

April 25, 2019

COMMENTS OF THE NORTHEAST STATES FOR COORDINATED AIR USE  
MANAGEMENT ON PROPOSED EV-READY AMENDMENTS TO THE 2021  
INTERNATIONAL ENERGY CONSERVATION CODE

The Northeast States for Coordinated Air Use Management (NESCAUM)<sup>1</sup> representing eight states hereby submits these comments in support of proposed amendments to the 2021 International Energy Conservation Code (IECC) that would require parking spaces associated with new construction and certain renovations to be equipped with electrical infrastructure to power electric vehicle (EV) charging stations.

As proposed by the Alliance to Save Energy (ASE), RE-146-19 would apply to all single and two-family homes, and multi-unit dwellings three stories or less in height where parking is provided. It would require not less than two percent of the parking spaces or a minimum of one parking space, whichever is more, to be EV-ready – that is, be equipped with a minimum 50-ampere branch circuit and an electrical connector rated for 240 volts or greater service to accommodate a future Level 2 electric vehicle charging station.

A similar proposal sponsored by the Southwest Energy Efficiency Project (SWEEP) – CE-217-19 – would require an EV-ready parking space for each dwelling unit in single and two-family homes, and an increasing number of EV-ready and EV-capable parking spaces in multi-unit dwellings and commercial buildings based on the number of parking spaces provided.

Expanding safe and convenient EV charging infrastructure is a high priority for our states. Many of the NESCAUM states have adopted aggressive science-based greenhouse gas (GHG) emission targets requiring an 80 percent reduction in GHG emissions by 2050. This has important implications for the transportation sector, which is now the single largest source of GHG emissions in the nation. Near complete electrification of the transportation sector is necessary to achieve the GHG emission reduction goals that will avoid the worst effects of climate change.

In order to accelerate electrification of the transportation sector, seven of the NESCAUM-member states, along with Maryland and Oregon, have adopted the

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<sup>1</sup> NESCAUM is an association of the air pollution control agencies of the six New England states (ME, CT, MA, NH, NJ, NY, RI and VT) and New Jersey and New York. NESCAUM provides technical analysis and policy advice to its member states on a wide range of air pollution, climate and clean transportation issues, and facilitates collaboration on electric vehicle and other multi-state initiatives.

California Zero Emission Vehicle (ZEV)<sup>2</sup> Regulation, which requires automakers to place increasing numbers of ZEVs in states that have adopted the ZEV program. Several other states are considering adoption of the ZEV mandate. These states, when combined with California, represent more than thirty percent of the national new car sales market.

A recent updated EV sales forecast developed by the Edison Electric Institute (EEI) and the Institute for Electric Innovation (IEI)<sup>3</sup> estimates that by 2030, the number of EVs on U.S. roads will reach 18.7 million (up from approximately 1.1 million today). EEI and IEI further estimate that of the total 9.6 million charging ports needed to support the expanded market in 2030, 7.5 million Level 2 home chargers will be needed. Residential charging is particularly important because charging at home provides unparalleled convenience for consumers, can be done during times of off-peak power demand and costs less than paid public charging.<sup>4</sup>

After home, the workplace – where vehicles routinely spend many hours parked – is the next logical place for drivers to charge. Workplace charging can fill an important charging gap by providing charging opportunities for employees without home charging and additional range for employees with access to home chargers. Installation of workplace charging is essential for fleet electrification and useful for business visitors and customers. Ninety percent of all EV charging today is done at home and work for these reasons. Our building codes should be updated to better meet the evolving transportation needs of the nation’s population.

Equally important are the documented cost savings associated with installation of EV-ready charging infrastructure at the time of construction. Retrofitting existing buildings with charging equipment is significantly more costly than equipping buildings with the necessary EV-ready conduit and electrical circuitry at the time of construction. For example, a 2016 cost analysis prepared for the City and County of San Francisco found that installation of a complete electric circuit during construction can be as much as two-thirds less expensive compared to post-construction retrofits – as illustrated by the figure below from the report.<sup>5</sup>

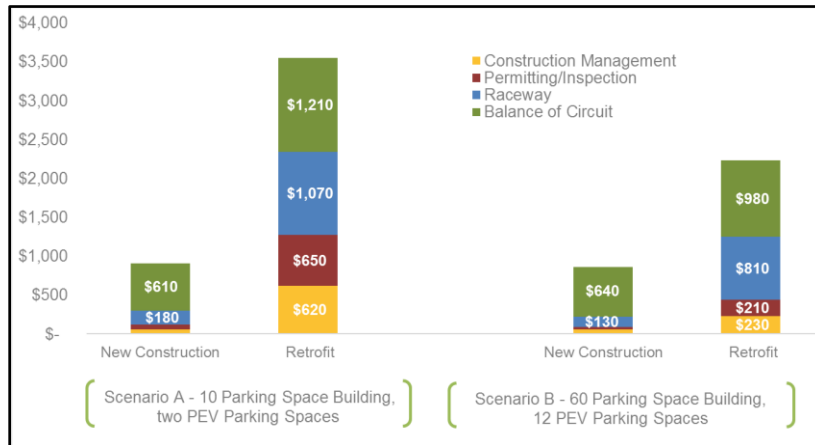
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<sup>2</sup> Zero emission vehicles as a category includes three types of electric vehicles: full battery electric, plug-in hybrid and hydrogen fuel cell vehicles. The ZEV and EV acronyms are often used interchangeably.

<sup>3</sup> *Electric Vehicle Sales Forecast and the Charging Infrastructure Required Through 2030*, Edison Electric Institute and Institute for Electric Innovation, November 2018, accessible at [http://www.edisonfoundation.net/iei/publications/Documents/IEI\\_EEI%20EV%20Forecast%20Report\\_Nov2018.pdf](http://www.edisonfoundation.net/iei/publications/Documents/IEI_EEI%20EV%20Forecast%20Report_Nov2018.pdf)

<sup>4</sup> For example, in March 2019, 66 percent of EV rebate recipients in Massachusetts reported that they have, or will, purchase an EV charger.

<sup>5</sup> *Plug-In Electric Vehicle Infrastructure Cost-Effectiveness Report for San Francisco*, California State-Wide Investor-Owned Utilities Codes and Standards Program, November 17, 2016, accessible at <http://evchargingpros.com/wp-content/uploads/2017/04/City-of-SF-PEV-Infrastructure-Cost-Effectiveness-Report-2016.pdf>.



**Figure: Relative Cost per PEV Charging Space of PEV Charging Infrastructure in New Construction vs. Retrofits (2016 dollars)**

This is consistent with the results of other analyses on the cost differential between new construction and retrofits.<sup>6</sup>

The building code amendments proposed by RE146-19 and CE217-19 are a proactive, cost effective way to help to close the EV charging gap in a safe manner. When combined with other proposals that would improve the energy efficiency of homes and commercial buildings, EV-ready code provisions would help lower overall energy spending. Incorporating EV-ready building code standards for new construction and certain renovations into the IECC will set an important national standard and facilitate adoption by state and local government building code bodies.

Thank you for your consideration of these comments.

<sup>6</sup> See, e.g., California Air Resources Board, *Electric Vehicle Charging Infrastructure, Green Building Standards Code Suggested Changes for Nonresidential Buildings: Technical and Cost Analysis*, July 9, 2015, available at: <http://www.documents.dgs.ca.gov/bsc/2015TriCycle/CAC/GREEN/Exhibit-B-CARB-Cost-Analysis-and-Technical-Report.pdf>.