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September 18, 2019

Emily Cushman, Program Manager
Efficiency Maine Trust
168 Capitol Street, Suite 1
Augusta, ME 04330-6856
Via Email to: comments@efficiencymaine.com

Dear Ms. Cushman:

The Center for Sustainable Energy® (CSE) is pleased to submit our preliminary comments in response to the Efficiency Maine Trust's Request for Information (RFI) on Beneficial Electrification Study.

CSE is a mission-driven, 501(c)(3) nonprofit with over two decades' experience administering distributed energy resource and clean transportation programs focused on increasing market adoption of electrification technologies. We are expert implementation partners for energy policymakers, regulators, public agencies, utilities and businesses tasked with achieving ambitious energy and greenhouse gas reduction goals.

The comments we offer are informed by lessons learned from our experience administering statewide and regional electric vehicle (EV) and EV charging infrastructure programs in multiple states, as well as supporting distributed energy resource and energy efficiency initiatives across various jurisdictions throughout California. Through the distribution of over three quarters of a billion dollars in consumer incentive programs, CSE has developed extensive experience in the technical and administrative requirements for successfully identifying and overcoming barriers to consumer adoption of new technologies.

If you have any questions about our comments or would like additional information, please do not hesitate to reach out to me at (858) 244-1186 or via email at Sephra.Ninow@energycenter.org.

Sincerely,

A handwritten signature in black ink that reads "Sephra A. Ninow". The signature is written in a cursive, flowing style.

Sephra A. Ninow, J.D.
Director, Regulatory Affairs
Center for Sustainable Energy®

September 18, 2019

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Comments Addressing Efficiency Maine Trust's Beneficial Electrification Study

Dear Ms. Cushman:

The Center for Sustainable Energy® (CSE; www.energycenter.org) appreciates the opportunity to offer comments informing the beneficial electrification study being prepared by the Efficiency Maine Trust (the Trust). CSE applauds the Trust's leadership in electrifying the transportation and heating sectors, reducing greenhouse gas (GHG) emissions, and benefiting Mainers and the environment.

CSE is a 23 year-old national nonprofit dedicated to decarbonizing transportation and the built environment. We provide program administration, technical assistance, and policy advisement. In clean transportation, we work with vehicle consumers; state, regional, and local governments; dealers, automakers and auto associations; charging suppliers and utilities; public and private planners; and other stakeholders to support the transition to electric vehicles (EVs) and a sustainable energy future. As a nonprofit administrator and advisor, CSE serves as a trusted and objective resource helping government agencies implement successful technology programs that use public and ratepayer funds appropriately and in the best interest of consumers, ratepayers, and the general public.

CSE provides the following comments based on our experience administering statewide electric vehicle (EV) charging infrastructure programs in California and New York, as well as supporting energy efficiency initiatives across various jurisdictions within California. Program administration in these states spans: consumer education and outreach; applicant assistance, rebate processing and payment; consumer research and surveys; and program design, tracking, and evaluation.

With respect to the Trust's forthcoming study on beneficial electrification, CSE offers comments in the following five areas:

1. Identification of barriers to beneficial electrification in the transportation and heating sectors of the State;
2. Identification of additional information that the Trust may require to make additional recommendations or analyses;
3. Consideration of potential roles of utilities in supporting beneficial electrification;
4. Identification of areas or populations in the State less likely to benefit directly from beneficial electrification without additional policy development or utility intervention; and
5. Recommendations of opportunities for beneficial electrification.

Identification of Barriers to Beneficial Electrification in the Transportation and Heating Sectors of the State

Electrification of the transportation sector will require widespread deployment of EVs and EV charging infrastructure. The latter is particularly important, as the range associated with EVs is often cited as a barrier to adoption. Some of the primary barriers to deploying EV charging infrastructure are local requirements around permitting, zoning, and parking. These requirements can be difficult for developers to understand, especially because they can vary across jurisdictions. CSE encourages the Trust to identify programs that would incentivize municipalities to expedite the permitting process for installing EV charging infrastructure. CSE also recommends that the Trust consider developing a guidebook that compiles these permitting challenges and highlights best practices. As an example, the Trust could consider the Electric Vehicle Charging Station Permitting Guidebook,¹ recently released by the California Governor's Office of Business and Economic Development. Finally, the Trust could identify opportunities to standardize permitting processes across the State in order to provide clarity and consistency to developers.

With respect to the heating sector, CSE encourages the Trust to explore barriers to consumer participation in heating electrification and energy efficiency programs. For example, eligibility criteria around these programs should not discourage consumer participation but should develop and stack incentives to generate incremental benefits. Moreover, the Trust could consider funding infrastructure upgrades, such as service panel upgrades, which would facilitate the transition to electric heating sources. Finally, consumer education, contractor training, and workforce development will be required to overcome barriers in an emerging market. Educating the contractor community on the benefits of electric heating technologies will enable them to promote these systems to consumers at the point-of-sale. In addition, developing a skilled workforce will ensure high-quality installations that lead to efficient performance and customer satisfaction.

Identification of Additional Information that the Trust May Require to Make Additional Recommendations or Analyses

The broad scope of the electrification goals identified in L.D. 1464 will require the Trust to consider a number of external factors in the beneficial electrification study. CSE recommends that the study seek to compile information on electrification policies, programs, and activities already in place in the transportation and heating sectors in Maine. This information could then be used to inform future emission reduction targets and timelines and identify frameworks for meeting these targets.

The transportation sector is the largest single source of GHG emissions in Maine.² Reducing transportation emissions will require significant coordination and investment from the State. CSE supports the development of the Trust's EV Accelerator Rebates program and recommends that research around this program be incorporated into the beneficial electrification study. Specifically, the study should identify how this program may drive growth in the EV market and generate demand for EV charging infrastructure. Moreover, the study could seek to determine whether the EV Accelerator Rebates program is effectively targeting consumers that are reliant on rebates for EV purchases. Finally, the study should evaluate whether this projected growth is sufficient to meet Maine's electrification and emission reduction goals, or whether additional action is necessary from the State.

¹ *Governor's Office of Business and Economic Development, EV Charging Station Permitting Guide.*

<http://businessportal.ca.gov/wp-content/uploads/2019/07/GoBIZ-EVCharging-Guidebook.pdf>

² *The Maine Interagency Climate Adaptation Work Group, Maine Prepares for Climate Change – 2019 Update.*

<https://www.maine.gov/dep/sustainability/climate/MainePreparesforClimateChange2019Update.pdf>

The heating sector is also responsible for significant GHG emissions. To address this sector, the Trust should identify reasonable timelines for the State to transition to buildings heated by efficient electric sources. In addition, the Trust should seek information on how the State can transition existing residential and commercial buildings to electric heating sources in a timely and cost-effective manner. As a market transformation effort, the Trust should gather information on the state of the market, such as market share of heat pump technologies, size of skilled workforce, and market actors throughout the supply chain. Similarly, general analysis on the residential housing market as well as data on the energy burden faced by communities and individuals will help identify resource needs and ensure an equitable transition. Finally, the Trust should identify planned investments in natural gas infrastructure as well as oil and propane heating systems. Gathering information around these investments will be useful in helping the Trust develop electrification strategies, timelines, and priorities that will help mitigate the impact of stranded assets as the State transitions away from fossil fuel heating sources.

Consideration of Potential Roles of Utilities in Supporting Beneficial Electrification

Utilities can be a valuable partner in funding educational resources and technical guidelines for beneficial electrification programs. For example, municipalities in California and Massachusetts have utilized utility-funded programs to support the adoption of advanced building codes. Specifically, utility funding can be leveraged to support building officials within local jurisdictions seeking to develop “reach” or “stretch” codes that go above-and-beyond State requirements. These resources allow municipalities to encourage beneficial electrification through building codes that simultaneously reduce barriers and encourage electric heating and EV charging.

Utilities can also implement or coordinate the administration of electrification programs. In California, CSE has helped implement utility-run incentive programs to promote the deployment of EVs and EV infrastructure. For example, CSE administers Southern California Edison’s (SCE’s) Clean Fuel Reward program, which provides rebates to EV owners in SCE’s service territory. While these utility programs can be effective, greater economies of scale can be achieved by statewide programs administered by third parties. CSE recommends the Trust include examples of different administrative models for incentive programs in the beneficial electrification study.

Finally, the Trust could suggest that the Maine Public Utilities Commission (MPUC) authorize utilities to develop beneficial electrification programs and identify some model programs adopted by utilities in other states. This could include incentive programs as well as favorable tariffs and rate structures. It is important that utility rate structures encourage electric heating systems and EV charging rather than create a cost barrier,³ while rates or tariffs should incentivize load shifting via price signals to reduce peak demand from incoming electric load.

Identification of Areas or Populations in the State Less Likely to Benefit Directly from Beneficial Electrification Without Additional Policy Development or Utility Intervention

CSE applauds the Trust for seeking to ensure that electrification benefits all communities. Equity should be a fundamental component of any beneficial electrification programs in Maine, and consideration of equity provisions should be included in the evaluation criteria for any proposals submitted to the Trust. In the California Electric Vehicle Infrastructure Project (CALeVIP), which is administered by CSE on behalf of the

³ *Building Decarbonization Coalition, Rate Design for Building Electrification.*
http://www.buildingdecarb.org/uploads/3/0/7/3/30734489/bdc_report_2_rate_design.pdf

California Energy Commission, each regional project has specific carve-outs for disadvantaged communities (DACs) that have been disproportionately impacted by environmental pollution. Generally, at least 25% of incentive funds for CALeVIP must be reserved in DACs. For future projects, CSE is considering expanding these carve-outs to also include low-income communities and individuals. CSE recommends that the Trust establish similar funding carve-outs for any future beneficial electrification programs and encourages the Trust to consider including dedicated funding sources for both disadvantaged communities and low-income individuals across the State.

CSE also encourages the Trust to dedicate resources towards sectors that are less likely to benefit from electrification. For example, CSE is currently working on a project funded by the United States (U.S.) Department of Energy (DOE) to identify barriers to EV charging at multi-unit dwellings (MUDs). These buildings present a challenge for EV infrastructure deployment because there are often local restrictions on parking and public accessibility, and landlords may be reluctant to invest in the infrastructure itself. While this DOE project is a valuable step, additional resources will be needed to penetrate this sub-set of the market. Similarly, the Trust could consider funding analogous programs to identify barriers to heating electrification. For example, low-income households may not have the electrical infrastructure required for efficiency upgrades and may require greater resources to install electric heating systems. Committing funding towards these sectors will ensure that Maine's electrification programs do not impart increasing energy burdens for consumers.

Recommendations of Opportunities for Beneficial Electrification

CSE supports the efforts of the Trust to develop beneficial electrification programs in the transportation and heating sectors. In particular, the EV infrastructure pilots described in L.D. 1464 will be a valuable first step in addressing issues such as load management, demand charge alleviation, and customer engagement. CSE encourages the Trust to move forward with these pilots and consider expanding them into fully-fledged programs where appropriate.

The widespread availability and accessibility of EV charging infrastructure is a key prerequisite to the electrification of the transportation sector. CSE recommends that Maine accelerate EV infrastructure deployment by developing a statewide EV infrastructure incentive program. This will not only increase consumer confidence in EVs by alleviating concerns regarding range, but it will also send a clear market signal to developers. As an example, CSE encourages the Trust to look into the CALeVIP program mentioned above. CALeVIP funds up to 80 percent 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 to deploy EV chargers and catalyze the EV infrastructure market.

CSE also recommends that the Trust explore the development of EV readiness plans. These plans can be an effective tool in identifying ideal charger sites, compiling local barriers, and proposing best practices, such as the adoption of building codes that require EV chargers be built into new construction. For example, a study from Idaho National Laboratory indicates that EV chargers placed in high utilization zones experienced 87% more charging than those outside these zones and had charge periods that were 4.4 times longer.⁴ The process of developing these readiness plans can also be used as a way to solicit interest from industry

⁴ *Idaho National Laboratory, How Does Utilization of Non-Residential EVSE Compare Between those Installed in Oregon in Planned versus Unplanned Locations?*

<https://avt.inl.gov/sites/default/files/pdf/EVProj/UtilizationOfNonResEVSEInstallationVsPlan.pdf>

stakeholders and raise consumer awareness of forthcoming incentive programs for both EVs and EV charging infrastructure. Using funding from the California Energy Commission's Clean Transportation Programs, CSE has developed EV readiness plans for a number of jurisdictions across California (one of these plans is included in the Appendix as an example). These plans can be used by the Trust as a model for potential planning efforts in Maine.

Moreover, CSE recommends that the Trust explore the electrification of fleet vehicles, which represents an easy market segment to target through fleet procurement mandates, fuel economy standards, and performance-based goals. Some model policies the Trust could consider are California Governor Jerry Brown's Executive Order B-16-2012, issued in 2012, which specified that 10 percent of state government fleets' light-duty vehicle purchases be ZEVs by 2015, and at least 25 percent of purchases be ZEVs by 2020. Similarly, the Washington State EV Initiative directs that at least 50% of all new state passenger vehicle purchases are electric vehicles by 2020.

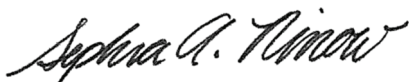
For all beneficial electrification efforts, CSE recommends that the Trust consider future-proofing investments by including features such as demand management capabilities. Moving toward a carbon-free grid will require significant amounts of flexible load to integrate intermittent renewable energy and provide ancillary services. Focusing on deploying grid-interactive technology will ensure that investments made today will send the right market signal to industry stakeholders while socializing the concept of grid-interactive technology with customers. This approach is consistent with CSE's experience implementing other statewide electrification initiatives, such as CALeVIP, which requires EV charging equipment be networkable and use an open standard communications protocol.

Finally, the Trust should seek to develop a holistic framework for beneficial electrification. This framework could be used to identify synergies between electrification efforts in the transportation and heating sectors. For example, CSE worked with the City of Carlsbad, California, to adopt ordinances that addressed mandatory solar requirements, alternative energy water heating, energy efficiency, and EV charging infrastructure standards. In addition, this framework could be used to develop a timeline for phasing out fossil fuel infrastructure and prioritize regions with aging gas infrastructure to avoid stranded assets and cost shifting. Lastly, incentives and enforceability mechanisms, coupled with robust consumer engagement campaigns, will be necessary to ensure electrification occurs in an efficient, timely, and equitable manner.

Conclusion

CSE appreciates the opportunity to provide comments on the Efficiency Maine Trust's beneficial electrification study. CSE applauds the Trust's efforts to gather information and implement programs that further the goal of beneficial electrification. CSE looks forward to continuing to work with the Trust to transform Maine's transportation and heating sectors.

Respectfully submitted,



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Appendix: List of Reports and Resources on Beneficial Electrification

Electric Vehicle Charging Station Permitting Guidebook

California Governor's Office of Business and Economic Development
July 2019

<http://businessportal.ca.gov/wp-content/uploads/2019/07/GoBIZ-EVCharging-Guidebook.pdf>

The Future of Transportation Electrification: Utility, Industry, and Consumer Perspectives

Lawrence Berkeley National Laboratory
August 2018

http://eta-publications.lbl.gov/sites/default/files/feur_10_transportation_electrification_final_20180813.pdf

Rate Design for Building Electrification

Building Decarbonization Coalition
2019

http://www.buildingdecarb.org/uploads/3/0/7/3/30734489/bdc_report_2_rate_design.pdf

San Diego Regional Plug-In Electric Vehicle (PEV) Readiness Plan

San Diego Association of Governments (SANDAG); Center for Sustainable Energy (CSE)
January 2014

https://www.sandag.org/uploads/publicationid/publicationid_1817_17061.pdf

Strategies and Approaches for Building Decarbonization

Building Decarbonization Coalition
2019

http://www.buildingdecarb.org/uploads/3/0/7/3/30734489/bdc_report_3_approaches_for_building_decarb.pdf