



## **Carbon Free Boston:** **Creating goals and strategies that move the City toward a 100% clean energy future by 2050**

**Executive Summary – 5.18.17**

### **Purpose**

To support the City of Boston's greenhouse gas emission reduction goals, the Green Ribbon Commission is partnering with Boston University's Institute for Sustainable Energy to develop 2030 and 2050 strategies for inclusion in the City's 2018 Climate Action Plan Update. Boston is a leader in greenhouse gas mitigation and has set ambitious goals of cutting emissions by 25% by 2020 and achieving carbon neutrality by 2050.

Meeting the City's goal will require us to change how we create and distribute electricity, heat our homes and offices, transport people and goods, and handle waste. Carbon Free Boston will quantify the most effective combination of technologies and policies to reduce greenhouse gas emissions across the electric power, buildings, transportation, and waste sectors. The Carbon Free Boston initiative output will be highly specific, sector-based, policy-driven strategies to transition from carbon-based fuels to 100% clean and renewable energy sources in every sector of the economy by 2050.

The initiative will have four phases through the end of 2018 and will require extensive collaboration with state and regional players who control key energy, transportation, and building decision-making.

The Carbon Free Boston initiative will:

- Establish a long-term framework for a carbon free Boston that supports medium-term choices. Although we cannot know precisely how technology, the economy, and political choices will evolve toward the decarbonization of our energy supply, it is possible to develop analytical models that identify the rough boundaries of feasible 2050 scenarios. To be meaningful, such a framework will need to work at city, state, and regional scales. Initially, its development only needs to be sufficient to inform the choices that the Boston community will make over the next 10 to 15 years. However, it will also benefit all stakeholders by providing a common basis for an expansion of its depth and detail that would allow city, state, and regional stakeholders to explore their policy choices over wider geographical scales and longer time periods.
- Propose interim goals and initiatives (through 2030) that advance the long-term framework. These interim goals and initiatives will be developed in collaboration with

stakeholders from key sectors of the Boston economy – electric power, buildings, transportation, and waste.

### Why It Is Urgent to Start This Work Now

Although 2050 is 33 years away, it is important to start this work now because we will be making choices in the next 10-15 years that will affect our ability to achieve our 2050 targets. We need to have clarity about the “end state” that we are trying to achieve so that we can make mid-term choices that are aligned with that end state.

Large uncertainties remain about how our carbon free future will evolve. The rate of technology change and innovation is expected to accelerate over the coming decades, and this will create challenges and opportunities that we can’t yet anticipate. Moreover, in some areas, the City has limited influence. Nevertheless, there are still important choices it can make, and it is possible to establish a framework for specific 2030 strategies that the City can pursue, in the context of the ultimate goal of achieving a carbon neutral status by 2050.

### Initiative Phasing and Timing

The table below summarizes the phases and timing on the Carbon Free Boston initiative.

<b>The Carbon Free Boston Initiative Phasing, Timeline, and Deliverables</b>	
<b>Phases</b>	<b>Deliverables</b>
<b><i>Phase 1: Initiative Design</i></b> <i>(January – June 2016)</i>	<ul style="list-style-type: none"> <li>• Initiative design and key partner engagement</li> <li>• Initiative fundraising</li> <li>• Initiative launch at the June 2016 GRC meeting</li> </ul>
<b><i>Phase 2: Sector-Specific Model Development</i></b> <i>(July 2016 – September 2017)</i>	<ul style="list-style-type: none"> <li>• Assembly of expert working groups to advise on the development and execution of electric power, buildings, transportation, and waste modeling efforts</li> <li>• Confirm sector-specific modeling consultants</li> <li>• Develop a deep decarbonization modeling platform to support City strategy development</li> </ul>
<b><i>Phase 3: Model Runs, Review, and Revision</i></b> <i>(October 2017 – June 2018)</i>	<ul style="list-style-type: none"> <li>• First draft of preliminary report released internally</li> <li>• Expert working groups review draft</li> <li>• Consultants revise model parameters based on working group feedback and rerun models</li> <li>• Repeat process through second and third drafts</li> </ul>
<b><i>Phase 4: Carbon Free Boston Report and Climate Action Plan Update Recommendations</i></b> <i>(July 2018 – December 2018)</i>	<ul style="list-style-type: none"> <li>• Public release of Carbon Free Boston report</li> <li>• Presentation of recommendations to the City of Boston</li> <li>• Inclusion of select recommendations in the 2018 Climate Action Plan Update</li> </ul>

## **Conclusion**

The Carbon Free Boston initiative will create the foundations to support rapid action towards our long-term decarbonization goals:

- A shared positive vision of our carbon-free future;
- Shared understanding of the options for achieving that future and the trade-offs involved in them;
- Stakeholder groups that are committed to working on strategy implementation; and;
- A sense of urgency and willingness to make tough shorter-term choices to enable a carbon-free future.