Analysis for Electric Vehicle Supply Equipment Amendments

PLAN 2022

Jackson Kaspari
Outline

Supporting Analysis:
- Proximity Analysis
- Current Land Use
- EV Infrastructure Projection Tool
- GHG-E Comparison

Site Regulation Amendments:
- Site Plan Review
- Conditional Use Permit
EVSE Proximity to Downtown Dover

<table>
<thead>
<tr>
<th>EVSE Type</th>
<th>Total</th>
</tr>
</thead>
<tbody>
<tr>
<td>Level I</td>
<td>5</td>
</tr>
<tr>
<td>Level II</td>
<td>197</td>
</tr>
<tr>
<td>DC Fast</td>
<td>79</td>
</tr>
</tbody>
</table>

Number of EVSE Plugs

- Level I: 17 plugs (< 10 mi)
- Level II: 2 plugs (10 - 50 mi)
- DC Fast: 1 plug (> 50 mi)
- Level I: 2 plugs (10 - 50 mi)
- Level II: 54 plugs (10 - 50 mi)
- DC Fast: 24 plugs (> 50 mi)
## EVSE Location Use Breakdown

<table>
<thead>
<tr>
<th>Use Type</th>
<th>Percentage of Total (%)</th>
</tr>
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<tbody>
<tr>
<td>Hospitality</td>
<td>38</td>
</tr>
<tr>
<td>Car Dealer</td>
<td>21</td>
</tr>
<tr>
<td>Other</td>
<td>11</td>
</tr>
<tr>
<td>Parking Area</td>
<td>10</td>
</tr>
<tr>
<td>Dining</td>
<td>8</td>
</tr>
<tr>
<td>Shopping</td>
<td>5</td>
</tr>
<tr>
<td>Grocery</td>
<td>4</td>
</tr>
<tr>
<td>Office Building</td>
<td>3</td>
</tr>
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Assumptions:
- Need if 1% of Dover-Rochester lightweight vehicles became electric
- Partial support of EVs
- 100% of EV drivers have access to home charging

### Vehicle Mix Assumptions

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<tr>
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<th>Percentage (%)</th>
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<tr>
<td>Plug in Hybrid</td>
<td>20</td>
<td>15</td>
</tr>
<tr>
<td>Plug in Hybrid</td>
<td>50</td>
<td>35</td>
</tr>
<tr>
<td>All Electric</td>
<td>100</td>
<td>15</td>
</tr>
<tr>
<td>All Electric</td>
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Annual GHG-E Per NH Vehicle Type

GHG-E Per NH Vehicle (lbs CO$_2$e / yr)

- All Electric
- Plug-in Hybrid
- Hybrid
- Gasoline

GHG-E for Gasoline vehicles is significantly higher compared to other types.
U.S. Life-Cycle Emissions Comparison

A GLOBAL COMPARISON OF THE LIFE-CYCLE GREENHOUSE GAS EMISSIONS OF COMBUSTION ENGINE AND ELECTRIC PASSENGER CARS

Georg Bieker
➢ BEVs correspond to 57% - 68% lower life-cycle GHG-E in 2021
➢ The reduction is projected to increase to 61% - 76% in 2030
➢ BEV uncertainty range is a result of grid matrix projections
➢ Under 100% renewable grid scenario life-cycle GHG-E = 80% reduction
Projects must provide **Electric Vehicle Charging Readiness** based on the following standards:

1. **Multi-family residential projects:** 5% of the total number of new parking spaces.
2. **Non-residential projects:** 2% of the total number of new parking spaces.
3. The number would be rounded up in all cases with a minimum of one space of electric vehicle charging readiness per project requiring Site Plan Review.
ELECTRIC VEHICLE READINESS

A parking space meets electric vehicle readiness requirements if the following requirements are met:

[Added 7-27-2021]

1. The project has provided one or more dedicated circuits on the electrical panel(s) such that the panel(s) has the service capacity to accommodate the required number of Level 2 EVSE; and
2. Conduit has been installed to allow the addition of all necessary wiring to electrify installed EVSE at the parking space(s) without having to excavate to do so.

Link to Dover’s Site Review Regulations: https://ecode360.com/33400413
Amendments to SRR Chapter 153

Conditional Use Permit

➢ The applicant shall contribute to improving electric vehicle infrastructure by using one of the following methods:

  [a] For uses that typically result in at least two hours or longer of parking the applicant shall provide one Level II commercial electric vehicle charging station for every 10 spaces requested over the parking maximum.
Amendments to SRR Chapter 153

Conditional Use Permit

➢ The applicant shall contribute to improving electric vehicle infrastructure by using one of the following methods:

[b] For uses that do not typically result in at least two hours or longer of activity, the applicant shall provide two additional parking spaces that meet electric vehicle readiness requirements for every 10 parking spaces requested over the parking maximum.
Questions?

Jackson H. Kaspari
City of Dover Resilience Coordinator
Planning & Community Development
Tel: (603) 516-6008
Email: j.kaspari@dover.nh.gov

https://inugo.com/how-can-we-make-parking-greener