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For a thriving New England

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April 17, 2019

Testimony of Conservation Law Foundation in support of L.D. 1464, *An Act to Support Electrification of Certain Technologies for the Benefit of Maine Consumers and Utility Systems and the Environment*

My name is Emily K. Green and I am an attorney with Conservation Law Foundation (CLF) in our Portland office. CLF supports LD 1464, which takes critical first steps toward availing Maine of immeasurable opportunities presented by beneficial electrification of the heating and transportation sectors.

CLF is a leading New England non-profit organization focused on protecting our environment and safeguarding the health of our communities. We recognize climate change as the most pressing issue of our time and are guided by the global consensus of scientists set forth in the Intergovernmental Panel on Climate Change 2018 Special Report on Global Warming of 1.5°C, which advises that to avert the most devastating impacts of climate change, greenhouse gas emissions must be reduced to net zero by the year 2050.[1]

To decarbonize the region, CLF has long focused on reducing reliance on fossil fuels for electricity generation. Reflecting the relative success of that work, our advocacy is increasingly aimed at addressing emissions from the combustion of fossil fuels to power our transportation sector and heat our buildings.

CLF supports LD 1464's study of beneficial electrification because it would provide valuable information to inform next steps. CLF is pleased that the study would provide opportunities for

[1] IPCC, 2018: Summary for Policymakers. In: Global Warming of 1.5°C. An IPCC Special Report on the impacts of global warming of 1.5°C above pre-industrial levels and related global greenhouse gas emission pathways, in the context of strengthening the global response to the threat of climate change, sustainable development, and efforts to eradicate poverty [Masson-Delmotte, V., P. Zhai, H.-O. Pörtner, D. Roberts, J. Skea, P.R. Shukla, A. Pirani, W. Moufouma-Okia, C. Péan, R. Pidcock, S. Connors, J.B.R. Matthews, Y. Chen, X. Zhou, M.I. Gomis, E. Lonnoy, T. Maycock, M. Tignor, and T. Waterfield (eds.)]. World Meteorological Organization, Geneva, Switzerland. Available at https://tinyurl.com/y2jncrr3.

public comment and has a reasonable timeline. Further, CLF supports LD 1464 because it recognizes the forthcoming transition of the transportation sector and ensures that the State anticipates and plans for it. By acting today, Maine can ensure that electricity grids and transmission and distribution utilities are not only prepared to facilitate and support extensive electrification, but ready to capitalize on the value offered by beneficial electrification.

I. Forestalling the most devastating impacts of climate change will entail reducing emissions from the transportation sector by electrifying

In 2018, climate change exacerbated natural disasters that devastated the country, causing enormous losses—not only in terms of human lives, but in dollars spent on health care, personal property and public infrastructure maintenance and replacement, productivity losses, agricultural assets and more.[2,3] Superlative weather events are becoming the new normal—"2014 became the warmest year on record globally; 2015 surpassed 2014 by a wide margin; and 2016 surpassed 2015. Sixteen of the last 17 years have been the warmest ever recorded by human observations."[4] And temperature changes are linked to innumerable "alterations to human and natural systems,"[5] including "melting glaciers and ice sheets, shrinking snow cover and sea ice, rising sea levels . . . and heavy precipitation events."[6]

In this year of record-breaking weather extremes, multiple scientific reports underscored the importance of acting quickly and on a large scale to avoid the most severe impacts of climate

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[2] *See, e.g.,* NOAA National Centers for Environmental Information (NCEI), *U.S. Billion-Dollar Weather and Climate Disasters* (2019), https://www.ncdc.noaa.gov/billions/ (last visited April 16, 2019).

[3] Hoegh-Guldberg, O., D. Jacob, M. Taylor, M. Bindi, S. Brown, I. Camilloni, A. Diedhiou, R. Djalante, K.L. Ebi, F. Engelbrecht, J.Guiot, Y. Hijioka, S. Mehrotra, A. Payne, S.I. Seneviratne, A. Thomas, R. Warren, and G. Zhou, 2018: Impacts of 1.5°C Global Warming on Natural and Human Systems. In: Global Warming of 1.5°C. An IPCC Special Report on the impacts of global warming of 1.5°C above pre-industrial levels and related global greenhouse gas emission pathways, in the context of strengthening the global response to the threat of climate change, sustainable development, and efforts to eradicate poverty [Masson-Delmotte, V., P. Zhai, H.-O. Pörtner, D. Roberts, J. Skea, P.R. Shukla, A. Pirani, W. Moufouma-Okia, C. Péan, R. Pidcock, S. Connors, J.B.R. Matthews, Y. Chen, X. Zhou, M.I.Gomis, E. Lonnoy, T.Maycock, M.Tignor, and T. Waterfield (eds.)], at 177. Available at https://www.ipcc.ch/site/assets/uploads/sites/2/2019/02/SR15_Chapter3_Low_Res.pdf.

[4] USGCRP, 2018: *Impacts, Risks, and Adaptation in the United States: Fourth National Climate Assessment, Volume II* [Reidmiller, D.R., C.W. Avery, D.R. Easterling, K.E. Kunkel, K.L.M. Lewis, T.K. Maycock, and B.C. Stewart (eds.)]. U.S. Global Change Research Program, Washington, DC, USA, 1515 pp. doi: 10.7930/NCA4.2018, ("Fourth National Climate Assessment"), Chapter 2. Available at https://nca2018.globalchange.gov/chapter/2/.

[5] Allen, M.R., O.P. Dube, W. Solecki, F. Aragón-Durand, W. Cramer, S. Humphreys, M. Kainuma, J. Kala, N. Mahowald, Y. Mulugetta, R. Perez, M.Wairiu, and K. Zickfeld, 2018: Framing and Context. In: Global Warming of 1.5°C. An IPCC Special Report on the impacts of global warming of 1.5°C above pre-industrial levels and related global greenhouse gas emission pathways, in the context of strengthening the global response to the threat of climate change, sustainable development, and efforts to eradicate poverty [Masson-Delmotte, V., P. Zhai, H.-O. Pörtner, D. Roberts, J. Skea, P.R. Shukla, A. Pirani, W. Moufouma-Okia, C. Péan, R. Pidcock, S. Connors, J.B.R. Matthews, Y.Chen, X. Zhou, M.I. Gomis, E. Lonnoy, T. Maycock, M. Tignor, and T. Waterfield (eds.)], at 53. Available at https://www.ipcc.ch/site/assets/uploads/sites/2/2019/02/SR15_Chapter1_Low_Res.pdf.

[6] Fourth National Climate Assessment, Chapter 2, available at https://nca2018.globalchange.gov/chapter/2/.

change. These studies, produced at the global, national, and state-level, coalesce around important themes: we are already experiencing the impacts of human-caused climate change, which is costing us in terms of our health and welfare, our traditional industries, our natural resources, our infrastructure, and our property values, among other losses.[7] In the absence of significant mitigation action, these impacts are projected to worsen, and dramatically. On our current trajectory, the expected costs associated with climate change are staggering; by the turn of the century in the United States, climate change will cost some sectors more than hundreds of billions of dollars each year.[8] Yet, despite the alarming nature of these reports, perhaps their most important take-away is not how bad the consequences might be if we do nothing, but that we still have the opportunity to avoid the worst-case scenarios—*if we act now.*

Today, New England's transportation and buildings contribute an increasingly large percentage of overall climate change-causing emissions. As electricity generation has become cleaner, emissions from the transportation sector have held relatively steady due to increased vehicle miles traveled, even while fuel efficiency has improved.[9] Mobile units have surpassed electricity generation as the primary source of greenhouse gas emissions in the United States.[10] In Maine, the contribution is strikingly high—53%.[11] Any strategy to forestall the worst impacts of climate change must incorporate plans for tackling emissions from buildings and transportation. And those plans will necessarily entail, amongst many other tactics, near-complete electrification of mobile units.

II. Maine must prepare now to facilitate and maximize benefits from an electrified transportation sector

Battery costs continue to drop steadily and passenger electric vehicles (EVs) are poised to achieve price parity with comparable traditional vehicles in the next 5-10 years (sooner if accounting for owner fuel savings).[12] Against this backdrop, even conservative analyses project

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[7] For extensive discussion of impacts and costs of climate change to Maine, *see generally* Fernandez, I.J., C.V. Schmitt, S.D. Birkel, E. Stancioff, A.J. Pershing, J.T. Kelley, J.A. Runge, G.L. Jacobson, and P.A. Mayewski. 2015. Maine's Climate Future: 2015 Update. Orono, ME: University of Maine. Available at http://tinyurl.com/yyfl29u3. For extensive discussion of impacts and costs of climate change globally, *see generally* the IPCC Special Report on Global Warming of 1.5oC, available at https://www.ipcc.ch/sr15/. For extensive discussion of impacts and costs of climate change to the United States, *see generally* the U.S. Fourth National Climate Assessment.

[8] *See generally* U.S. Fourth National Climate Assessment.

[9] *See, e.g.,* U.S. Environmental Protection Agency, *Sources of Greenhouse Gas Emissions*, https://www.epa.gov/ghgemissions/sources-greenhouse-gas-emissions (last visited Apr. 16, 2019).

[10] *See, e.g., id.*

[11] Maine Department of Environmental Protection, *Seventh Biennial Report on Progress toward Greenhouse Gas Reduction Goals* (Jan. 2018), at 8. Available at https://www.eenews.net/assets/2018/04/16/document_pm_06.pdf.

[12] *See, e.g.,* Hannon, E., McKerracher, C., Orlandi, I. & Ramkumar, S., McKinsey and Company, *An Integrated Perspective on the Future of Mobility*, (2016, October). Available at https://tinyurl.com/y4o8yt3c; see also N. Lutsey & M. Nicholas, The International Council on Clean Transportation, *Update on electric vehicle costs in the United States through 2030* (Apr. 2, 2019). Available at https://www.theicct.org/publications/update-US-2030-electric-vehicle-cost.

significant and rapid EV deployment is on its way,[13] the likes of which our utilities and electricity grid may be ill-prepared to handle without advanced planning. In the absence of managed charging, for instance, most EV drivers are expected to charge their vehicles when they get home from work, contributing sharply to the end-of-day peak and as a result, increasing greenhouse gas emissions as well as costs, leading to inequitable cross-subsidization.[14] Yet, with appropriate price signals and other smart charging approaches, EVs will not only alleviate these challenges, but can even offer a wide range of grid, consumer, and environmental benefits. It is therefore critical that such mechanisms are in place well in advance of the significant load increase that will result from widespread electrification.

Maine is not prepared for mass electrification of the transportation sector. Nor are we yet experiencing high levels of EV deployment. This provides a window of opportunity in which to lay the groundwork for a successful transition. Maine should act now, through the study and pilots envisioned in LD 1464, to gain a better understanding for the Public Utilities Commission, utilities, the Efficiency Maine Trust and other stakeholders of what will be necessary to accommodate and benefit from wide-ranging, fundamental transformation of our transportation sector. There is much to be learned, for instance in regard to adequate price signals and appropriate pricing mechanisms, as well as with respect to models for utility ownership of EV charging infrastructure that serve the public while facilitating market growth. CLF supports the pilot set forth in LD 1464 as an educational undertaking necessary to prepare for the transportation reformation that is surely coming.

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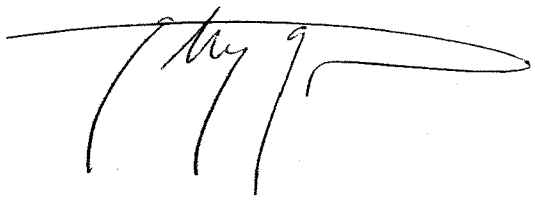
CLF thanks the committee for this opportunity to present testimony in support of LD 1464. Please do not hesitate to contact me with any questions or for further information.

Sincerely,



Emily K. Green

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[13] *See, e.g.,* Midcontinent Transportation Electrification Collaborative (M-TEC), *Electric Utility Roles in the Electric Vehicle (EV) Market: Consensus principles for Utility EV Program Design* (Apr. 2018) at 8.
[14] *See, e.g.,* Regulatory Assistance Project, *Getting From Here to There: Regulatory Considerations for Transportation Electrification* (May 2017), at 15. Available at https://www.raponline.org/wp-content/uploads/2017/06/RAP-regulatory-considerations-transportation-electrification-2017-may.pdf.