### State Government Progress – as of Jan. 2019

<table>
<thead>
<tr>
<th>Category</th>
<th>Data</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Greenhouse Gas (GHG) Emissions</strong></td>
<td>↓ 28% 2004 -2017</td>
</tr>
<tr>
<td><strong>Energy Use Intensity per Square Foot</strong></td>
<td>↓ 15% 2004-2017</td>
</tr>
<tr>
<td><strong>Electricity via Renewable or Onsite Generation</strong></td>
<td>20% In 2017</td>
</tr>
<tr>
<td><strong>Heating Oil Consumption at State Facilities</strong></td>
<td>↓ 84% 2006-2017</td>
</tr>
<tr>
<td><strong>24.1 MW Installed Solar PV at State Sites</strong></td>
<td>15.9 MW Since 2015</td>
</tr>
<tr>
<td><strong>82 LEED Certified State Buildings</strong></td>
<td>45 Since 2015</td>
</tr>
<tr>
<td><strong>125 Electric Vehicle Charging Stations at State Sites</strong></td>
<td>55 Since 2015</td>
</tr>
<tr>
<td><strong>Leading by Example Grants Awarded</strong></td>
<td>$10.7 M Since 2015</td>
</tr>
</tbody>
</table>
News From Around the World
Creating A Clean, Affordable and Resilient Energy Future For the Commonwealth

Report from 13 Federal Agencies

Actions to Reduce Risks:

1. “While mitigation and adaptation efforts have expanded substantially in the last four years, they do not yet approach the scale considered necessary to avoid substantial damages to the economy, environment, and human health over the coming decades.”

2. “Because society is already committed to a certain amount of future climate change due to past and present emissions and because mitigation activities cannot avoid all climate-related risks, mitigation and adaptation activities can be considered complementary strategies.”
Climate Takeaways

1. Climate Change is accelerating
2. Nothing can be done to completely stop future impacts
3. Adaptation strategies are and will be required
4. Mitigation is still critically important to avoid catastrophic environmental and economic damage
Climate Change Headlines: 2018 in Review
The Bad

US CO₂ Emissions Increased in 2018

Rhodium Group, 2018

• Increased estimated 3.8% from 2017 to 2018
• Largest emissions growth occurred in two sectors: buildings and industry

Warming in Arctic Raises Fears of a ‘Rapid Unraveling’ of the Region

NYT, 2018

• The Arctic has been warmer over the last 5 years than at any time since records began in 1900, and the region is warming at 2x the rate as the rest of the planet

Oceans are warming even faster than previously thought

UC Berkley, 2019

• 2018: Warmest year on record in the oceans
• If no GHG reduction by 2100: estimated 1 foot of sea level rise
Climate Change Headlines: 2018 in Review

The Good

Costs Continue to Decline for Residential and Commercial Photovoltaics in 2018

- Solar costs down 66% since 2010

Xcel Energy Commits to 100% Carbon-Free Electricity by 2050

- First power company to commit to 100% carbon-free electricity by 2050 across 8 Western and Midwestern states
- 80% by 2030 goal can be met through affordable and currently available technologies but 100% clean energy will require technologies that are not currently cost-effective or commercially available

UK renewable energy capacity surpasses fossil fuels for first time

- In past 5 years, renewable capacity has tripled while fossil fuels’ has fallen by one-third, as power stations at end of life or became uneconomic
- Between July and September, UK capacity of wind, solar, biomass and hydro reached 41.9 GW, exceeding the 41.2 GW capacity of coal, gas and oil-fired power plants

News from Around the World

Massachusetts Updates

Clean Transportation

Solar Updates

LBE Updates
MA Comprehensive Energy Plan

Some Key Findings:

- Electric generation contributes the fewest GHG emissions in MA and is also where we have made the greatest progress in reducing emissions.

- NE states have some of the highest electric rates in the nation, however MA on path to become more competitive.

- Region remains at risk for price spikes and emission increases during extended cold periods.
Scenario Modeling Analysis

Modeled various hypothetical amounts of clean energy and demand between now and 2030 to see impact on cost, emissions and reliability:

<table>
<thead>
<tr>
<th>Scenarios</th>
<th>Modeling Assumptions by 2030</th>
</tr>
</thead>
<tbody>
<tr>
<td>Sustained Policies</td>
<td>Assumption of what outcomes will be achieved by 2030 as a result of current policies (Pre-2018 Legislation) 45% clean retail electricity; 500 MWh storage; 1.2 million EVs</td>
</tr>
<tr>
<td>High Renewables</td>
<td>Sustained Policies with additional clean electricity: + 16 TWh of Clean Electricity (4,000 – 7,000 MW), 65% clean retail electricity + 3x amount of energy storage (1800 MWh)</td>
</tr>
<tr>
<td>High Electrification</td>
<td>Sustained Policies with increased electrification of Thermal and Transportation Sectors + Accelerated growth in EVs (1.7 million LDV (36%) - by 2030) + 25% of oil-heated and 10% of gas-heated buildings switch to ASHP</td>
</tr>
<tr>
<td>High Renewables + Electrification</td>
<td>Combine the High Renewables and High Electrification assumptions</td>
</tr>
<tr>
<td>Aggressive Conservation + Fuel Switching</td>
<td>High Renewables + Electrification scenario with: + More aggressive fuel switching in the Thermal and Transportation sectors + 3x increase in pace of weatherization and building efficiency + 2 GW peak demand reduction</td>
</tr>
</tbody>
</table>

Model Run:

- Electric Clean Energy Supply
- High Renewables
- High Electrification
- High Renewables and Electrification
- Aggressive Conservation and Fuel Switching

- Electric Energy Storage
- Thermal Electrification - Heat Pumps
- Thermal Building Efficiency
- Transportation Electric Vehicles
- Cross-Sector Biofuels
Findings: Impact on Emissions

- With sustained policies, Massachusetts estimated to achieve 35% emission reduction from 1990 levels by 2030 (~61 MMTCO₂); key findings for additional reductions:
  - Focusing policies primarily on the electric sector has diminishing returns, increasing rates with while realizing only modest decreases in GHG emissions
  - Electrifying the thermal and transportation sector leverages investments made in a cleaner electric grid
  - Conservation and peak demand reduction important as use of electricity for heating and transportation grows
  - Improving building efficiency is important to achieving reduced emissions in thermal sector
  - Alternative fuels, such as biofuels, can assist in transition to cleaner heating and transportation

Greatest amount of emissions reductions are achieved by combining increased use of clean energy in all sectors while simultaneously decreasing overall energy consumption
MA Comprehensive Energy Plan

Policy Priorities & Strategies

**Thermal Sector**
- **Target electrification** of heating and cooling
- **Promote fuel switching** to lower cost, lower carbon fuels such as electric air source heat pumps and biofuels
- Reduce consumption
- **Drive demand** for energy efficiency and fuel switching
- **Invest in R&D** for clean heating fuels, such as renewable gas and biofuels

**Electric Sector**
- Prioritize electric energy efficiency and peak demand reductions
  - Utilize our successful Green Communities and Leading By Example programs to continue to make state and municipal infrastructure clean and efficient
- Continue to increase cost-effective renewable energy supply
- Support grid modernization and advanced technologies
- Examine strategies to lower natural **gas price and mitigate natural gas constraints**

**Transportation Sector**
- Increase the **deployment of EVs** and charging infrastructure
- Support development of **liquid renewable fuels** to provide alternative transportation fuels
3 Year Energy Efficiency Plan
2019-2021 Three Year Planning Process

<table>
<thead>
<tr>
<th>Event</th>
<th>Timeframe</th>
</tr>
</thead>
<tbody>
<tr>
<td>6 EEAC workshops to establish Council priorities for Plan</td>
<td>Fall 2017/Winter 2018</td>
</tr>
<tr>
<td>EEAC votes on its 2019-2021 priorities</td>
<td>February 2018</td>
</tr>
<tr>
<td>8 Public listening sessions</td>
<td>Winter/Spring 2018</td>
</tr>
</tbody>
</table>

**Calendar of Events**

- **April 30, 2018**  
  *DRAFT Plan*
- **May – July 2018**  
  *Review and Comment on Draft Plan*
- **July 31, 2018**  
  *Council Vote on Draft Plan Resolution*
- **October 23, 2018**  
  *PAs submit updates to Plan and data tables to the EEAC*
- **September 14, 2018**  
  *PAs Submit 2nd Draft of Plan*
- **Throughout Summer 2018**  
  *Analysis, goal setting, and program design discussions continue*
- **October 30th, 2018**  
  *Council unanimously approved Updated Plan*
- **October 31, 2018**  
  *PAs submit Final Plan to DPU*
2019-2021 Public Comment Summary – THANK YOU

Total number of written comments
93

3-Year Plan Written Public Comment Themes

- Passive House 25%
- Low and Moderate Income 28%
- Individual 14%
- Government 8%
- C&I 7%
- Other 7%

Affiliation of Commenter

- Non-profit
- Individual
- C&I
- Government

Themes:
- Low and Moderate Income 28%
- Passive House 25%
- Individual 14%
- Government 8%
- C&I 7%
- Other 7%

- System Benefit Charge 1%
- Oil & Propane 1%
- Multifamily Program 1%
- Greater Data Transparency 1%
- More Specifics in Whole Draft Plan 1%
- Heat Loan 1%
- Better Alignment With Municipalities 2%
- Fuel Switching New 2%
- Technologies 2%
- Increase C&I Savings 1%
- Large C&I 2%
- Increased Savings Goals 3%
- Customer Engagement 8%
- Active Demand Management: More Storage 14%
## Summary 2019-2021 Plan as Filed

<table>
<thead>
<tr>
<th>Statewide Goals</th>
<th>2019-2021</th>
</tr>
</thead>
<tbody>
<tr>
<td>Net Lifetime MMBtu Savings</td>
<td>261,931,735</td>
</tr>
<tr>
<td>CO2e Reductions (tons)</td>
<td>2.7 million</td>
</tr>
<tr>
<td>Total Budget</td>
<td>$2.7 billion</td>
</tr>
<tr>
<td>Total Benefits</td>
<td>$8.5 billion</td>
</tr>
<tr>
<td>Electric Savings as % of Sales</td>
<td>2.7 %</td>
</tr>
<tr>
<td>Gas Savings as % of Sales</td>
<td>1.25%</td>
</tr>
</tbody>
</table>
2019-2021 EE Plan Themes

• Also focus on reducing energy use during times when demand and costs are highest
• Winter reliability focus on natural gas savings through active demand technologies (including storage) and LED conversions
• Residential enhancements through expanding participation and energy justice, Pre-weatherization barrier financing and Home Energy Scorecards as part of in-home assessment
• Energy Optimization and Fuel Switching through fuel-neutral heating and hot water recommendations and increased incentives for cold climate air-source heat pumps
• Expanded efforts on zero energy and Passive House strategies
Next Steps

• DPU Decision on the 2019-2021 Three Year Plan by January 31, 2019

• More details at March Council meeting

• Interested in learning more?
  ➢ Plan documents posted to the EEAC website
New Green Communities Designations

Green Community Designations Reach Two Hundred Forty

30 New Green Community Designations

<table>
<thead>
<tr>
<th>BILLERICA</th>
<th>FAIRHAVEN</th>
<th>MARION</th>
<th>RUTLAND</th>
<th>WAREHAM</th>
</tr>
</thead>
<tbody>
<tr>
<td>BOXFORD</td>
<td>HANSON</td>
<td>MERRIMAC</td>
<td>SANDISFIELD</td>
<td>WESTBOROUGH</td>
</tr>
<tr>
<td>CLAREMONT</td>
<td>HARWICH</td>
<td>METHUEN</td>
<td>SEEKONK</td>
<td>WESTHAMPTON</td>
</tr>
<tr>
<td>COLRAIN</td>
<td>HAVERHILL</td>
<td>NAHANT</td>
<td>SHREWSBURY</td>
<td>WILbraHAM</td>
</tr>
<tr>
<td>DIGHTON</td>
<td>HEATH</td>
<td>NORTHBOROUGH</td>
<td>STURBRIDGE</td>
<td>WorTHINGTON</td>
</tr>
<tr>
<td>DRACUT</td>
<td>HINGHAM</td>
<td>ORLEANS</td>
<td>UXBRIDGE</td>
<td>YARMOUTH</td>
</tr>
</tbody>
</table>

- New Green Community Designation - December 2018
- Previously Designated Community

- 30 new designations
- 68% of MA residents live in a Green Community
Watertown Rooftop Solar Requirement

- 1st Town In New England To Require Solar Panels On New Commercial Construction
  - New ordinance applies to commercial new construction and renovation projects including:
    - ≥ 10,000 square feet
    - 10 or more residential units
    - Parking garages
- Exemptions: single-family homes, duplexes and buildings lacking feasible solar-zones
Clean Transportation: Fleets & Infrastructure
Setting the Stage

Massachusetts Greenhouse Gas Inventory

Fuel Use Share by Sector - 2016

Transportation

- Motor Gasoline: 71%
- Diesel: 15%
- Jet Fuel: 13%
- Electricity: 0%
- Other: 1%

Creating A Clean, Affordable and Resilient Energy Future For the Commonwealth
Established in Jan. 2018 by EO569 to provide recommendations on transportation needs and challenges facing the Commonwealth between 2020 and 2040

Recommendations by the Commission to the Governor:

I. **Modernize** existing state and municipal transit and transportation assets to more effectively and sustainably move more people throughout a growing Commonwealth

II. Create a 21st century “mobility infrastructure...” to capitalize on emerging changes in transportation technology and behavior

III. **Substantially reduce GHG emissions** from transportation sector in order to meet Commonwealth’s GWSA commitments, while also accelerating efforts to make transportation infrastructure resilient to a changing climate

IV. Coordinate and modernize land use, economic development, housing, and transportation policies and investment in order to support resilient and dynamic regions and communities throughout Commonwealth

V. Make changes to current transportation governance and financial structures in order to better position MA for the transportation system that it needs in the next years and decades

Recommendations of note for LBE:

- Enable and promote a ubiquitous electric charging (and/or alternative fuel) infrastructure
- Establish a goal that all new cars, light duty trucks, and buses sold in MA will be electric by 2040
  - Public Fleets: Establish a goal for purchase of ZEVs-only by 2030
- Establish a regional, market-based program to reduce transportation sector greenhouse gas (GHG) emissions
- Prepare MassDOT and other transportation-related entities to effectively oversee a changing transportation system
MA Joins Regional State Partnership to Reduce Transportation Emissions

• Through the Transportation and Climate Initiative (TCI), a program of the Georgetown Climate Center
• MA reached an agreement with 8 states and Washington DC to work together over the next year to develop the framework for a regional program to address greenhouse gas emissions in the transportation sector
• At the conclusion of the policy development process, member states will decide whether to adopt and implement the policy

“As the transportation sector is the largest contributor to carbon emissions in the Commonwealth, reducing transportation emissions is imperative to combating the causes of climate change and meeting Massachusetts’ aggressive greenhouse gas reduction targets,”

- Governor Charlie Baker.
VW Emissions Settlement Funding Plan

- Commonwealth has been allocated $75,064,424.40 in funding from the VW Settlement
- Massachusetts has up to 10 years to spend 80% of its allocation and an additional five years to spend the remaining 20%.
- Plan recommends funding for 10 categories:
  1. *Class 8 Local Freight Trucks & Port Drayage Trucks (Large Trucks)*
  2. *School, Shuttle or Transit Buses*
  3. *Freight Switchers*
  4. *Ferries and Tugs*
  5. *Shore Power for Ocean Going Vessels (OGV)*
  6. *Class 4 through 7 Local Freight Trucks (Medium Trucks)*
  7. *Airport Ground Support Equipment (GSE)*
  8. *Forklifts and Port Cargo Handling Equipment (CHE)*
  10. *Diesel Emissions Reduction Act (DERA) Option*
VW Emissions Settlement Funding Plan

• First year spending: $23.5M:
  
  ➢ $11M for replacement of diesel transit buses with electric buses at Pioneer Valley Transit Authority and Martha’s Vineyard Transit Authority
  
  ➢ $5M for network of existing EVSE, with focus on funding charging stations at workplaces, multi-unit dwellings, and publicly accessible sites
  
  ➢ $7.5M for proposals submitted to a VW Open Solicitation for eligible projects that reduce emissions from certain types of diesel vehicles, non-road equipment, and marine vessels

• Up to 15% of the Trust funding can be used for the acquisition, installation and maintenance of equipment for both electric and hydrogen fuel cell options

<table>
<thead>
<tr>
<th>Funding Categories for Light Duty Zero Emission EVSE</th>
<th>Maximum Allowable Funding %</th>
</tr>
</thead>
<tbody>
<tr>
<td>Open to public at government-owned property</td>
<td>100%</td>
</tr>
<tr>
<td>Open to public at non-government owned property</td>
<td>80%</td>
</tr>
<tr>
<td>At workplace not open to general public</td>
<td>60%</td>
</tr>
<tr>
<td>At multi-unit dwelling not open to general public</td>
<td>60%</td>
</tr>
</tbody>
</table>
As of January 1, 2019:

- MOR-EV extended through at least June 30, 2019
- Now only supporting qualifying battery electric vehicles up to a $50,000 sales price with a $1,500 rebate
Mass EV Make Ready Program Overview
EV Make-Ready Program Overview

• $45 million program for the deployment of Electric Vehicle Infrastructure in Eversource service territory.

• Deployment of up to 3,500 Level 2 and DC Fast charging stations throughout Eversource electric service territory.

• “Make-Ready” program shifts cost of “behind the meter” charging infrastructure from the site host to Eversource
EV Make Ready Ownership Diagram

<table>
<thead>
<tr>
<th>Ownership</th>
<th>Eversource</th>
<th>Eversource</th>
<th>Site Host/ 3rd Party Operator</th>
</tr>
</thead>
<tbody>
<tr>
<td>Construction</td>
<td>Eversource</td>
<td>Electrical Contractor</td>
<td>Site Host/ 3rd Party Operator</td>
</tr>
<tr>
<td>O&amp;M</td>
<td>Eversource</td>
<td>Electrical Contractor</td>
<td>Site Host/ 3rd Party Operator</td>
</tr>
</tbody>
</table>

Safety First and Always
Site Deployment Example
Finished Site
Site Development Plans
Contact information

Program Lead – James Cater
James.cater@Eversource.com
(781) 441-8639

Project Lead - Sean Tully
Sean.tully@Eversource.com
(781) 441-8569

Program Email:
evmakeready@eversource.com

Website:
https://www.eversource.com/content/ema-c/residential/save-money-
energy/explore-alternatives/electric-vehicles/charging-stations
EV Charging Infrastructure Program
  - Overview
  - Targeted Segments, Sites and Charging Ports
  - EVSE Rebate Levels
  - Qualified EVSE Equipment Lists (Level 2 and DCFC)

Available Resources
Massachusetts EV Charging Infrastructure Program

- EV Program recently approved in September 2018

- For approved projects, National Grid:
  - Funds 100% of the electric service to the charging stations ("EVSE")
  - Provides a rebate for the charging stations

- Site Host:
  - Selects charging stations from Qualified EVSE List
  - Installs, owns and maintains charging stations, pays energy costs and station network and service fees for a minimum of 5 years
  - Owns and maintains the Customer Equipment electrical infrastructure
  - Shares station usage data with National Grid

---

**Electric Distribution Company Equipment**
- National Grid owns and maintains... for minimum of 5 years

**Customer Equipment**
- National Grid provides rebate...

**EV Supply Equipment (EVSE)**
- Site Host owns and maintains...
<table>
<thead>
<tr>
<th>Type of Charging Station</th>
<th>Total Sites</th>
<th>Ports Per Site</th>
</tr>
</thead>
<tbody>
<tr>
<td>Level 2</td>
<td>120</td>
<td>10</td>
</tr>
<tr>
<td>DCFC</td>
<td>20</td>
<td>4</td>
</tr>
</tbody>
</table>

Level 2: Give priority to site hosts who serve the public at large. Prioritize in the following order:
(1) Public parking areas such as garages, parks, stadiums, beaches, airports, train stations, hotels, hospitals, clinics, dining, entertainment and shopping venues;
(2) Workplaces and multi-unit dwelling parking areas that the public can access, including offices, colleges, universities, and government properties; and
(3) Parking areas at workplaces and multi-unit dwellings

DCFC: High-traffic locations, such as close to highway corridors and retail locations, given the fit between drivers’ behavior in those locations (e.g., parking for less than one hour) and the DCFC’s rate of charge (e.g., 100 miles of range in 30 minutes)

“Ports Per Site” may differ (+/-) from above and will be evaluated by National Grid based on the project.
## Massachusetts: EVSE Rebates

<table>
<thead>
<tr>
<th>Targeted Charging Segment</th>
<th>Rebate Level&lt;sup&gt;(1)&lt;/sup&gt;</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Level 2</strong></td>
<td></td>
</tr>
<tr>
<td>Workplaces, Fleets, Private Businesses</td>
<td>Up to 50%</td>
</tr>
<tr>
<td>Multi-Unit Dwellings, Public Sites</td>
<td>Up to 75%</td>
</tr>
<tr>
<td>Disadvantaged Community Sites</td>
<td>Up to 100%</td>
</tr>
</tbody>
</table>

<sup>(1)</sup> EVSE rebates are for station hardware only, not network service fees, maintenance fees or installation costs. Rebate levels may be a fixed amount based on the average for all qualified EVSE and not the actual cost to the site host.
<table>
<thead>
<tr>
<th>Station Type</th>
<th>EV Program Vendor</th>
<th>Qualified Package Overview</th>
<th>Electric Vehicle Supply Equipment (EVSE) Manufacturer</th>
<th>Qualified EVSE Models</th>
<th>EV Charging Network Backend Provider</th>
</tr>
</thead>
<tbody>
<tr>
<td>Level 2</td>
<td>ChargePoint</td>
<td>Includes gateway and non-gateway EVSEs with a single gateway station providing communications for up to 9 non-gateway stations.</td>
<td>ChargePoint</td>
<td>CT4000</td>
<td>ChargePoint</td>
</tr>
<tr>
<td>Level 2</td>
<td>EV Connect, Inc.</td>
<td>EV Connect turn-key EVSE solution which includes both EV Connect's EV Cloud™ Charge Point Management System and BTC Power’s L2 EVSE.</td>
<td>BTCPower, Inc.</td>
<td>EVP-2002-30 EVP-2002-40</td>
<td>EV Connect, Inc.</td>
</tr>
<tr>
<td>Level 2</td>
<td>EV Connect, Inc.</td>
<td>EV Connect turn-key EVSE solution which includes both EV Connect's EV Cloud™ Charge Point Management System and EV-Box L2 EVSE.</td>
<td>EV-Box, Inc.</td>
<td>BL-1</td>
<td>EV Connect, Inc.</td>
</tr>
<tr>
<td>Level 2</td>
<td>EV-Box, Inc.</td>
<td>Charging stations use OCPP (Open Charge Point Protocol) and can communicate with OCPP network providers. Business Line charging stations are equipped with Smart Charging, Load Balancing and Peak Shaving features.</td>
<td>EV-Box, Inc.</td>
<td>Business Line 82320-45063</td>
<td>EV Connect, Inc or Greenlots</td>
</tr>
<tr>
<td>Level 2</td>
<td>EVSE LLC</td>
<td>Charging stations use OCPP (Open Charge Point Protocol) and can communicate with OCPP network providers. Single-port station offered in wall or pole mounted configurations with either wrap around cable (3703) or autocoil configurations (3704) or a ceiling-mounted station designed for parking garages (3722).</td>
<td>EVSE LLC</td>
<td>3703 3704 3722</td>
<td>Greenlots</td>
</tr>
<tr>
<td>Level 2</td>
<td>Greenlots</td>
<td>Charging stations use OCPP (Open Charge Point Protocol)</td>
<td>Efacec Electric Mobility, S.A.</td>
<td>EV-CP G2</td>
<td>Greenlots</td>
</tr>
<tr>
<td>Level 2</td>
<td>Greenlots</td>
<td>Charging stations use OCPP (Open Charge Point Protocol) and can communicate with OCPP network providers. Business Line charging stations are equipped with Smart Charging, Load Balancing and Peak Shaving features.</td>
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<td>Business Line 82320-45063</td>
<td>Greenlots</td>
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<td>Level 2</td>
<td>Greenlots</td>
<td>Charging stations use OCPP (Open Charge Point Protocol) and can communicate with OCPP network providers.</td>
<td>EVSE LLC</td>
<td>3703 3704</td>
<td>Greenlots</td>
</tr>
<tr>
<td>Station Type</td>
<td>EV Program Vendor</td>
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<tr>
<td>-------------</td>
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<td>----------------------------------------------------</td>
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<td>-----------------------------------</td>
</tr>
<tr>
<td>DC FAST CHARGING (&quot;DCFC&quot;)</td>
<td>ChargePoint</td>
<td>Each CPE250 station is equipped with two Power Modules that can deliver up to 62.5 kW to a vehicle. Express Plus employs a scalable architecture with every station in the Express Plus system capable of charging from 50 kW to 400 kW.</td>
<td>ChargePoint</td>
<td>CPE250 Express Plus</td>
<td>ChargePoint</td>
</tr>
<tr>
<td>DCFC</td>
<td>EV Connect, Inc.</td>
<td>EV Connect EVSE solution includes both EV Connect's EV Cloud™ Charge Point Management System and ABB's DCFC offering (50 kW minimum with ability to scale to 350 kW).</td>
<td>ABB, Inc.</td>
<td>Terra 53 CJ</td>
<td>EV Connect, Inc.</td>
</tr>
<tr>
<td>DCFC</td>
<td>EV Connect, Inc.</td>
<td>EV Connect EVSE solution includes both EV Connect's EV Cloud™ Charge Point Management System and BTC Power's offering (50 kW minimum with ability to scale to 350 kW).</td>
<td>BTC Power, Inc.</td>
<td>L3-50-CS</td>
<td>EV Connect, Inc.</td>
</tr>
<tr>
<td>DCFC</td>
<td>EVgo Services LLC</td>
<td>50 kW fast charging station</td>
<td>ABB, Inc.</td>
<td>Terra 53 CJ</td>
<td>EVgo Services LLC</td>
</tr>
<tr>
<td>DCFC</td>
<td>EVgo Services LLC</td>
<td>50 kW fast charging station</td>
<td>BTC Power, Inc.</td>
<td>EVP-FC-50-001</td>
<td>EVgo Services LLC</td>
</tr>
<tr>
<td>DCFC</td>
<td>Greenlots</td>
<td>50 kW fast charging station</td>
<td>BTC Power, Inc.</td>
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<td>Greenlots</td>
<td>50 kW fast charging station</td>
<td>Efoods Electric Mobility, S.A.</td>
<td>QC45</td>
<td>Greenlots</td>
</tr>
</tbody>
</table>
Available Resources

Program Materials
- EV Charging Infrastructure Program Overview/Brochure
- Qualified Level 2 and DCFC EVSE Lists
- Application Form

National Grid Contacts
- EV Mailbox: EVNationalGrid@nationalgrid.com
- EV Program Manager (In progress)
- National Grid Account Manager

Website: www.ngrid.com/ma-evcharging
State Government EV Charging Infrastructure

**Approx. 20-30 additional stations planned or in discussion**

Creating A Clean, Affordable and Resilient Energy Future For the Commonwealth
LBE EVSE Guidance Document

• In final stages of development
• Designed to support agency efforts to install EV charging stations

• What information would be useful to you and your agency/campus?
Innovation & Future Tech: EV Charging Stations

Volta Charging
Free EV charging supported by advertising
• Example: University of California SF

Envision Solar
Portable solar canopy (w/ storage) & EV charger
Powers up to 150 miles of EV driving each day
• Example: CA Natural Bridges State Park

Paired Power
Solar canopy + 6 EV charging stations, can be independent of or tied to grid

Reference herein to any specific commercial product, process, or service by trade name, trademark, manufacturer, or otherwise does not necessarily constitute or imply its endorsement, recommendation, or favoring by the Commonwealth or DOER.
Innovation & Future Tech: BEVs on the Market Today

22 vehicle models (35 options) For model years ‘18 or ‘19

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Innovation & Future Tech: EVs on the Market *Tomorrow*

**Compact Car**
Nissan Leaf Plus:
- Expected 226 mile range
- Expected in spring 2019

**Pickup Truck**
Rivian:
- Expected 400 mile range
- Expected in 2020

*Nearly 100 electrified models expected to debut through 2022, including:*
- *Ford:* 40 EVs and hybrids expected by 2022
- *GM:* 20 EVs expected by 2023
- *Nissan:* 8 new EVs expected by 2023

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## EV Rebates Current and Upcoming

<table>
<thead>
<tr>
<th>Funding</th>
<th>Private</th>
<th>Fleets</th>
</tr>
</thead>
<tbody>
<tr>
<td>$7,500 Federal Tax Credit (diminishing for some models)</td>
<td>Yes</td>
<td>Maybe</td>
</tr>
<tr>
<td>$1,500 state Mor-EV incentive (Battery Electric Only)</td>
<td>Yes</td>
<td>No</td>
</tr>
<tr>
<td>$5,000 Nissan Leaf manufacturer rebate</td>
<td>Yes</td>
<td>Yes</td>
</tr>
<tr>
<td>Mass EVIP incentives / DEP ($ levels TBD soon)</td>
<td>No</td>
<td>Yes</td>
</tr>
</tbody>
</table>

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• **SMART applications opened in November:**
  o 2,500 applications for approx. 629 MW of total capacity in first week

• **Eversource West & Unitil on waitlist**

• **National Grid in Block 7 (of 8)**

• **Eversource East still in Block 1**

• **400 MW program review soon**

• **Adder tranche levels established (60 MW for community solar, 80 MW for all others)**
## LBE Solar Grant Program

### Applications – in order of submittal

1. **(DCAMM) MEMA Bunker – Framingham**
   - 275 kW Solar Canopy - $453,750 requested

2. **Salem State University – Salem**
   - 387 kW Rooftop - $193,500 awarded
   - Installation complete by June

3. **MassDOT District 3 HQ – Worcester**
   - 934 kW Solar Canopy & Roof - $1,000,000 requested

4. **Cape Cod Regional Transit Authority - Hyannis**
   - 360 kW Solar Canopy - $396,000 requested

5. **Quinsigamond Community College - Worcester**
   - 4.4 MW Solar Canopy w/ storage - $875,000 requested

6. **Massasoit Community College – Brockton**
   - 3.1 MW Solar Canopy w/ storage - $820,500 requested

7. **Massasoit Community College – Canton**
   - 830 kW Solar Canopy w/ storage - $239,056 requested

8. **Plymouth Trial Court – Plymouth**
   - 918 kW Solar Canopy w/ Storage
   - 1.2 MW Solar Canopy - $858,200 requested (for both)

9. **Greenfield Community College – Greenfield**
   - 2.8 MW Solar Canopy - $750,000 requested

### Current grant requests go beyond LBE Solar Grant Program budget – however:
- Details and grant requests for active applications subject to change
- Applications still being accepted (for review if funding becomes available)

### Active Applications

- **387 kW**
- **$193,500**

### Total Awarded:

- **15 MW**
- **$5.3 million**

### Awarded & Active Totals

- **15.5 MW**
- **$5.5 million**
LBE Updates
Thanks to those who have already submitted their FY18 Tracking Form!

<table>
<thead>
<tr>
<th>Bridgewater State University</th>
<th>MassBay Community College</th>
<th>UMass Amherst</th>
</tr>
</thead>
<tbody>
<tr>
<td>Bristol Community College</td>
<td>Mass. College of Liberal Arts</td>
<td>UMass Boston</td>
</tr>
<tr>
<td>Fitchburg State University</td>
<td>North Shore Community College</td>
<td>UMass Lowell</td>
</tr>
<tr>
<td>Greenfield Community College</td>
<td>Quinsigamond Community College</td>
<td>UMass Medical School</td>
</tr>
<tr>
<td>Holyoke Community College</td>
<td>Roxbury Community College</td>
<td>Westfield State University</td>
</tr>
<tr>
<td>Mass College of Art and Design</td>
<td>Salem State University</td>
<td>Worcester State University</td>
</tr>
<tr>
<td>Massasoit Community College</td>
<td>Springfield Tech. Community College</td>
<td></td>
</tr>
</tbody>
</table>

LBE staff will be reaching out to help finalize submissions
MA required to submit data to the Better Buildings Challenge by March 31, 2019
Interactive LBE Website Map

Creating A Clean, Affordable and Resilient Energy Future For the Commonwealth
LBE Award Recipients

State
- Franklin County Sheriff’s Office: solar canopy, EV charging, energy efficiency, EPPs
- Metropolitan Area Planning Council: demand response program, hybrid upfits, educ. programming

Higher Education
- Salem SU: energy efficiency, fleet gas reduction, food waste composting
- UMass Amherst Landscaping Services: pollinator habitats, battery-equipment, use of UMA compost

Municipal
- City of Salem: solar, bike-share program, innovative recycling
- Town of Wellesley: LED streetlights, surplus food recovery, solar

Individual
- (Municipal): Thomas Philbin, Town of Westwood: solar, energy efficiency, GC designation, stakeholder collaboration
- (State): James Latini: DCAMM Capitol Complex Operations: operational energy efficiency (night & weekend baseloads), stakeholder collaboration

State Recipients w/ State Officials:
- Franklin County Sheriff’s Office (w/ DCAMM)
- Metropolitan Area Planning Council (MAPC)
- Salem SU (SSU)
- UMass Amherst Landscaping Services (UMA Landscaping Services)
- James Latini, DCAMM

Massachusetts Department of Energy Resources