hospitals, community centers or residences within half a mile of a regulated facility.
- Reducing transport emissions for regulated facility neighbors by building and maintaining docked e-bike share or EV carshare.

**e. New Jersey should continue and expand NJZIP.**

NJZIP, mentioned above, has already served to accelerate the equitable deployment of electric MHDVs in New Jersey. One component of NJZIP that disproportionately ensured the equitable distribution of electric MHDVs and their benefits is the per-vehicle voucher bonuses. These voucher bonuses provided bonuses for small businesses, for businesses driving in overburdened communities, and for certified woman-, minority-, or veteran-owned businesses, ultimately yielding impressive results. In Phase 1 of the program, \$40.6 million dollars in voucher fund applications were approved and over 90% of the recipients of those funds were small businesses. Additionally, a majority of the applicants approved were women and/or minority owned businesses, according to a 2022 memo on the program.

In Phase 2 of NJZIP, NJEDA built upon their success with Phase 1 and made three improvements to the program that EDF would like to highlight. The first was to redesign the women-, minority-, or veteran owned business voucher bonus so applicants could be eligible for and receive bonuses from each individual category a business may fall into. The second improvement was to offer support for the purchase of heavy-duty vehicles. As mentioned earlier, heavy-duty vehicles tend to be more expensive than their medium-duty counterparts, so providing some financial support for their purchase is valuable. The third improvement was the roll out of the NJ ZIP Help Desk. Small businesses with small fleets often do not have the

same resources or technical expertise as larger fleets in regard to electrification, so fleet support programs are critical to ensure small fleets can electrify as smoothly as possible.

While Phases 1 and 2 of NJZIP were done well, there are portions of the program that can still be iterated on. EDF believes that covering a portion of charging infrastructure costs could be a natural extension of the program. Even with potential full coverage of the vehicle costs, the cost of charging infrastructure can still be substantial. Making charging infrastructure eligible for funding NJZIP funding would provide more comprehensive funding for businesses that are trying to electrify.

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

- a. To support New Jersey's goal of maximizing solar development and distributed energy resources by 2050, New Jersey should require transparent and verifiable hosting capacity maps and transparent interconnection cost estimates.**

The BPU should require utilities to provide hosting capacity maps, updated at regular intervals, using verified data. Hosting capacity data should minimize false positives (telling developers that hosting capacity exists where there is none) and false negatives (telling developers there is no hosting capacity where there is some). The National Renewable Energy Laboratory (NREL) authored a report, Data Validation for Hosting Capacity Analyses, whose key takeaway is that “the usefulness of hosting capacity analysis (HCA) depends on users’ confidence that the CHA results accurately reflect grid conditions.” As reflected in that report, experiences and documented process in California, Massachusetts, Minnesota, Nevada, and New York, NREL identified four key steps in any hosting capacity analysis (HCA): 1) model preparation, 2) stimulation, 3) post-data processing, and 4) visualization.

To protect ratepayers from unnecessary costs, the BPU should also require utilities to provide transparent and itemized estimates for interconnection cost estimates. Regardless of who pays interconnection costs, utility interconnection cost estimates must be transparent and itemized, giving developers the opportunity to identify savings. In April 2024, the Board announced proposed grid modernization rules that would require a streamlined process for interconnections, including a pre-application and verification process that will provide interconnection applicants with an early indication of feasibility and costs. Finalizing this rule will support New Jersey's goals of affordably maximizing solar development and other distributed energy resources by 2050.

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

- a. Finalize New Jersey's Home Energy Rebate Application.**

As of June 4, 2024, New York is the only state with an approved Home Energy Rebate program with the United States Department of Energy.<sup>15</sup> Sixteen other states have submitted applications that are pending review. New Jersey is one of the other 34 states (and Washington, D.C.) that are still preparing applications. Together with certain tax credits and

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<sup>15</sup> US Dept. of Energy, Home Energy Rebates portal, <https://www.energy.gov/save/rebates>



the Weatherization Assistance Program, the Home Energy Rebate Program can help all households save money on energy, while dedicating a portion of funds to low- and moderate-income households. These energy rebates will help New Jersey residents maintain healthy and safe indoor air quality and reduce reliance on fossil fuels. Once approved, the Department of Energy has prepared a Communications and Marketing Toolkit to increase education and awareness.<sup>16</sup> EDF encourages New Jersey to promptly pursue its Home Energy Rebate Application and plan a communication and marketing strategy to maximize the impact of the Home Energy Rebate program in New Jersey.

## **Strategy 5: Decarbonize and Modernize New Jersey's Energy**

### **a. Continue to pursue rules requiring long-term grid modernization planning rules.**

At its April 30, 2024 Agenda Meeting, the Board announced that “deeper grid modernization will be pursued through recommendations developed in expert workgroups organized under an upcoming Grid Modernization Forum” facilitated by the Board. The Board should focus on implementing Goal 5.1.1 in New Jersey's 2019 Energy Master Plan, requiring utilities to establish Integrated Distribution Plans. EDF reiterates its recommendation in the 2019 EMP that the Board establish a well-defined starting point, that utilities and stakeholders perform a self-assessment to understand the present state of the grid, including grid functionalities and distribution system planning, what and where data gaps exist, and how much work needs to be done to reach New Jersey's goals. These self-assessments will be important to understand the differences across different distribution system and to prioritize the functionalities and technologies necessary to the future of New Jersey's grid.

### **b. Require long-term planning for gas utilities that includes non-pipeline alternatives.**

The report submitted by London Economics to the Board in 2021 states that long-term planning for gas utilities is also important. EDF emphasizes the conclusion reached by London Economics that demand-side non-pipeline alternatives are more consistent with state goals than supply-side alternatives. Demand-side NPAs include demand response, energy efficiency, thermal energy networks, building electrification, and industrial electrification. Requiring New Jersey gas utilities to pursue non-pipeline alternative strategies will support achievement of New Jersey's climate goals. By continuing to pursue business-as-usual infrastructure expansion strategies, gas utilities have not sufficiently pursued non-pipeline alternatives, thus exposing the system to ever-increasing stranded assets.

### **c. Adopt an open data access framework to leverage advanced metering infrastructure (AMI).**

New Jersey utilities have made great progress on AMI since its 2019 EMP. The 2019 EMP recognized that AMI is a prerequisite of many clean energy objectives laid out in the EMP. The 2019 EMP also recognized the importance of data standards and access, and positively cited the Green Button standard. EDF pointed to the Open Data Access Framework (ODAF)

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<sup>16</sup> US Office of State and Community Energy Programs, “Home Energy Rebates: Communications and Marketing Toolkit”, <https://www.energy.gov/scep/home-energy-rebates-communications-and-marketing-toolkit>

developed with Illinois Citizens Utility Board.<sup>17</sup> EDF applauds the Board's efforts in holding a series of virtual stakeholder meetings to address Staff's Straw Proposal regarding AMI Data Access in 2021 and 2022. EDF encourages the Board to continue to pursue Data Access Plans that provide customers with free, easy, timely, and secure access to their own energy usage data that can be shared seamlessly with a third party of the customer's own choosing in a standardized format.

**d. Develop strong guidelines for responsible hydrogen usage.**

Due to the large boost of federal funding for hydrogen since the 2019 EMP, it is crucial that a carefully considered hydrogen strategy is integrated into the 2024 EMP. Hydrogen has the potential to play an important role in achieving decarbonization goals, but policy must be carefully designed to avoid a net increase of emissions from the hydrogen industry and harm to many surrounding communities.

The EMP should specify that hydrogen is targeted for use only for the hardest to abate sectors. The NJ Department of Environmental Protection lists a variety of potential end-uses of hydrogen, one of which is electric generation.<sup>18</sup> Considering that producing hydrogen is a very energy intensive process –requiring 3-7 times the amount of electricity compared to using electricity directly<sup>19</sup> – it is important that hydrogen use is directed towards sectors where use of hydrogen is fundamental to their decarbonization plan and cannot be replaced with direct electrification.

This narrow usage is in part due to the fact that hydrogen emissions can significantly undermine the climate benefits of hydrogen use. The latest science suggests that hydrogen emissions are 30-40 times more powerful at trapping heat over the following 20 years than carbon dioxide for equal mass, and 8-12 times more powerful over a 100-year period.<sup>20, 21, 22, 23</sup> Hydrogen is also a small, slippery, leak-prone molecule, making hydrogen leakage a great concern across the entire hydrogen production and transport chains. It is therefore vital that hydrogen emissions are accurately monitored and transparently reported considering both hydrogen global warming potentials of 20 and 100.

Advanced leak detection is an important component of monitoring hydrogen leakage. As high precision sensors become commercially available, it will become increasingly possible for hydrogen producers to measure their fugitive emissions along with their calculated lost volumes. Sensors are already nearing this point, with some high-precision, high-frequency

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<sup>17</sup> EDF, "Open Data Access Framework" (2014)

[https://blogs.edf.org/energyexchange/wp-content/blogs.dir/38/files/2014/08/14-\\_\\_\\_\\_\\_-CUB-EDF-Exhibit-1-1-Open-Data-Access-Framework-FINAL.pdf](https://blogs.edf.org/energyexchange/wp-content/blogs.dir/38/files/2014/08/14-_____-CUB-EDF-Exhibit-1-1-Open-Data-Access-Framework-FINAL.pdf)

<sup>18</sup> Department of Environmental Protection, "Clean Hydrogen in New Jersey", <https://dep.nj.gov/hydrogen/>

<sup>19</sup> EDF, "Rule #1 of deploying hydrogen: Electrify first." (2023), <https://blogs.edf.org/energyexchange/2023/01/30/rule-1-of-deploying-hydrogen-electrify-first/>

<sup>20</sup> Warwick, N. J. et al., "Atmospheric composition and climate impacts of a future hydrogen economy". Atmospheric Chemistry and Physics, (2023), <https://doi.org/10.5194/acp-23-13451-2023>

<sup>21</sup> Sand, M. et al., "A multi-model assessment of the Global Warming Potential of hydrogen." Commun Earth Environ (2023), <https://doi.org/10.1038/s43247-023-00857-8>

<sup>22</sup> Derwent, R., "Global warming potential (GWP) for hydrogen: Sensitivities, uncertainties and meta-analysis." International Journal of Hydrogen Energy (2023), <https://doi.org/10.1016/j.ijhydene.2022.11.219>

<sup>23</sup> Hauglustaine, D., Paulot, F., Collins, W., Derwent, R. G., Sand, M., & Boucher, O., "Climate benefit of a future hydrogen economy." Communications Earth & Environment (2023), <https://doi.org/10.1038/s43247022-00626-z>



sensors already undergoing field tests. The EMP should thus include a plan to monitor the development of sensors, and that all New Jersey hydrogen production facilities be required to install advanced leak detection technology once high-precision hydrogen sensors are commercially available and accessible.

To both verify the amount of wasted hydrogen gas and as an incentive to control hydrogen emissions, producers should be required to submit hydrogen emission management plans to the BPU each year. These should include a commitment to using the best available sensor technology to detect leaks (once commercially available and accessible), as well as operational best practices to mitigate leakage – such as adequately insulating pipes, installing vapor recovery units to capture boil-off, recovering vented hydrogen, and installing control devices on storage tanks. Management plans should also disclose whether producers are using venting, flaring, and purging practices and state how a facility is verifying final volumes to ensure tax credit compliance. EDF has published a set of actions that can be taken immediately to reduce emissions associated with hydrogen production,<sup>24</sup> which should be included as part of the hydrogen emission management plans.

Hydrogen transportation and storage must be done in a manner that is safe and protective of the environment. Hydrogen pipelines and storage facilities must:

- Implement advanced leak detection protocol and procedures.
- Any blending of hydrogen into natural gas pipelines and end users must be approached with caution. New Jersey should establish clear standards prior to any initiation of hydrogen-methane blending, and such blending must be evaluated against other decarbonization solutions for the end uses, including electrification, before approval.
- If repurposing natural gas infrastructure is to be carried out after the above assessment is completed, clear standards must be established for this process, which must additionally ensure safety for all affected parties.

Further, it is vital that transparency be a cornerstone within the hydrogen policy design. Hydrogen producers should be required to be fully transparent and publicly disclose:

- Lifecycle emissions assessments – of which the completion of these assessments should be mandatory for all hydrogen producers and should account for hydrogen emissions at global warming potential (GWP) 20 and 100.
- Reporting of leaks.
- Any blending of hydrogen gas into both new and existing natural gas pipelines.

More broadly, EDF encourages New Jersey to require hydrogen be produced utilizing a 3-pillars framework. The 3-pillars (incrementality, temporal matching, and deliverability) are necessary to protect against emissions increases; studies from Princeton University, Energy Innovation, and Evolved Energy Research find that without the 3-pillars included in Treasury's 45V guidance, hydrogen production could add hundreds of millions of tons of pollution per year

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<sup>24</sup> EDF, "Preventing and mitigating hydrogen emissions from infrastructure" (2023), [https://www.edf.org/sites/default/files/documents/H2%20Emissions%20Mitigation%20Factsheet\\_08MAY2023.pdf](https://www.edf.org/sites/default/files/documents/H2%20Emissions%20Mitigation%20Factsheet_08MAY2023.pdf)

relative to partial or no implementation of the pillars.<sup>25, 26, 27</sup> In addition to helping protect against emissions increases, the 3-pillars will enable robust low-carbon value chains that will last, enduring past the Inflation Reduction Act's 45V tax credit's expiration date. New Jersey should seek to incorporate these principles through the EMP. To determine whether hydrogen production meets 3-pillar requirements, EDF has outlined a set of robust recommendations in our comments to Treasury's request for comments regarding the 45V Hydrogen Production Tax Credit.<sup>28</sup>

## **Strategy 6: Support Community Energy Planning and Action with an Emphasis on Encouraging and Supporting Participation by Low- and Moderate Income and Environmental Justice Communities**

### **a. Encourage political subdivisions to pursue Inflation Reduction Act (IRA) funding mechanisms.**

The Inflation Reduction Act (IRA) is an unprecedented public investment in the clean energy transition. New Jersey should use every tool at its disposal, including the newly created New Jersey Green Bank, to help its political subdivisions take advantage of these IRA incentives. For example, the IRA's "Direct Pay" (also called "Elective Pay") provisions make tax credits available to tax-exempt and governmental entities for clean energy investments. Eligible institutes include state and tribal governments, and public institutions. Entities that cannot use elective pay but do qualify for tax credits can still transfer all or a portion of a tax credit to a third-party buyer in exchange for cash.<sup>29</sup>

### **b. Pursue energy justice through local stakeholder participation.**

New Jersey should pursue a just energy transition by pursuing all four elements of energy justice: 1) recognition justice, 2) procedural justice, 3) distributional justice, and 4) restorative justice.<sup>30</sup> The key components of a just energy transition include data-driven energy modeling, financial modeling, socioeconomic and environmental impact assessments, and stakeholder engagement and advocacy plans. Procedural justice requires the Board to engage in inclusive policymaking, actively pursuing the participation of a wide range of stakeholders including workers, communities, as well as environmental and industrial groups. To pursue procedural justice, the Board should use its authority to investigate utility practices to gather authentic input from environmental justice communities as part of its regular decision-making process and use that input in its decisions.

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<sup>25</sup> Ricks, W., Xu, Q., & Jenkins, J. D., "Minimizing emissions from grid-based hydrogen production in the United States." Environmental Research Letters (2023), <https://doi.org/10.1088/1748-9326/acacb5>

<sup>26</sup> Energy Innovation Policy & Technology LLC, "Smart Design of 45V Hydrogen Production Tax Credit Will Reduce Emissions and Grow The Industry" (2023), <https://energyinnovation.org/wp-content/uploads/2023/04/Smart-Design-Of-45V-Hydrogen-Production-Tax-Credit-Will-Reduce-Emissions-And-Grow-The-Industry.pdf>

<sup>27</sup> NRDC, "New analysis: The 3 pillars will support large hydrogen deployment." (2023), <https://www.nrdc.org/bio/rachel-fakhry/new-analysis-3-pillars-will-support-large-hydrogen-deployment>

<sup>28</sup> EDF, 45V Comments (2024), <https://www.regulations.gov/comment/IRS-2023-0066-29722>

<sup>29</sup> IRS, "Elective pay and transferability" (2024), <https://www.irs.gov/credits-deductions/elective-pay-and-transferability>

<sup>30</sup> University of Michigan School for Environment and Sustainability, "Energy Equity Project Report" (2022), [https://energyequityproject.com/wp-content/uploads/2022/08/220174\\_EEP\\_Report\\_8302022.pdf](https://energyequityproject.com/wp-content/uploads/2022/08/220174_EEP_Report_8302022.pdf)