

**Report on the status of and the preferred strategy to prioritize further  
development of public electric vehicle charging corridors, including  
Interstate 93, Interstate 89, and Interstate 95**

**House Bill 614  
Chapter Law 0219 of 2015**

**Submitted to the Speaker of the New Hampshire House of Representatives and  
the President of the New Hampshire Senate**

**January 19, 2016**

## **I. Introduction**

House Bill 614 of 2015 requires the Office of Energy and Planning (NH OEP), with input from the Departments of Transportation (NH DOT), Environmental Services (NH DES) and Resources and Economic Development (NH DRED), to develop a report “on the status of and the preferred strategy to prioritize further development of public [electric vehicle] charging corridors, including Interstate 93, Interstate 89, and Interstate 95.”

In compliance with that legislation, this report describes the status of New Hampshire’s activities to promote electric vehicle (EV) charging along the State’s major highway corridors, and the strategy going forward to continue development of the State’s charging infrastructure.

## **II. Background**

The movement of goods and people throughout New Hampshire produces nearly half of the emissions that contribute to ground level ozone and smog, and a third of the State’s greenhouse gas (GHG) emissions. Vehicles powered by electricity have significantly lower emissions than traditional vehicles, even when including the emissions from electric generating plants that provide the electricity to charge the vehicle batteries. As a result, EVs offer an important strategy to improve our State’s air quality, reduce GHG emissions, and lessen our dependence on fossil fuels. Based on data from the NH Department of Safety’s Division of Motor Vehicles, approximately 700 EVs were registered in the State in early 2015, and the number of registered EVs in the State has doubled every year since 2012. A 2014 national Electric Vehicle Transportation Center report on future plug-in EV sales that examined both plug-in hybrids and EVs predicts a year-over-year increase in plug-in EV sales of 20 percent through 2023,<sup>1</sup> based on historic sales growth.

A significant barrier to more rapid EV adoption is “range anxiety” – the concern that an EV’s battery capacity will fail to support traveling the distances drivers need or want. To address this concern, the 2014 *New Hampshire 10-Year State Energy Strategy*, prepared by the NH OEP in consultation with the State Energy Advisory Committee, calls for the State to “incentivize independent development of EV charging infrastructure” and “create a strategic plan for EV charging infrastructure development.”<sup>2</sup> New Hampshire is working collaboratively with several other states to do so by planning “electric highways” upon which sufficient charging stations exist to allow EV owners to conveniently recharge while traveling into and throughout the State, and to create a regional network to support commerce and tourism.

In New Hampshire, EVs and other alternative fuel vehicles have been the focus of the Granite State Clean Cities Coalition (GSCCC), a public/private partnership with over 120 stakeholders statewide and hosted by NH DES since its formation in 2001.

The State itself operates a passenger vehicle fleet of approximately 2,000 vehicles, and is the largest energy user in New Hampshire with transportation, heating, cooling and electricity costs greater than \$27 million in 2015 alone. In efforts both to lead by example and make taxpayer-funded infrastructure more efficient, the State Government Energy Committee (SGEC), a group of state agencies including NH DES, the NH Public Utilities Commission, NH DRED, NH OEP and NH DOT, works to advise and support the state’s energy manager and the state’s fleet manager. Because of collaborative efforts of many employees

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<sup>1</sup> *Electric Vehicle Sales and Future Projections*, David Block and John Harrison, Electric Vehicle Transportation Center, January 22, 2014, <http://fsec.ucf.edu/en/publications/pdf/fsec-cr-1985-14.pdf>.

<sup>2</sup> [http://www.nh.gov/NH\\_OEP/energy/programs/documents/energy-strategy.pdf](http://www.nh.gov/NH_OEP/energy/programs/documents/energy-strategy.pdf).

in a variety of agencies, New Hampshire has reduced its passenger vehicle-miles traveled by approximately 2.4 million miles since 2009, avoiding the purchase of an estimated 137,000 gallons of fuel and avoiding approximately \$359,000 in fuel costs since that time, while reducing carbon pollution emissions by 1,200 metric tons. The SGEC is currently considering ways of continuing to build on those successes including exploring ways to expand access to EV infrastructure.

### **III. Status of EV Charging Station Development**

There are three levels of EV charging infrastructure, typically referred to as Level 1, Level 2 and DC Fast Charging, defined by the rate at which batteries are charged.<sup>3</sup> As of December 2015, there were 109 publicly accessible charging stations at 56 locations in New Hampshire – six Level 1, 71 Level 2 and 32 DC Fast Chargers,<sup>4</sup> as shown in the maps at the end of this report. Many of these stations are hosted by automobile dealerships. Five of the eight DC Fast Charger locations support only Tesla vehicles, as their charging technology is unique to their vehicles.

In 2015, NH OEP provided \$25,000 to NH DES from a federal grant to incentivize the installation of charging infrastructure along major transportation corridors. Secondary targets include major tourist destinations and workplace charging stations to support the State’s business community. NH DES created the **NH Electric Vehicle Charging Station Installation Rebate Program**,<sup>5</sup> which so far has helped incentivize EV charging infrastructure in Hanover, Durham, Keene and North Conway. For 2016, NH OEP has made an additional \$25,000 in federal funds available for the Rebate Program, with the highest priority going to charging stations along the I-93, I-89, I-95 and Route 16 corridors.

New Hampshire is an active member of the **Transportation and Climate Initiative**<sup>6</sup> coordinated by the Georgetown Climate Center. In November 2015, the Center released *Reducing Greenhouse Gas Emissions from Transportation*,<sup>7</sup> a report analyzing the impacts of federal and state policies on emissions reductions in the transportation sector. Among other strategies, the report calls for interstate coordination of EV infrastructure development and the promotion of EVs as one strategy to reduce greenhouse gas and other harmful emissions. TCI has also developed technical guidance documents available to communities or private entities to assist in locating and installing charging infrastructure.<sup>8</sup>

New Hampshire is also a participating member of the **Northeast Electric Vehicle Network**,<sup>9</sup> a project of the TCI designed to facilitate the installation of charging stations throughout the region. The goal of the network is to enable EV drivers to “drive their plug-in cars and trucks from northern New England to D.C. and everywhere in between.”

Hosted by NH DES, the **Granite State Clean Cities Coalition**<sup>10</sup> is a collaborative of more than 120 public and private interests from all regions in New Hampshire. Coalition members support the goals of reducing dependence on fossil fuels and improving air quality through the use of cleaner alternatives

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<sup>3</sup> [www.afdc.energy.gov/fuels/electricity\\_infrastructure.html](http://www.afdc.energy.gov/fuels/electricity_infrastructure.html).

<sup>4</sup> Level 1 chargers are 120 volt, Level 2 are 240 volt, and Level 3 are DC Fast Chargers.

<sup>5</sup> <http://des.nh.gov/organization/divisions/air/drive-electric/index.htm>.

<sup>6</sup> TCI includes 11 Northeast and Mid-Atlantic states plus DC – see <http://www.georgetownclimate.org/state-action/transportation-and-climate-initiative>.

<sup>7</sup> *Reducing Greenhouse Gas Emissions from Transportation; Opportunities in the Northeast and Mid-Atlantic*; Gabe Pacyniak, Kathryn Zyla, Vicki Arroyo, and Matthew Goetz; Georgetown Climate Center; November, 2015.

<sup>8</sup> [Electric Vehicle Siting and Design Guidelines](#); [Creating EV-Ready Towns and Cities: A Guide to Planning and Policy Tools](#); and [EV-Ready Codes for the Built Environment](#).

<sup>9</sup> <http://www.transportationandclimate.org/content/northeast-electric-vehicle-network>.

<sup>10</sup> <http://www.granitestatecleancities.nh.gov/>.

including electricity. In September 2015, NH DES and the Coalition organized the **NH Drive Electric Week** event displaying EVs and EV technologies as a way to increase consumer awareness of the benefits and availability of EVs and the EV charging infrastructure.

Although not a member of the **Zero Emissions Vehicles (ZEV) Task Force**<sup>11</sup> because New Hampshire has not adopted California's Low Emission/Zero Emission Vehicle standards, New Hampshire is coordinating its efforts with the Task Force's **Multi-State ZEV Action Plan**<sup>12</sup> "Key Activities" that include developing interstate EV charging infrastructure, harmonizing infrastructure signage and ensuring that all ZEV charging/fueling installations are registered with the National Renewable Energy Lab's Alternative Fuels Data Center database.

Despite all these efforts, the maps at the end of this report show that New Hampshire does not host as many EV charging stations as other states in the region do, leaving those who would want to travel to more remote locations in the State at a disadvantage.

#### **IV. Strategies to Encourage Further Development of EV Charging Infrastructure**

##### **A. Rebate Program and State Actions**

As previously noted, NH DES is implementing Phase 2 of an EV charging infrastructure rebate program in 2016. Should funding be available in future years, the emphasis of the rebates will include supporting development of workplace charging to encourage installations by New Hampshire's employers.

NH DES will continue to promote EVs through the Granite State Clean Cities Coalition. In concert with the states implementing the Multi-State ZEV Action Plan, NH DES will evaluate the feasibility of developing a marketing campaign for EVs in New Hampshire.

New Hampshire should continue to evaluate the benefits of adopting California's Low Emission Vehicle standard, including the "ZEV mandate" to further enable harmonization of efforts with the other New England states, and to ensure that New Hampshire consumers can access alternative fuel vehicles.

##### **B. EV Tariffs**

On November 20, 2015, Liberty Utilities (Granite State Electric) Corp. filed a tariff amendment to permit the resale of electricity for EV charging stations.<sup>13</sup> In response, the NH Public Utilities Commission suspended that docket and, on December 18, 2015, issued an order of notice for IR 15-510, "Investigation into Resale of Electricity by Electric Vehicle Charging Stations."<sup>14</sup> In its order of notice, the Commission notes that the potential resale of electricity by EV charging station operators raises legal questions regarding the definitions and regulations of public utilities and competitive electric power suppliers; and "Because electric vehicles are a growing presence in New Hampshire and in New England, and their use is supported by both State and regional initiatives, the Commission expects that all electric distribution utilities will be affected by the resolution of these issues."

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<sup>11</sup> <http://www.zevstates.us/>.

<sup>12</sup> [www.nescaum.org/documents/multi-state-zev-action-plan.pdf](http://www.nescaum.org/documents/multi-state-zev-action-plan.pdf) - *Multi-State ZEV Action Plan*; ZEV Program Implementation Task Force; May 2014.

<sup>13</sup> DE 15-489, <http://puc.nh.gov/Regulatory/Docketbk/2015/15-489.html>.

<sup>14</sup> [http://puc.nh.gov/Regulatory/Docketbk/2015/15-510/INITIAL%20FILING%20-%20PETITION/15-510\\_2015-12-18\\_OON.PDF](http://puc.nh.gov/Regulatory/Docketbk/2015/15-510/INITIAL%20FILING%20-%20PETITION/15-510_2015-12-18_OON.PDF).

The Commission requires all stakeholders to submit legal memoranda by January 22, 2016. A stakeholder technical session is scheduled to take place on February 9, 2016, and a Staff report of conclusions and recommendations is due February 26, 2016.

### **C. Regional Initiatives**

Since 1973, the six New England states and the five Eastern Canadian provinces have worked cooperatively to address their shared interests across the border through the New England Governors and Eastern Canadian Premiers (NEG/ECP). NEG/ECP encourages cooperation by developing networks and relationships, taking collective action, engaging in regional projects, undertaking research and increasing public awareness of shared interests. The NEG/ECP Transportation and Air Quality Committee (TAQC) was formed in 2007 and developed a 2013 Transportation and Air Quality Action Plan.

In 2014-15, TAQC focused its efforts on gaining greater insights into the current and future role of EVs and the associated charging infrastructure in the region. TAQC members are creating a regional EV and infrastructure profile that captures information on EVs and recharging infrastructure: the number of light-duty electric vehicles in the region, the number of publicly available charging stations and the fleet penetration of EVs as a percentage of the entire light-duty fleet. This baseline information will allow the TAQC to track the progress over time toward the regional goal established by the governors and premiers in 2013: five percent fleet market share penetration of alternative fuel vehicles by 2020.

As of mid-June 2015, member jurisdictions report a regional total of approximately 17,600 light-duty EVs (including public, governmental and commercial vehicles), which represents an estimated 0.12 percent of the region's light-duty fleet. Approximately 1,300 public charging stations (1,232 Level II and 76 DC Fast Charge) exist in the region to support those vehicles.

### **V. Conclusion**

DES and NH OEP, in consultation with NH DOT and NH DRED, will continue to monitor EV developments and to work together to increase the availability of charging infrastructure around the State. NH OEP wishes to thank staff from NH DES, NH DRED and NH DOT for their assistance in compiling this report. NH OEP particularly recognizes Becky Ohler of the NH DES Air Resources Division for her significant contributions to this report, and for her efforts to bring EVs to the State.

Respectfully submitted,

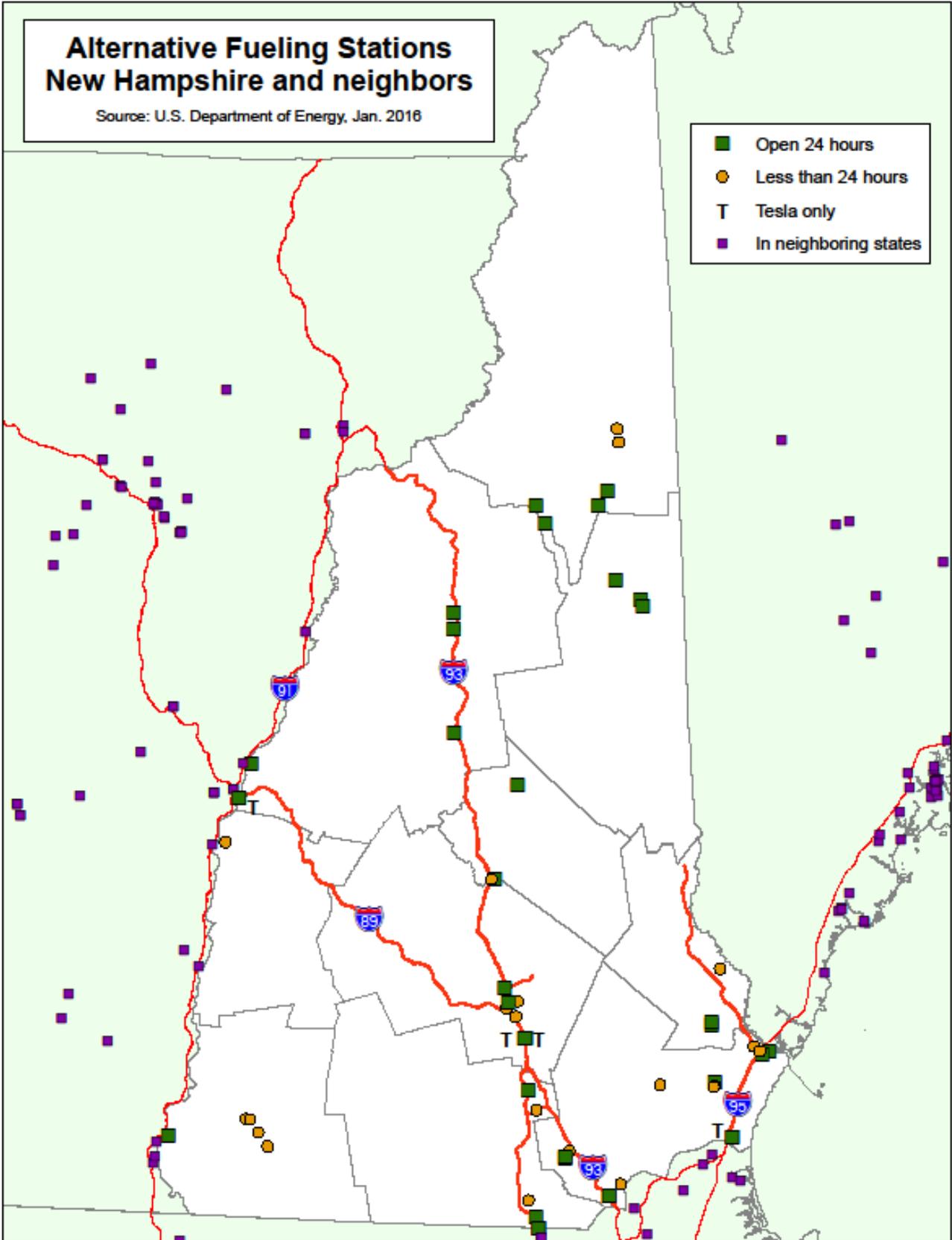


Meredith A. Hatfield, Director  
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# Alternative Fueling Stations New Hampshire and neighbors

Source: U.S. Department of Energy, Jan. 2018

- Open 24 hours
- Less than 24 hours
- T Tesla only
- In neighboring states



# Alternative Fueling Stations New Hampshire and neighbors

Source: U.S. Department of Energy, Jan. 2016

