

**DISCLAIMER:** This is a summary of the meeting and is based upon the written notes and memory of individuals from the Institute for Sustainable Energy and the Green Ribbon Commission. The notes are intended to capture only the main points made in the meeting, and they reflect comments on work-in-progress. The notes do not imply a specific opinion or commitment on the part of any individual or organization represented at the meeting.

### **Notes for CFB Energy Technical Advisory Group Meeting | June 21, 2018**

The GWSA applies to all electricity consumption in Massachusetts, including imports from neighboring states and “adjacent control areas” (New York, New Brunswick and Quebec).

Private sector voluntary purchase of RECs will grow over time—this should be accounted for in GHG accounting framework.

Emissions from air traffic Logan airport and from ship traffic Port of Boston are excluded from GHG inventory

- CFB report should address equity impacts of emissions in some way; also, parking impacts of expansion of air travel
- CFB will assess emissions at Logan other than aircraft
- Comprehensive analysis of Logan Airport could provide an opportunity for Boston to lead on this topic

CFB assumes compliance with GWSA; this means that 80% of electricity use in Boston by 2050 will be free of greenhouse gases

Four strategies to fill the gap left by compliance with the GWSA

1. RECs
2. Physical purchase of electricity within ISO NE (should also acquire/retire RECs)
3. Physical purchase electricity outside of ISO NE (should also acquire/retire RECs)
4. Enabling investments, e.g. fast ramping services, storage, transmission capacity, etc.

Several members observed that:

- options 1 and 4 are most desirable because RECs are likely to be cheaper than physical purchases
- all RECs should be MA Class I RECs because they are trustworthy
- the timing in trajectory closing the gap it is important to discuss; which of the four or combination of the four will close the gap first, fastest, and when?

Criteria/attributes of electricity options for Boston were expanded to include (i) NPV cost to buyer vs. other options; (ii) Equity concerns in the incidence of those costs; (iii) Economic development; (iv) Ownership; (v) Additionality; (vi) Geographic location of the sources of power (inside/outside Mass/NE)

- CFB should emphasize the need to optimize across multiple dimensions, not just reduction in greenhouse gases

CFB should identify opportunities for citizens to own the means of energy supply

CFB should account for declines and GHGs from investments in storage

At least one renewable natural gas pathways may be needed since we probably will not be able to electrify every energy and use. This was a point of debate. Other members contended that almost all current customers for gas could be satisfied with electrified energy services because the city does not have large industrial process heat demand.

What changes in the city electricity distribution system would be needed if every energy and use was electrified?

District energy was identified as an important technology with high-efficiency and attributes that enable it to meet important resiliency goals for the city. At the same time, district energy ultimately needs to be greenhouse gas free to meet mitigation goals. One member commented that the Boston University and Harvard thermal plants could be electrified with current technologies

Hydrogen requires massive infrastructure to deliver to consumers; what are the investment costs? Several members observed that there is not sufficient data on the cost of infrastructure to make concrete recommendations.

Several members noted that methane leakage was an important topic. Uncertainty in the estimation of leakage was noted, as was the ongoing investment of utilities to stop the leakage.

Deep electrification could produce a winter peak system that could be a challenge to supply reliably; what technology will guarantee reliable service in extreme cold events? Some forms of renewable natural gas couldn't supply this service (hydrogen storage). Large-scale thermal storage is also a possibility, such as the ice system in New York City

One member noted that the goal should be to identify best strategies for the City, not the best strategies to help existing entities (utilities, universities) adapt their business models to the new reality.

Equity indicators should reflect the health impacts of meeting mitigation targets.

New BU website will soon be up.

CFB team to put up in Git HUB

#### Attendees

Cutler Cleveland Boston University

Mike Walsh Boston University

Kat Eshel City of Boston

Manual Esquivel Boston Planning and Development Agency

Megan Aki Massachusetts Area Planning Council  
Seth Federspiel City of Cambridge  
Amlan Saha – MJ Bradley and Associates  
Neenah Estrella-Luna Salem State University  
Patty DiOrio National Grid  
Kevin Zeng Boston University  
Adam Pollack Boston University  
Peter Fox-Penner Boston University  
Alison Brizius City of Boston  
Brad Swing City of Boston  
Joe LaRusso City of Boston  
Cameron Pratt Veolia  
David Cash University of Massachusetts at Boston  
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Sharon Weber Commonwealth of Massachusetts  
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