

This document has been prepared as part of the implementation project of Legal Pathways to Deep Decarbonization (Michael B. Gerrard and John C. Dernbach, eds. Environmental Law Institute [2019]) (LPDD). For background information on the project, see <https://lpdd.org>

Memorandum to Accompany Model Law Providing Rebates for EV Charging Stations

There is a strong consensus in the scientific community that profound changes are occurring in the world's climate; that these changes are due in large measure to human activities; and that the consequences of unchecked climate change pose grave risks to the environment, human health and socioeconomic stability. See, e.g., "*Climate Science Special Report, Fourth National Climate Assessment*," (the "*National Climate Assessment*") which was released by the federal government on November 17, 2017 ("Earth's climate is now changing faster than at any time in the history of modern civilization, primarily as a result of human activities.")¹ The symptoms of climate change are now readily apparent: average global temperatures are increasing inexorably, sea levels are rising measurably, glaciers are retreating, arctic sea ice is disappearing, ocean waters are warming, permafrost is thawing, record droughts are occurring, wildfires are becoming more intense and storms are becoming more severe."²

The U.S. is not immune to such impacts. Recent years have seen record wildfires break out in the west, unprecedented flooding in the mid-west and devastating storms along our coasts. Over the longer term, reports published by NASA, Columbia University, and Cornell scientists in 2015³ and 2016⁴ predict that "megadroughts" (i.e., droughts of the depression-era "dust bowl" magnitude, but lasting for decades) "could become commonplace" in the southwest and U.S. plain states "if climate change goes unabated." *Id.* at 6. It is predictions such as these that have led the 2019 report of the World Economic Forum to identify the "failure of climate change mitigation and adaptation" to be one of the *top risks* facing society – ahead of weapons of mass destruction, cyber-attacks, terrorism and the increasing scarcity of potable water.⁵

The December 12, 2015 Paris Agreement aims to avoid the worst impacts of climate change by holding the increase in average global temperatures to "well below 2°C above pre-

¹ U.S Global Change Research Program, *Fourth National Climate Assessment*, p.34.
<https://www.globalchange.gov/browse/reports/climate-science-special-report-fourth-national-climate-assessment-nca4-volume-i>

² *Id.* at 37.

³ Benjamin I. Cook, Toby Ault, & Jason Smerdon, "*Unprecedented 21st Century Drought Risk in the American Southwest and Central Plains States*," SCIENCE ADVANCES (Feb. 12, 2015), <http://advances.sciencemag.org/content/1/1/e1400082>.

⁴ Toby Ault, Justin S. Mankin, Benjamin I. Cook & Jason E. Smerdon, "*Relative Impacts of Mitigation, Temperature, and Precipitation on 21st-Century Megadrought Risk in the American Southwest*," SCIENCE ADVANCES (Oct. 5, 2016), <http://advances.sciencemag.org/content/2/10/e1600873>.

⁵ *The Global Risks Report 2019*, Part I, WORLD ECON. FORUM, <https://www.weforum.org/reports/the-global-risks-report-2019>

industrial levels” with efforts “to limit the temperature increase to 1.5°C above pre-industrial levels.”⁶ Achieving these goals will be a daunting task, requiring that greenhouse gas emissions from industrial countries like the U.S. be reduced by about 80 percent by 2050. Reductions of this magnitude will take a colossal effort by virtually all levels of government in the U.S. and all sectors of the economy.

A book published by the Environmental Law Institute, entitled *Legal Pathways to Deep Decarbonization in the United States* (Michael Gerrard & John Dernbach, Eds., ELI 2019) (“LPDD”)⁷, has identified more than 1000 legal strategies that can be taken to achieve dramatic greenhouse gas emission reductions in the United States. Many of those pathways are focused on shifting transportation fuel sources in the U.S. away from fossil fuels, at a level that would result in the deployment of approximately 300 million alternative fuel vehicles (“AFVs”) – particularly electric vehicles (“EVs”), plug-in hybrid electric vehicles (“PHEVs”) and hydrogen fuel cell vehicles (HFCVs”). “The goal is to shift 80%-95% of the miles driven from gasoline to lower carbon energy sources like electricity and hydrogen.”⁸

The importance of achieving this goal is readily apparent: in the United States the transportation sector accounts for 28% of the total energy consumed, 72% of petroleum usage and about a third of GHG emissions.⁹ Cars and trucks use about half the total energy consumed by the transportation sector, which also includes trains, subways, planes, ships and other water craft.

The lack of adequate charging infrastructure stands as a major impediment to the widespread adoption of electric vehicles. According to experts, “[c]onsumer reluctance towards EVs . . . arises from the limited range of the battery pack. The nearest charging station may be prohibitively far, or its wait time far too long. With no charging nearby. . . EV drivers could become stranded.”¹⁰ The proliferation of publicly accessible electric vehicle charging stations is essential to addressing such “range anxiety” issues and promoting the expanded consumer acceptance of electric vehicles. Thus, one pathway towards reducing greenhouse gases from the transportation sector is for state governments to provide rebates to subsidize the installation of publicly accessible electric vehicle charging equipment.

The model law that accompanies this memorandum would establish a program to provide such rebates. Under the law, the state would provide a one-time payment for the cost of the

⁶ *Id.* The NASA Study indicates that the risks of a megadrought occurring in the Western U.S. drop sharply – to a range from 30-60 percent in a 2°C warming scenario. *See, e.g.*, <https://www.ecowatch.com/megadroughts-2031955357.html>.

⁷ Michael Gerrard and John Dernbach, *Legal Pathways to Deep Decarbonization in the United States* (“LPDD”)(Environmental Law Institute, 2019).

⁸ LPDD, Ch. 14, at 353; *see also*, Chris Gearhart, *Implications of Sustainability for United States Light-Duty Transportation Sector*, 3 MRS Energy & Sustainability 1, 7, note 6 (2016)

⁹ U.S. Energy Information Agency: Annual Energy Review: 2011 (2012), available at: <http://www.eia.gov/totalenergy/data/annual/>; *see also*, <http://www.eia.gov/todayinenergy/detail.php?id=29612>.

¹⁰ Clint Cohen, *Blowing Smoke: Why the Current Government Incentive Regime Makes EVs and PHEVs A Distant Prospect-and How to Fix It* (2013) 38 Colum. J. Envtl. L. 375, 384.

purchase and installation of electric vehicle charging equipment that is: (i) readily accessible to the public, and (ii) provides at least “Level 2” charging.¹¹ The amount of the rebates (and the overall limit for state expenditures under the program) would be at the discretion of the legislature. However, the model law is drafted to create a two-tier structure whereby a higher rebate would be issued for the purchase and installation costs of equipment installed at a location where none had previously existed, or for additional equipment at an existing charging location; and (ii) a lesser rebate would be provided for installing upgraded equipment to replace equipment previously installed at a given location.

The model law directs the program administrator to adopt implementing regulations that, among other things, would provide for the recapture of rebates previously given for equipment that ceases, within one year after installation, to provide a specified level of service offering and use at the location where it initially had been installed. The law directs that, in promulgating the regulations, the program administrator consider measures that may encourage: (i) the deployment of charging stations along heavily traveled corridors designated in consultation with the state’s transportation commissioner; (ii) the equitable deployment of charging stations; (iii) the installation of charging equipment with features making it widely accessible by, and convenient for the general public, and that is co-optimized with other electric vehicle charging networks;¹² and (iv) is capable of tracking time of use or otherwise designed to benefit the electrical grid. The rebate program would terminate in 2030.

¹¹ There are three levels of electric vehicle charging, each provided by “Level 1”, “Level 2” and “Level 3” chargers, respectively. The technical definition for each of these levels is fairly complicated. Suffice it to say that “Level 1” charging is serviced by a standard wall outlet providing AC 120 volts/20 amps of power, and can fully recharge a car battery in 8-12 hours; Level 2 chargers connect to outlets providing AC 208/240 volts/40 amps service (about the same required for a dryer plug) and can recharge a car battery in 4-8 hours, and “Level 3” chargers – commonly called “DC Fast Chargers” -- provide DC service that can recharge a car battery to 80% capacity in less than an hour. See SAE J 1772; see also <https://www.boston.gov/sites/default/files/file/2020/06/How%20To%20Install%20an%20EVSE%20.pdf>.

¹² The model statute would direct the tax authority to consider, among other things, how to encourage the installation of charging equipment that “conforms to governmental or industry-developed billing, roaming or other interoperability standards.” The development of such “interoperability” standards is well underway, and adherence to those evolving standards is essential to the creation of an infrastructure network that is effective in “maximizing driver access ... simplifying payment and billing ... and promoting effective vehicle-to-grid communications for smart charging and demand response programs.” See Report of the “Multi-State ZEV Task Force and Northeast Corridor Steering Committee”: *Electric Vehicle Interoperability Recommendations for State Policy Makers*, NESCAUM, May 2020, available at https://www.nescaum.org/documents/ev-charging-interoperability-recommendations_5-1-20.pdf/