



128 Lakeside Avenue, Suite 401
Burlington, VT 05401
Toll-free: (800) 639-6069
veic.org

October 12, 2018

Ms. Grace Power, Chief of Staff and EMP Committee Chair
Board of Public Utilities
State of New Jersey

Via e-mail to EMP.Comments@bpu.nj.gov

**Re: Energy Master Plan 2019
Comments for the Work Groups on:**

- **Reducing Energy Consumption**
- **Clean and Reliable Transportation**

Dear Ms. Power:

Please find attached VEIC's comments to the Energy Master Plan 2019.

For 32 years, VEIC has been a national and international leader in sustainable energy planning, program design, policy, evaluation, research, and implementation. We were a subcontractor to Honeywell in providing energy efficiency and renewable energy support to the New Jersey Clean Energy Program between 2007 to 2016. We carry out our mission daily, with hundreds of clients, to reduce the economic and environmental costs of energy use in response to global climate change.

Our comments here address two areas in which VEIC has the greatest interest: Reducing Energy Consumption and Clean and Reliable Transportation. These comments correspond directly to many—but not all—of the Discussion Points the Board has provided on the State's website.

Thank you for opening the comment period to the public. We look forward to watching the Committee's progress in advancing Governor Murphy's laudable vision on this persistently important topic.

With best wishes,

Mary Sprayregen

Mary Sprayregen
Director, Policy & Public Affairs



128 Lakeside Avenue, Suite 401
Burlington, VT 05401
Toll-free: (800) 639-6069
veic.org

Comments on Reducing Energy Consumption New Jersey Energy Master Plan 2019

Discussion Point – General

1. What energy efficiency, peak demand reduction, and demand response programs and systems will assist in helping keep energy affordable for all customer classes, especially as technology advances in areas such as electric vehicles or heating and cooling, which will potentially increase electric energy usage?

Response:

Energy efficiency and strategic electrification can and should be strategic drivers for setting and meeting energy goals. Therefore, it is time now to re-evaluate and update New Jersey's efficiency initiatives and sustainable energy programs for all forms of energy use. Efficiency programs offer appropriate assets for directly assisting customers and for transforming markets for behind-the-meter distributed energy resources. These resources can range from residential heat pumps, to multifamily and commercial rooftop solar, to electric vehicle sales and charging infrastructure.

But until efficiency programs incorporate goals based on state targets (such as GHG reductions) and are allowed to promote fuel switching, efficiency programs will not help the state achieve an affordable transition to a new energy system.

See framework discussion in response to Discussion Point 10.

- Time horizon: 2030

3. What are the key non-energy benefits associated with energy efficiency? How can their value best be considered in cost-benefit analyses?

Response:

Energy efficiency cost-effectiveness screening typically includes all of the costs of efficiency programs, but rarely includes an accurate accounting of the beneficial outcomes (such as health) associated with the programs. A very useful document on non-energy benefits (NEB) and its role in cost-effectiveness screening is from the Northeast Energy Efficiency

Partnerships: [“Non-Energy Impacts Approaches and Values: An Examination of the Northeast, Mid-Atlantic, and Beyond.”](#) The document outlines the types of cost-effectiveness tests that can be applied and the conditions under which they are relevant (p. 5); the types of benefits for utilities, participants, and society (p. 6); formulas for deriving benefits (p. 7).

Although New Jersey considers GHG emission reductions an ancillary benefit, the field is wide open for assessing and quantifying more, real-world benefits from efficiency. The most inclusive tests account for benefits from water savings, health improvements, improvements in air quality, and increased comfort in buildings. Efficiency portfolios that do not include these benefits are likely to have much lower net benefits to their populations than portfolios that do include them. As of 2017, New Jersey joined New Hampshire, Michigan, Idaho, Texas, Florida, Georgia, and South Carolina in having no primary cost-effectiveness test.

Not accounting for NEBs – health in particular – does a disservice to the most vulnerable populations who are most at risk of health inequities. Evidence indicates that residential energy efficiency improvements lead to better indoor air quality, improved comfort, and increased safety. These improvements result in positive health outcomes such as improved sleep quality, fewer missed days of work or school, and reduced asthma attacks.

- Time horizon: 2030

4. What should the role of ratepayer funded programs, whether state or utility run, be in achieving reduction strategies?

Response:

Given the urgency of needing to meet societally and environmentally important goals, it is imperative that ratepayer funds be used judiciously. They are unlikely ever to be sufficiently high to cover the costs of meeting the State goal or societal imperative. Thus, New Jersey should also look for sources that can enable deeper investments in energy efficiency, grid decarbonization, and strategic electrification (in transportation, particularly).

Further, in a climate of economic scarcity, it is tempting for some governments to divert utilities’ system benefits charges (SBCs) to other causes. Again, given the urgency of climate change effects, it is important to

note that efficiency is still the least-cost resource. Careful investments in efficiency greatly benefit consumers, always.

According to a 2018 Synapse Energy Economics regional analysis commissioned by VEIC, New Jersey has historically been in the bottom quartile of efficiency program impacts on annual customer bill savings. The national average of such savings \$100 per customer. New Jersey's savings are less than \$30 per customer. The data and analyses VEIC commissioned have yielded useful information for targeted policy design, particularly for the Northeast and Mid-Atlantic regions.

The role of market transformation. In addition to the direct ratepayer benefits of lower bills, New Jersey should use publicly funded efficiency programs to derive a system-wide benefit such as reducing the need to purchase expensive power at peak, and driving market changes that result in the increased availability of lower-cost technologies and services (for example, LEDs). These outcomes demonstrate market transformation of specific technologies.

The California Public Utilities Commission recently ordered a workshop to explore a proposal from Commission staff, calling for the energy efficiency program administrators to design a "Market Transformation Accord" for each market transformation initiative in California. The proceeding is likely to result in a "comprehensive, detailed, long-term plan that will govern" each initiative throughout their lifecycles. Each accord will characterize an initiative by market sector served, measure, intervention strategy, or some other defining characteristic.

If New Jersey were to put a premium on achieving market transformation—driving market demand in cost-effective, energy-efficient measures so that they saturate the market and no longer need incentives for customer uptake—it would help meet program objectives that support the State's important goals. In addition to lighting products, market transformation can be achieved at other than the retail level. For example, the supply chain can be engaged in such a way as to achieve an efficiency program's market transformation strategy—quickly and effectively.

See the response to Discussion Point 6, with additional references.

- Fisher, Jeremy, Melissa Whited, Tim Woolf, Danielle Goldberg, 2018. "Utility Investments for Market Transformation: How Utilities Can Help

Achieve Energy Policy Goals. Prepared for the Energy Foundation. Cambridge, Mass.: Synapse Energy Economics. <http://www.synapse-energy.com/sites/default/files/Utility-Investment-Market-Transformation-17-057.pdf>.

- Fitch, Julie A. 2018. "Order Instituting Rulemaking Concerning Energy Efficiency Rolling Portfolios, Policies, Programs, Evaluation, and Related Issues: Administrative Law Judge's Ruling Seeking Comment on Market Transformation Staff Proposal." Rulemaking 13-11-005. August 29. <http://docs.cpuc.ca.gov/PublishedDocs/Efile/G000/M225/K059/225059924.PDF>
- Time horizon: 2030 and 2050

Discussion Point – Technology

6. What advances in technology should be considered as part of a strategy to reduce energy consumption? What technologies could complement and advance existing energy efficiency efforts?

Response:

Think statewide, and consider a third-party or collaborative approach to vetting emerging technologies. Technologies freely available in the marketplace, by themselves, do not tend to move the needle in fulfilling a strategy or significantly reducing energy consumption. They need vetting, promotion, and analytics by effective energy efficiency programs. Utility efficiency programs must be able to capitalize on technology advancements and rising efficiency standards as traditional savings sources quickly become standard practice. The rise of the "internet of things" means that utilities and customers now have access to vast quantities of data from connected devices and advanced meters. Customers have higher expectations for their utility to provide customized tools and feedback to help them manage their energy use. By investing in innovation, informed by in-the-field knowledge of customers' evolving needs, efficiency programs will be able to respond more effectively to these trends, bringing higher value to energy efficiency programs and customers.

Through VEIC's 18-year implementation of the country's first statewide energy efficiency utility (Efficiency Vermont), sustained investment in research and development (R&D) has been vital to Efficiency Vermont's success. In Vermont, the system benefits charge collected by the utilities for

Efficiency Vermont services funds over \$2.5 million in R&D activities each year.

- VEIC. “Emerging Technologies.” <http://www.veic.org/what-we-do/our-expertise/emerging-technologies>
- Vermont Department of Public Service. “Efficiency Utilities.” http://publicservice.vermont.gov/energy_efficiency.
- Time horizon: 2030 (the work can be done immediately, with immediate results)

Establish a structure that allows for midstream (distributor and wholesaler) efficiency programs. New Jersey’s retail appliance rebates and lighting program is a good example of a downstream approach that is ready for next-generation thinking. Via strategic partnerships with distributors and wholesalers—and with manufacturers’ representatives further upstream, New Jersey could begin to offer its residential and commercial customers higher value in its energy efficiency programs.

Increasing attention to midstream programs can rapidly drive market adoption of energy-efficient products. To do this successfully, an energy efficiency program must address the real and perceived business risks of the supply channel partners.

Groundwork for this relationship building has already occurred at the upstream level in the Northeast, with business-friendly training that resulted in a two-year transformation of the HVAC market among efficiency programs throughout the region. The benefits of this work can be easily transferred to New Jersey. The approach significantly helps not just customers (through lower costs and the ready availability of the equipment), but also the supply chain actors. In Vermont, sales of new technologies increased a minimum of 600 percent (up to 10,500 percent) when this approach was first used. Further, the supply chain actors continued their interest in supporting efficiency programs, ahead of other business-as-usual considerations.

- Merson, Howard, Frances Huessy, Emily Levin, and Michael Russom. 2016. “Driving Upstream Markets through Strategic Partnerships and Excellence in Supply Chain Management.” ACEEE. https://aceee.org/files/proceedings/2016/data/papers/7_460.pdf.
- Time horizon: 2030. (The work can be done within one year, and the benefits are immediate)

7. How do we best utilize data analytics for energy efficiency?

Response:

Intelligent and adaptive high-resolution metering in the context of an energy system of the future. Next-generation home energy monitoring services will offer high sampling rates, machine learning, real-time low-latency feedback, and consumer-centric product service design orientations. For a multifaceted perspective from a technology company and an energy efficiency utility program considering the regulatory and market questions involved in conceptualization of the energy systems of the future:

- Lange, Nick, Dan Fredman, Mike Phillips, George Zavaliagos, and Ghinwa Choueiter, 2018. "[Flipping the Energy Data Iceberg: Views into the Consumer Benefits and Energy System of the Future through Intelligent and Adaptive High-Resolution Metering.](http://aceee.org/files/proceedings/2018/index.html#/paper/event-data/p252)" (ACEEE: <http://aceee.org/files/proceedings/2018/index.html#/paper/event-data/p252>).
- Time horizon: 2030 and 2050

Residential customers: Data analytics from accurate, non-invasive, Internet-connected thermostats. Bringing greater accuracy to thermal envelope and systems calculations promises to reduce the weatherization navigation challenges for utilities and customers. Internet-connected thermostats however, offer data that can be used to automatically measure the performance of each building's thermal envelope, remotely estimate each customer's energy savings opportunity, and provide an assessment of next steps, without ever involving a visit to the home or asking for responses to an online survey.

- Goldman, Ethan, Nick Lange, Laura Capps, Owen Howlett, and Shannon Stendel, 2018. "[Free X-Ray Specs—Just Send in Your Smart Thermostat Data for an Automated Peek Inside Your Home's Envelope!](http://aceee.org/files/proceedings/2018/index.html#/paper/event-data/p369)" (ACEEE: <http://aceee.org/files/proceedings/2018/index.html#/paper/event-data/p369>).
- Time horizon: No later than 2030

Commercial customers: Permanently installed sub-metering systems. Accurate reports to customers regarding their energy use are an important

method for either changing their energy use behavior or prompting them to invest in energy efficiency measures and technologies. Permanently installed sub-metering systems that are wirelessly connected, and easily scalable to hundreds of points are now available at approximately the same cost that a standard, temporary sub-metering installation was three years ago. The new technology involves relatively inexpensive, capable power meters, low-power wireless sensors for non-power parameter capture, and cellular improvements for automatically collecting energy use data. Analytics engines can process large amounts of data for accurate customer reports, without the need for re-inventing the work the next time an energy efficiency program must evaluate a new measure. The success of such technology presumes the presence of an effective energy efficiency program.

- See Fisher, Tom. 2018. "[Sub-metering IoT: The Future Was Yesterday](http://aceee.org/files/proceedings/2018/index.html#/paper/event-data/p367)" (ACEEE: <http://aceee.org/files/proceedings/2018/index.html#/paper/event-data/p367>).
- Time horizon: No later than 2030 to deploy

Incorporating strategic energy management into projects involving the state's largest energy users. Strategic energy management (SEM)¹ allows energy consultants and energy efficiency engineers to collaborate with a large energy user—after an energy efficiency project is completed—to sustain energy and other cost savings from that project. SEM is the strategy through which additional energy-saving opportunities can be identified and scheduled (at the convenience of the customer). That identification relies on relevant data analytics emerging from post-project monitoring; the entry of new, appropriate products on the market; and listening to customer needs for additional savings or other improvements to a building's energy performance.

It is important to target the largest energy users, first, because the energy savings opportunities with those customers are typically significant. Building a trusted, performance-proven relationship between a third-party energy

¹ SEM is also known as CEI (continuous energy improvement). For an overview of the approach, see Baker, Greg. 2017. "Strategic Energy Management: Making Energy Efficiency Business as Usual." Burlington, Vt: VEIC. <http://www.veic.org/media-room/insights/insights/2017/07/26/strategic-energy-management-making-energy-efficiency-business-as-usual>.

efficiency administrator or other utility program professional and the customer can result in ongoing savings from regular building improvements.

- For an overview of the approach, see: Baker, Greg. 2017. "Strategic Energy Management: Making Energy Efficiency Business as Usual." Burlington, Vt: VEIC. <http://www.veic.org/media-room/insights/insights/2017/07/26/strategic-energy-management-making-energy-efficiency-business-as-usual>.
- Time horizon: 2030; an immediate start can be relatively straightforward to design and carry out

Discussion Point – State Policy

10. How can the state play a strong role in reducing its energy consumption?

Response:

This discussion point invites a broad context for New Jersey policymakers' consideration. With the recent Intergovernmental Panel on Climate Change (IPCC) special report in mind,² we note that New Jersey seeks to reduce greenhouse gas (GHG) emissions by 80 percent, by 2050. To meet these necessary goals, New Jersey policy must be bold.

That is, the State could meet both Governor Murphy's order and the societal imperative of the IPCC report by advancing strategic electrification (promoting electric vehicles, for example), reorganizing or "de-carbonizing" the grid, and keeping the distributed energy resources (DER) market stimulated—all at levels high enough to substantially change the way energy is understood and used.

² The Intergovernmental Panel on Climate Change (IPCC) released a special report October 6 on the effects of a global temperature rise of 1.5°C above pre-industrial levels, and on related global greenhouse gas emission pathways. "Global Warming of 1.5° C." notes that worldwide efforts to limit global temperature increases from its current estimate of 1.0° C to the higher-risk, longer-lasting threshold of 1.5° C will require "rapid, far-reaching, and unprecedented changes in all aspects of society." These effects, the report says, will involve land, energy, industry, buildings, transportation, and cities. The special report offers "a context [for] strengthening the global response to the threat of climate change," to sustainable development, and to efforts to eradicate poverty. It also makes clear that emissions reductions need to accelerate dramatically. The report highlights the urgency of the global response that will be necessary to meet or stay below both a 1.5 °C and a 2.0 °C rise by the end of this century. The IPCC has established that the current level of 1.0 °C is due to anthropogenic, or human-made, activity.

New Jersey will need to design bold, outcome-driven programs—and bold, innovative investment strategies—to achieve the scenario that describes 50 percent of energy needs met by clean-energy sources by 2030. Falling short of meeting this goal places an onerous burden on all current and coming generations. To achieve this goal, New Jersey will need to substantially increase its investments in energy efficiency, decarbonization of the grid, and the electrification of transportation.

Specific to reducing energy consumption, New Jersey can take immediate action by updating its regulatory paradigm so that utilities are not financially harmed if they sell less power, setting an ambitious state-wide, fuel-neutral efficiency target, and allowing utility programs to incentivize fuel switching if it achieves state goals.

- IPCC, 2018. “Global Warming of 1.5°C.” Geneva: World Meteorological Organisation. <http://www.ipcc.ch/report/sr15/>.
- Time horizon: 2030

13. Should the state play a role in encouraging pilots of different “next generation” buildings? How could the state foster the implementation of net zero or passive buildings projects? How could that impact and restructure redevelopment efforts?

Response:

New Jersey should play a **central** role designing and funding next-generation pilots. This is an ideal time to encourage zero energy and passive house buildings—for both the residential and commercial markets—through innovative pilot programs. The following factors should be considered:

- A. **The new-construction industry has rebounded from the crash in 2008.** According to the census Building Permit Survey, 28,501 new residential single-family and multifamily units were authorized for construction in 2017.

- B. **New Jersey needs housing.** Some estimates show that the state has pent-up demand for 80,000 to 200,000 new affordable-housing units.³
- C. **Low-income homeowners and renters benefit from passive house and zero energy homes.** Zero energy homes nearly eliminate utility bills by providing low-income residents with homes that generate all the necessary energy they need. In Vermont, zero-energy modular housing (see next two bullets) also can offer battery storage capability that allows residents to sell energy back to the local utility. This practice contributes to grid stabilization, and offers low-income residents a chance to use stored power during severe climate events that knock out service to other customers.
- D. **High-performance homes reduce greenhouse gas emissions** by creating low-load homes that use little energy, and when matched with solar to create a zero energy homes, drastically reduce or eliminate GHG emissions.
- E. **The state can play a central role in market transformation of construction industry** by funding pilots that encourage zero energy modular (ZEM) homes.
 - a. VEIC first developed ZEM in response to the devastation from Tropical Storm Irene in Vermont. Zero Energy Modular (ZEM) homes are extremely efficient, with advanced envelope enclosures based on passive house design. ZEMs contain high-efficiency HVAC and appliances that help the homes achieve zero energy performance. Since the initial launch of ZEM in Vermont, VEIC has provided the technical assistance and access to financing for helping more than 90 low-income families acquire ZEMs. It has also exported the concept to Delaware and Massachusetts, which have launched pilot programs sponsored by their state energy and sustainable energy offices. VEIC is currently conducting market assessments for ZEM in New York State.
- Time horizon: 2030, with immediate starts possible.

³ <https://econsultsolutions.com/wp-content/uploads/New-Jersey-Affordable-Housing-Need-and-Obligations-Econsult-Solutions-11-29-2017.pdf>.

Discussion Point – Economic Growth and Workforce Development

22. What new or expanded manufacturing could be developed related to energy efficiency?

Response:

Indoor agriculture. New Jersey already has a strong indoor agriculture sector, which has entered the marketplace with low energy use in mind. This is particularly the case with high-tech vertical agriculture in the lettuce and vegetable markets.

Effective energy efficiency programs can have a strong role in guiding growers—in the initial phases of designing or converting their buildings—to use energy-efficient equipment. Measures can range from influencing supply chain products and inventory delivery in the New Jersey market to offering business customer incentives for efficient equipment, to analyzing energy use data and providing continuous energy improvement / strategic energy management services.

- (Time horizon: 2030)

Zero-energy modular home factories. Regardless of New Jersey's appetite for zero-energy modular homes for placement in its mobile home parks or other land areas, the market for zero-energy homes is growing, and ZEMs are a promising way to offer affordable living (as opposed to affordable housing) for people with limited means. As new construction costs soar in rural and urban areas across the United States, modular construction offers a promising, appreciating alternative to inexpensively built and unhealthful manufactured housing. ZEMs are also a solution for cost containment and reduced construction time. These benefits are achieved through fixed decision-making, controlled construction environments, and economies of scale. ZEM factories, for New Jersey and elsewhere, can offer good jobs in the clean-energy economy, just as they can result in reductions

of construction costs (10 to 20 percent on reduced labor costs relative to conventional construction, and 30 to 50 percent in saved construction time.⁴

- Time horizon: 2030, with an immediate start time.

23. What associated jobs and training will be needed in the new clean energy economy (particularly regarding reducing energy consumption)?

Response:

Contractor network. New Jersey's energy efficiency contracting base could expand appreciably if the state were to encourage a wider field of skilled contractors capable of providing high-quality services related to energy efficiency (beyond insulation, for example).

Vermont's [Efficiency Excellence Network](#) offers a blueprint for providing technical training, support, and qualified project leads to trade allies belonging to the network of skilled contractors certified by the statewide energy efficiency program, Efficiency Vermont.

New Jersey, through the Clean Energy Program (NJCEP), could offer a similar certification, and thus build a corps of qualified, trusted contractors offering a wide range of energy efficiency services to residents and small businesses throughout the state. As contractors join the network, they can log credits for satisfactorily completed projects, build their reputations for excellent service, and take part in information exchanges with peers within their trade groups. The NJCEP could create categories for:

⁴ Disruptive Development: Modular Manufacturing in Multifamily Housing.
http://turnercenter.berkeley.edu/uploads/A.Stein_PR_Disruptive_Development_-_Modular_Manufacturing_in_Multifamily_Housing.pdf.

- Cold-climate heat pump installers
- HVAC installers
- Electrical / lighting contractors (including designers)
- Refrigeration specialists
- Residential architects
- Home Performance with ENERGY STAR® contractors
- New construction contractors

Ongoing training will equip the energy efficiency workforce with the tools necessary to advance energy efficiency at appropriate levels throughout the state.

- Time horizon: No later than 2030; could be started in 2020 and continue until the deeper 100 percent clean-energy goal is met.

24. What type of overall workforce training is needed in the energy efficiency industry, whether for maintaining systems, installation and inspection, or in other areas?

Response:

A dedicated workforce development program offered through the NJCEP. The workforce training described in the response to Discussion Point 23 is a necessary element for success in New Jersey's next generation of effectiveness in energy efficiency service delivery.

This training can be achieved through several methods. One successful program is at VEIC's [District of Columbia Sustainable Energy Utility](#), which recruits underemployed people for clean-energy externships, training, and jobs with program-certified participating contractors. Eighty-five percent of the trainees receive full-time job offers from the contractors with whom they receive on-the-job training.

Such a program should involve training in job skills development, on-the-job training and certifications, direct work experience with contractors, and job placement assistance. The range of energy efficiency job placements can be as wide as the scope of service delivery in the energy efficiency industry: via residential building contractors, clean-tech installers and inspectors, corporate or institutional sustainability departments, engineering services, energy consulting, and so on.

- Time horizon: Can begin in 2020, and continue through the 2030 and 2050 strategies.

25. What type of educational outreach is needed to advance energy efficiency in the workplace?

Response:

Employer-sponsored sustainability benefits in the workplace. It is not enough for employers to post reminders to turn off lights or to engage in other passive “educational” outreach. Several new, creative strategies can prompt ongoing energy efficiency practice both within the workplace and in the homes of employees, after hours.

It is important to build and maintain high levels of employee engagement in energy efficiency practice—including adding sustainability benefits to employment packages. This can involve training employees in understanding the personal and collective benefits of sustainability, such as saving money and improving building resilience. A well-planned sustainability program at a business can bring the employee feelings of connection to other employees on energy efficiency practices that matter to them—installing heat pump technology, for example, or participating in corporate-sponsored net metering renewable energy projects. Similarly, achievements in building staff morale, efficacy, and teamwork can supercharge the near- and long-term outcomes of sustainability initiatives.

VEIC has created a strategy that envisions a cycle toward sustainability practices, with built-in employee challenges and goals at both the individual and companywide levels. The cycle involves employee engagement in efficiency practices (with a plan for moving from transient actions to persistent practices), measurement of success in achieving goals, and community-building to sustain the momentum of individual achievements.

The practices require visible, sustained commitment by corporate leaders, but they also require ongoing support by leadership and goal-setting for all staff, including the leaders. Staff need to be empowered to carry out actions that help achieve the goals, and they must be recognized for their work.

The goal is to achieve a culture that demonstrates and practices ongoing energy efficiency improvements in buildings, within a time frame that challenges staff and leadership to take action quickly.

- Time horizon: Such programs can be encouraged immediately, with a goal of reaching 100 percent participation by 2030.

Discussion Point – Environmental Justice

27. What efforts are most successful towards making clean energy and energy efficiency measures affordable and accessible to all?

Response:

Making services to low-income people a priority, not an afterthought.

New Jersey's Comfort Partners program, which serves households at or below 225 percent of the federal poverty level, is a good effort at closing the service gap between people who qualify for Weatherization Assistance Program (WAP; and other federally funded benefits) and those who do not. Even though the Comfort Partners Program offers electricity and natural gas service benefits to those already receiving federal program benefits, it also recommends to households not meeting program eligibility criteria that they seek market-rate Home Performance with ENERGY STAR services—and in some cases, WAP services.

Although this approach seeks to meet the needs of income-eligible households, it assumes capabilities not always found in low-income communities: (1) access to computers for investigating and scheduling appropriate services; (2) the ability to take time off work to accompany an energy consultant's audit or other type of walk-through assessment of a dwelling; (3) access to capital to cover the upfront costs of energy efficiency services; and (4) the ability to take time off to shepherd meaningful or comprehensive service delivery, once it begins.

The needs of low-income people, in the context of energy efficiency programs, require an approach that is different from the delivery of energy efficiency services to market rate customers. Although WAPs and other federal support can apply to people in the lowest income quintiles, there are hundreds of thousands of New Jersey residents who have household incomes between the 225 percent low-income qualifying line (\$56,475 for a family of four⁵) and the median household income level of \$76,126⁶. These

⁵ Source: U.S. Department of Health and Human Services, <https://www.acf.hhs.gov/ocs/resource/hhs-poverty-guidelines-for-optional-use-in-ffy-2018>.

residents have high energy burdens because they do not qualify for assistance.

In part because of the labor-intensive work of reaching the people who need energy efficiency services the most, classic energy efficiency programs tend to underfund and de-prioritize services to them. Further, traditional energy efficiency programs appear to design services to low-income people as if they were a subset of market rate customers. They are not.

“Traditional [energy efficiency] program [performance] metrics are primary drivers for program design choices. The more performance metrics can encourage the creation of benefits for low-income people, the higher the likelihood those benefits will actually accrue to them.” (Chant, 2018)

Considering and quantifying non-energy benefits can result in more equitable energy efficiency programs for those with high energy burdens—and for market rate customers alike.

The delivery of affordable and accessible energy efficiency to all must become a function of a “total energy” perspective. This perspective runs counter to the usual practice of rewarding a utility with revenue capture that is a “function of its rate base (investment), multiplied by an allowed rate of return, plus recover of prudently incurred operating expenses.” (Parker, 2016)

- Chant, Elizabeth, and Frances Huessy, 2018. “[Justice for All: Measures of Equity for Low-Income Programs](http://aceee.org/files/proceedings/2018/index.html#/paper/event-data/p394).” ACEEE (<http://aceee.org/files/proceedings/2018/index.html#/paper/event-data/p394>).
- Parker, Scudder, and Jim Lazar, 2016. “[The Old Order Changeth: Rewarding Utilities for Performance, not Capital Investment](https://aceee.org/files/proceedings/2016/data/papers/6_474.pdf).” ACEEE: https://aceee.org/files/proceedings/2016/data/papers/6_474.pdf
- Time horizon: 2030

Using a metric for total energy burden, not only for electricity. A “total energy burden” view considers all of the real-world uses of energy, including transportation, and the effects of those uses on household budgets. The

⁶ Source: <https://datausa.io/profile/geo/new-jersey/>.

[metric](#) for this can guide planning and implementation of energy efficiency and assistance programs, ensuring prioritization of the most vulnerable communities.

- Sears, Justine, 2016. "Mapping Total Energy Burden in Vermont." VEIC: <https://www.encyvermont.com/news-blog/whitepapers/mapping-total-energy-burden-vermont>).
- Time horizon: With a start in 2020, accessibility can be achieved by 2025, assuming programs are sufficiently funded; therefore, the time horizon on this should be 2030.

28. How can the state play a role in ensuring that disproportionately impacted communities receive opportunities and benefits connected to the clean energy economy?

Response:

Identifying people in need via health care systems. Partnerships between the New Jersey Clean Energy Program and hospitals statewide could result identifying individuals and families whose homes need weatherizing. Pilot work in Vermont is examining the role of energy efficiency programs in hospital-wide initiatives to reduce facilities' energy use and energy use at the employee level. Hospital staff who are introduced to and undertake energy efficiency improvements in their own homes can become important energy advocates with patients who present with respiratory and other illnesses related to substandard living conditions. This approach would require collaboration with the New Jersey WAP.

- Time horizon: 2030

Comments on Clean and Reliable Transportation

New Jersey Energy Master Plan 2019

Discussion Point – General

1. What is the most significant obstacle that the state will face in implementing a clean transportation plan by 2050? What are some solutions to these challenges?

Response:

According to the U.S. Energy Information Administration, transportation makes up 52 percent of New Jersey's CO₂ emissions. Regardless of the target, electric vehicles (EVs) powered by renewable energy will provide major reductions in New Jersey's greenhouse gas emissions, and lower annual household transportation expenses. However, New Jersey's current market forces will not increase the market share of EVs fast enough to meet New Jersey's climate and energy targets for the transportation sector. Three principal barriers to accelerated adoption are:

- A lack of sufficient charging station infrastructure.
- A lack of general awareness about the benefits of switching to EVs and how to do it affordably.
- The upfront costs of EVs (including used EVs), especially for low- and moderate-income consumers.

New Jersey should consider the following solutions to these barriers:

- Provide a State-funded or State-facilitated EV purchase incentive that applies to new and used EVs, including use of VW Settlement funds for this purpose.
- Strengthen the used EV market through incentives and outreach to the consumer marketplace.
- Make special EV pricing purchase and lease deals more visible and available to the public by consolidating and continually updating information from EV dealerships.
- Provide direct-current fast charging within 30 miles of all New Jerseyans.
- Implement "ride and drive" events to give New Jerseyans a chance to test drive or experience EVs in person, and support purchase considerations for EVs.

- Work collaboratively with auto dealers on developing and deploying strategies to effectively engage customers who are interested in purchasing an EV, and to make the sale.
- Make EVs available through traditional car rental, car share, taxi, or ride-hailing services to provide drivers with ready access to an EV at low cost, and with no ownership or lease commitment
- Use VW Settlement funds to jumpstart a transition from diesel to electric transit and school buses.
 - More information on a possible model for expanding EV adoption, via Drive Electric Vermont (<https://www.driveelectricvt.com/>)
 - Electric school buses: <https://www.veic.org/electric-school-buses>.
- Support utility-engaged pilots for increasing electric vehicle use in low-income markets, especially electric school buses in inner-city, highly polluted locations.
- Time horizon: 2030