

# Minutes

# ARUP

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Project title	Carbon Free Boston - Buildings Sector	Job number 602118-30
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Meeting name and number	Kick-Off Meeting 01/17	File reference
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Location	Boston University Institute for Sustainable Energy	Time and date 9:00am    November 17, 2017
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Purpose of meeting	Project Introduction
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Present	Cutler Cleveland, Boston University Chris Meier, Boston University Michael Walsh, Boston University Alison Brizius, City of Boston Benjamin Silverman, City of Boston-EEOS John Dalzell, City of Boston-BPDA Maura Zlody, City of Boston-EEOS Dennis Carlberg, Boston University Chris Schaffner, Green Engineer Hong-Hanh Chu, Commonwealth of MA-EEOS Meaghan XXXX, Mass CEC Matt Foran, National Grid James Cater, Eversource Karthik Rao, Enernoc Stephanie Horowitz, Zero Energy Design David Ismay, Conservation Law Foundation Brian Swett, Arup Rebecca Hatchadorian, Arup
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Apologies

Circulation	Those present Ben Myers, Boston Properties Jim Newman, Linnean Solutions Galen Nelson, Mass CEC
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Prepared by	Arup
Date of circulation	29 Nov 2017
Date of next meeting	TBD

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Action

## 1.1 Carbon Free Boston Overview [ISE]

Cutler Cleveland presented the overall project approach to the Technical Advisory Group (TAG). Refer to Appendix A for presentation slides.

Four (4) sector models are being developed; Energy, Waste, Transportation, and Buildings and one (1) integrating model.

The intent is for the process, methodology and tools developed to be transparent and open-source.

## 2. Modeling Overview [Arup]

Brian Swett introduced the TAG to Arup, our past project experience and the project team members.

Rebecca Hatchadorian presented the buildings sector approach for modeling (energy use and genetic algorithm), defining growth, and adoption rates and policy development. Refer to Appendix A for presentation slides.

## 3. Feedback on Approach

- a. Maura Zlody – How are energy code updates being included and what are the assumptions there?

Arup responded code updates will be included in the strategies but the specific increments have not been defined at this time.

- b. Ben Silverman – Will future climate change predictions be taken into account in the modeling effort?

Arup confirmed that they plan to use WeatherShift weather file for Boston in the modeling which is an altered EPW weather file based on RCP 8.5 and 4.5 climate projections.

Details can be found at [www.weathershift.com](http://www.weathershift.com)

- c. John Dalzel – How does weathershift align with Climate Ready Boston projections and the BPDA's Climate Resilience and Preparedness Checklist?

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Arup to follow up with alignment between the data references.

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- d. Hong-Hanh Chu – Stated the State of MA is downscaling climate projections for Boston and should be available end of 2017.

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Arup & ISE to follow up.

- e. Stephanie Horowitz – Will tree planting be included in the analysis?

ISE responded biogenic emissions will be included in the study but the limits of the Buildings Sector is within the buildings themselves, not to the larger site or city.

- f. Chris Schaffner – Will policy options include limits to growth?

No, that is not contemplated at this time.

- g. Matt Foran – Will electrification be taken into account in modeling and effects on load profile and associated emissions?

ISE stated a grid model is not part of the scope of this project.

Arup stated electrification will be taken into account as a building strategy and new load profiles will be defined based on outputs.

- h. Karthik Rao noted the involvement of the Utilities is critical to the success of the project.

- i. Manuel Esquivel – How is cost being accounted for? Including identification of who pays/benefits?

Arup responded cost is being addressed at a high level on a to-be-defined basis, e.g. 1-5 basis at an order of magnitude level to inform policy recommendations.

- j. Manuel Esquivel – Will CHP be included?

- k. Amy Longworth – Consider using ‘characterize costs’ rather than ‘quantify costs’.

She also referred to a UMass Study on financial instruments that may be useful to the study.

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- l. John Dalzell – Suggest involving facilities and operations staff

Suggest communicating exemplar examples to gain momentum, e.g. Boston Medical Center to achieve carbon neutrality next year.

ISE

- m. Dennis Carlberg – Will a price for carbon be established?

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ISE responded this will not be included in the Building Sector, but will be in the Transportation Sector work.

- n. Dennis Carlberg – Noted the City of Boston could be a leader for its own portfolio of buildings in procuring carbon free electricity.
- o. David Ismay – Does the City Inventory align with the Global Warming Solutions Act? And how are we defining carbon neutral? e.g. is Logan included?

Alison responded aviation emissions from flights are not included in the reporting, but building assets are.

- p. John Dalzel – Is market transformation included?

Arup responded this will be accounted for in the adoption curves that will be defined.

- q. Chris Schaffner – Recommended CHP be included as a strategy.
- r. Meaghan – Is human behavior or other socio-economic factors or rental/owner considerations informing the adoption curves?  
Education as a strategy?
- s. Ben Silverman – Could O&M training be considered as an incentive based strategy?
- t. Hong-Hanh Chu – Will Arup turn over the script?

Arup confirmed the python-based script will be turned over and a licensing agreement has been included in the contract as well as a methodology paper with key assumptions.

Training is not part of the scope of work.

## 4. Next Steps

Utility data requests (Eversource, National Grid and Veolia) are forthcoming in the near future from the Arup/ISE team.

Next TAG meeting to be scheduled in early 2018.

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