



conservation law foundation

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June 28, 2016

The Commonwealth of Massachusetts  
Department of Public Safety

ATTN: Stephen Carley

*Via electronic mail: [stephen.carley@state.ma.us](mailto:stephen.carley@state.ma.us)*

**RE: Comments on proposed amendments to 780 CMR, State Board of Building Regulations and Standards: Chapter 13.00—Energy Efficiency; Chapter 51.00—Massachusetts Residential Code (Chapter 11 and Appendix U); Appendix 115.AA—Stretch Energy Code**

Dear Mr. Carley:

On behalf of the Conservation Law Foundation, I am writing to you in support of the above-referenced amendments to the Massachusetts State Building Code, title 780 of the Code of Massachusetts Regulations. Specifically, **Conservation Law Foundation urges the State Board of Building Regulations and Standards (the “Board”) to adopt proposed amendments to facilitate electric vehicle (“EV”) charging.**

The proposed amendments will ensure that new residential and commercial buildings in Massachusetts are “EV ready” with sufficient circuitry and panel capacity to accommodate the future installation of Level-2 EV-charging equipment. Updating the state building code to accommodate EV charging is key to achieving Massachusetts’ goal of deploying over 300,000 EVs by 2025.<sup>1</sup> EV readiness is also directly aligned with the statutory objectives that guide the Board’s regulation of building construction: EV readiness promotes energy efficiency and public safety, and significantly reduces the installation cost of charging infrastructure.

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<sup>1</sup> See STATE ZERO-EMISSION VEHICLE PROGRAMS MEMORANDUM OF UNDERSTANDING (Oct. 24, 2013), available at <http://www.zevstates.us/about-us/>.

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### I. EV-Ready Requirements Promote Energy Conservation and Public Safety

By statute, the Board is empowered and duty-bound to adopt building standards that promote “energy conservation and public safety.”<sup>2</sup> EV readiness is compatible with both energy conservation and public safety. EVs are more energy efficient than internal combustion engines, which results in lower fuel costs and better fuel economy for Massachusetts residents.<sup>3</sup> The facilitation of Level-2 charging, in particular, accords with the Board’s guiding objectives. Level-2 charging is more efficient than a wall plug (i.e., Level-1 charging), thus reducing the amount of time required to charge an EV.<sup>4</sup>

Additionally, EVs have fewer to none of the dangerous tailpipe emissions that are harmful to human health and welfare.<sup>5</sup> EV-charging stations also incorporate multiple features designed to keep the public safe during charging, such as mechanisms to prevent electric shocks.<sup>6</sup>

### II. EV-Ready Requirements Reduce Overall Costs to Building Owners and Operators

The Board’s authorizing statute identifies as another general objective the adoption of “modern technical methods, devices and improvements which may reduce the cost of construction . . . over the life of the building.”<sup>7</sup> EV readiness is well aligned with this objective. Designing and constructing a new building to accommodate EV-charging equipment is significantly less expensive than retrofitting an existing building. The average EV-charging system installation cost for new commercial construction is estimated at \$1,000, representing only a small portion of the overall construction cost of a new building. In comparison, retrofitting an existing building to accommodate EV charging can be prohibitively expensive. A recent California Air Resources Board report finds that EV-ready building codes save \$3,750 to \$6,975 per parking space as compared to the costs of later retrofits.<sup>8</sup> The added costs of retrofits may include, for example, the cost of upgrading electrical systems to provide sufficient capacity, and trenching and boring to lay electrical supply conduit<sup>9</sup>—work that can be wholly avoided

<sup>2</sup> M.G.L. ch. 143, § 95.

<sup>3</sup> *Benefits and Considerations of Electricity as a Vehicle Fuel*, ALTERNATIVE FUELS DATA CENTER, U.S. DEPT. OF ENERGY, [http://www.afdc.energy.gov/fuels/electricity\\_benefits.html](http://www.afdc.energy.gov/fuels/electricity_benefits.html) (May 10, 2016).

<sup>4</sup> EVAN FORWARD, KAREN GLITMAN, & DAVID ROBERTS, VERMONT ENERGY INVESTMENT CORP., AN ASSESSMENT OF LEVEL 1 AND LEVEL 2 ELECTRIC VEHICLE CHARGING EFFICIENCY 9 (2013), *available at* <https://www.veic.org/docs/Transportation/20130320-EVT-NRA-Final-Report.pdf>.

<sup>5</sup> *See generally* ELECTRIC POWER RESEARCH INST. & NATURAL RESOURCES DEFENSE COUNCIL, ENVIRONMENTAL ASSESSMENT OF A FULL ELECTRIC TRANSPORTATION PORTFOLIO, vol. 3 (2015), *available at* <http://epri.co/3002006881>.

<sup>6</sup> MASS. DEPT. OF ENERGY RESOURCES, INSTALLATION GUIDE FOR ELECTRIC VEHICLE SUPPLY EQUIPMENT (EVSE) 4 (2014), *available at* <http://www.mass.gov/eea/docs/der/clean-cities/ev-charging-infrastructure-manual.pdf>.

<sup>7</sup> M.G.L. ch. 143, § 95.

<sup>8</sup> CAL. AIR RESOURCES BOARD, ELECTRIC VEHICLE CHARGING INFRASTRUCTURE 3 (2015), *available at* <http://www.documents.dgs.ca.gov/bsc/2015TriCycle/CAC/GREEN/Exhibit-B-CARB-Cost-Analysis-and-Technical-Report.pdf>.

<sup>9</sup> *See* U.S. DEPT. OF ENERGY, COSTS ASSOCIATED WITH NON-RESIDENTIAL ELECTRIC VEHICLE SUPPLY EQUIPMENT 13 (2015), *available at* [http://www.afdc.energy.gov/uploads/publication/evse\\_cost\\_report\\_2015.pdf](http://www.afdc.energy.gov/uploads/publication/evse_cost_report_2015.pdf).

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when EV charging needs are considered during design and construction, as the proposed building code amendments require.

Importantly, buildings constructed under the amended building code will exist for decades, during which time our transportation sector will undergo a significant shift toward EVs. Even if the building owner or operator does not want to install charging infrastructure right away, preparing for EV charging during design and construction allows owners and operators to select the least-cost arrangement, thus saving costs in the long run.

### III. EV-Ready Requirements Support Governor Baker's EV and Climate Action Goals

The proposed EV-ready building code amendments advance Massachusetts' statutory commitments to reduce greenhouse gas emissions 25 percent below 1990 levels by 2020 and 80 percent below 1990 levels by 2050.<sup>10</sup> Transportation is the single largest contributor to Massachusetts' greenhouse gas emissions, accounting for 42 percent of total emissions.<sup>11</sup> Electrification of the state's transportation sector is critical to achieving our ambitious emission-reduction requirements.<sup>12</sup> Massachusetts' *Clean Energy and Climate Plan* specifically calls for policies to facilitate residential and workplace EV charging, such as the proposed building code amendments, as key to encouraging EV adoption.<sup>13</sup>

Updating the state building code to promote EV readiness is also a priority action under the eight-state Zero-Emission Vehicle Memorandum of Understanding ("MOU"), to which Massachusetts is a signatory.<sup>14</sup> Through this MOU, Massachusetts has pledged to deploy over 300,000 EVs by 2025.<sup>15</sup> State policies designed to accelerate EV ownership, such as the *Mass Electric Vehicle Incentive Program* ("Mass EVIP") and *Massachusetts Offers Rebates for Electric Vehicles* ("MOR-EV"), have contributed to soaring rates of EV ownership in the Commonwealth. Between 2013 and 2016, the number of EVs in Massachusetts has tripled, and EV ownership continues to grow. In the coming decades, residential and commercial buildings will play a significant, growing role in fueling Massachusetts' transportation sector. An EV-ready building code serves the needs of future residents and businesses, attracts economic growth, and helps ensure the long-term prosperity of Massachusetts.

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<sup>10</sup> Global Warming Solutions Act, M.G.L. ch. 21N.

<sup>11</sup> EXEC. OFFICE OF ENERGY & ENVIRONMENTAL AFFAIRS, MASSACHUSETTS CLEAN ENERGY AND CLIMATE PLAN FOR 2020 81 (2015), available at <http://www.mass.gov/eea/docs/eea/energy/cccp-for-2020.pdf>.

<sup>12</sup> See generally UNION OF CONCERNED SCIENTISTS, CLEANER CARS FROM CRADLE TO GRAVE (2015), available at <http://www.ucsusa.org/sites/default/files/attach/2015/11/Cleaner-Cars-from-Cradle-to-Grave-full-report.pdf>.

<sup>13</sup> EXEC. OFFICE OF ENERGY & ENVIRONMENTAL AFFAIRS, MASSACHUSETTS CLEAN ENERGY AND CLIMATE PLAN FOR 2020 25-27 (2015), available at <http://www.mass.gov/eea/docs/eea/energy/cccp-for-2020.pdf>.

<sup>14</sup> ZEV PROGRAM IMPLEMENTATION TASK FORCE, MULTI-STATE ZEV ACTION PLAN 20 (2014), available at <http://www.zevstates.us/about-us/>. See also STATE ZERO-EMISSION VEHICLE PROGRAMS MEMORANDUM OF UNDERSTANDING (Oct. 24, 2013), available at <http://www.zevstates.us/about-us/>.

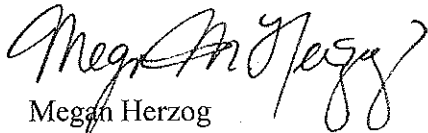
<sup>15</sup> STATE ZERO-EMISSION VEHICLE PROGRAMS MEMORANDUM OF UNDERSTANDING (Oct. 24, 2013), available at <http://www.zevstates.us/about-us/>.

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The statutory objectives that guide the Board's adoption of new building standards recognize the important role that buildings play in Massachusetts' broader energy system, as well as the building code's capacity to provide significant energy benefits and cost savings to residents through sensible, forward-looking design and construction standards. As the connection between buildings and transportation fueling grows in Massachusetts, an EV-ready building code is essential to reduce construction costs and promote energy conservation and public safety. **For the foregoing reasons, the Conservation Law Foundation urges the Board to adopt the proposed building code amendments to facilitate EV charging.**

Thank you for your consideration of these comments.

Sincerely,



Megan Herzog  
Staff Attorney