

Zero Net Carbon Building Zoning Renewable Energy Procurement TAG Meeting #2 – February 10, 2021

Zoom Meeting Guidance

The BPDA will record this meeting and post it on BPDA's Zero Net Carbon Building Zoning webpage. The recording will include the presentations, discussions and a transcript of Q&A / Chat comments.

It is possible that participants may be recording this meeting as well.

If you prefer not to be recorded during the meeting, please turn off your microphone and camera.

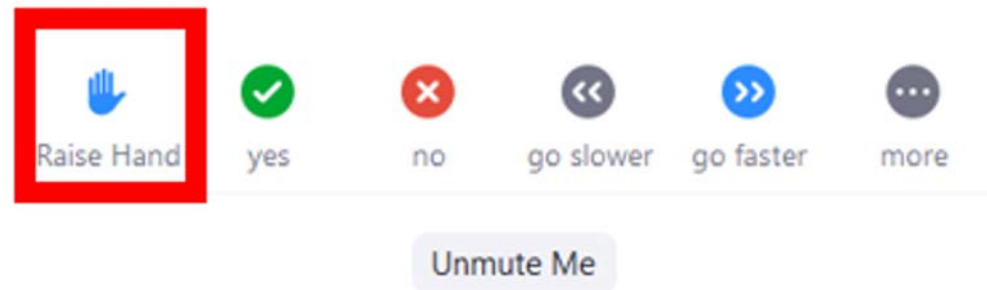
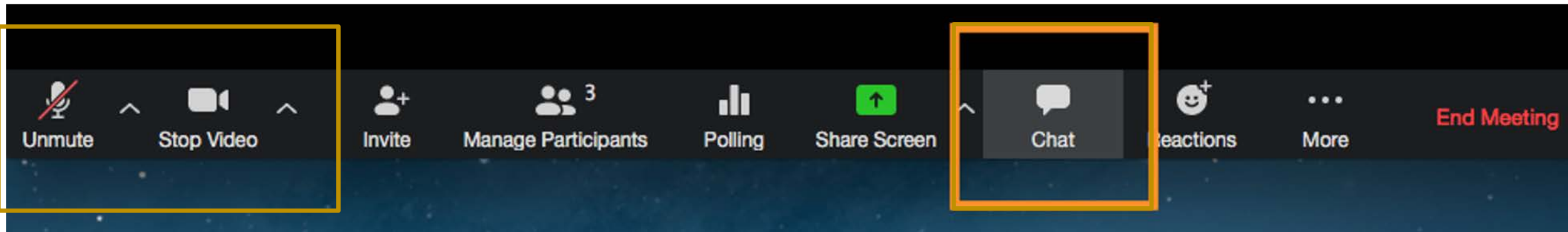
Zoom Meeting Guidance

- Help us ensure that this conversation is a pleasant experience for all.
 - Please mute your mics during the presentation to avoid background noise.
 - It's great to see you! Participant video can be on during the meeting.
 - **Use the Chat** feature for questions and comments during the presentation.
 - Use the Raise Hand feature during the discussion segment.
 - Please be respectful of each other's time.
- As always please feel free to reach out to me directly!
John Dalzell, AIA, LEED Fellow at John.Dalzell@Boston.gov

Zoom Tips

Your controls should be available at the bottom of the screen.

Clicking on these symbols activates different features:



COVID-19 Resources

Stay up-to-date with COVID-19 related announcements, City of Boston reopening plans, and resources for you and your community at:

boston.gov/coronavirus



The screenshot shows the City of Boston website page for COVID-19 resources. The header includes the City of Boston logo, Mayor Martin J. Walsh's name, and navigation links for 'PAY AND APPLY' and 'PUBLIC NOTICES'. The main heading is 'CORONAVIRUS DISEASE (COVID-19) IN BOSTON'. Below the heading, a paragraph states: 'The state has updated guidance on the Reopening Massachusetts website. We also continue to update City-specific guidance for Boston on our reopening website.' The date 'July 12, 2020' is displayed. A 'PUBLISHED BY: PUBLIC HEALTH COMMISSION' logo is present. A 'MULTILINGUAL CONTENT' section lists various languages: العربية (Arabic), Kriolu (Cabo Verdean creole), 中文 (Chinese), Français (French), Kreyòl ayisyen (Haitian Creole), Português (Portuguese), and Русский (Russian). At the bottom, there are navigation links for 'TOPICS', 'COVID-19 UPDATES', and 'LATEST PRESS CONFERENCE'. A section titled 'BOSTON (AS OF FRIDAY, JULY 10)' displays the statistics: '13,673 CASES | 9,683 RECOVERED'.

Renewable Energy Procurement

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ZNC BUILDING ZONING UPDATE

Boston Carbon Neutral 2050 – Climate Action Plan

“Strengthen Article 37 Green Building Zoning requirements to a zero net carbon standard”

Policy Framework: Zero = Bldg Emissions – On-site and Procured Renewable Energy

Low Carbon Buildings Establish Emission Targets and Pathways

On-site Renewable Energy

On-site Energy Generation Standard

Renewable Energy Procurement *(this TAG)*

Determine Options & Reporting

RE Procurement TAG Process

TAG Meetings:

- Meeting 1 - Framework and Pathways
- Meeting 2 (*today*) – Deep Dive on Procurement Options & Minimum Requirements
- Meeting 3 – Deep Dive on Minimum Requirements and Case Studies (updated)
- Meeting 4 – Finalizing Recommendations

Today's Meeting Outcomes:

- Recommendations for Procurement Options & Minimum Requirements

Renewable Energy Procurement TAG

February 10th, 2021 Meeting Agenda

- Continue to Discuss Procurement Options
 - Green Retail Tariffs / Green Pricing / Green Municipal Aggregation
 - Renewable Energy Investment Fund
 - Unbundled Renewable Energy Certificates
- Classification Criteria, including Community Concerns
- Minimum Requirements
- Questions & Feedback

Members

- **Vincent Martinez, Architecture 2030, COO**
- **Charles Eley, Architecture 2030, Senior Fellow**
- **Erin McDade, Architecture 2030, Senior Program Director**
- **Dennis Carlberg, Boston University**
- **Scott Johnstone, VHB**
- **Scott McBurney, Vicinity Energy**
- **Seth Federspiel, City of Cambridge**
- **Cameron Peterson, MAPC**
- **Yve Torrie, A Better City**
- **Debra Perry, Cadmus**
- **Joelle Jahn, WSP Engineering**
- **Ben Myers, Boston Property**
- **Patrick Haswell, Vicinity Energy**
- **Maeve Donohue**



City Staff

- Aidan Smith
- Alison Brizius
- **Anna Demina**
- **Benjamin Silverman**
- **Chris Busch**
- Christopher Kramer
- **David Musselman**
- **Joseph LaRusso**
- Katherine Eshel
- **Kathleen Pedersen**
- **Manuel Esquivel**
- **Maura Zlody**
- **Richard McGuinness**



Renewable Energy Procurement

- Direct Ownership / Self-owned, off-site project
- Community Renewables
- Power Purchase Agreements (PPAs)
- Virtual Power Purchase Agreements (VPPAs)
- Utility Renewable Energy Contract / Direct Access to the Wholesale Markets
- **Renewable Energy Investment Fund**
- **Unbundled Renewable Energy Certificates / Credits (RECs)**
- **Green Retail Tariffs / Green Pricing / Green Municipal Aggregation**

Renewable Energy Investment Fund this will require more work

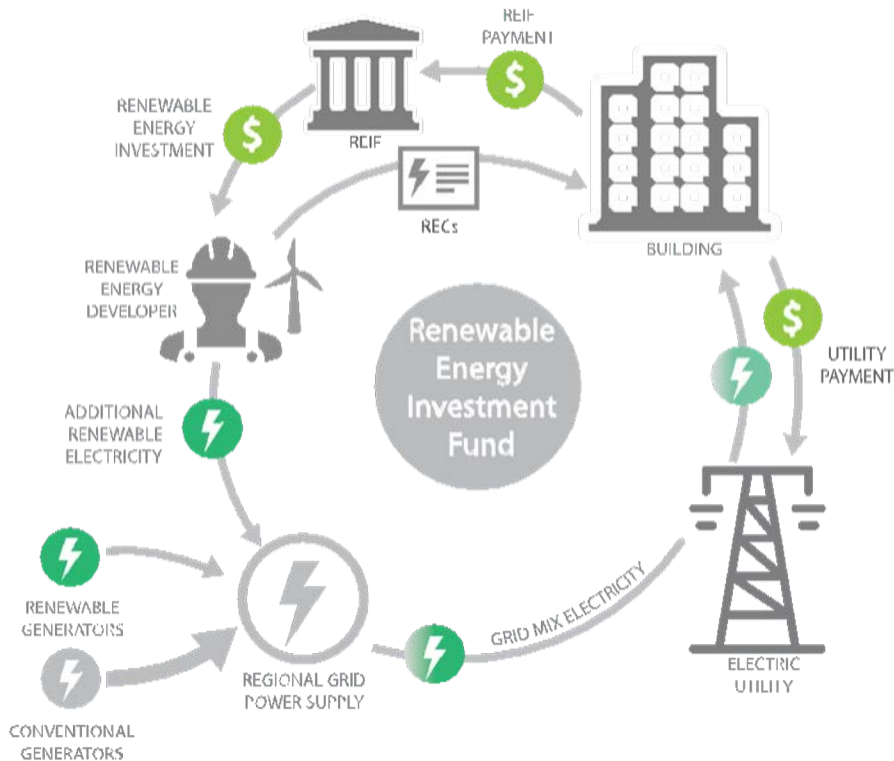
DISCUSSION:

Challenges:

- Similar to community solar, virtual PPAs or unbundled RECs, depending on how the revenue is invested.
- Some of the benefits associated w/ other procurement options not applicable here such as potential energy cost savings
- How does upfront compliance mechanism of REIF link to BERDO requirements?
- Calculate appropriately to meet demand
- Details (of options, compliance mechanisms, how funds are used, etc.) matter!
- How is this administered from municipal standpoint (legality, capacity, implementation methodology)?
- How does money invested track w/ emissions reductions required?
- This doesn't exist yet – not turnkey option (DC has comparable precedent examples; also exists at utility scale)

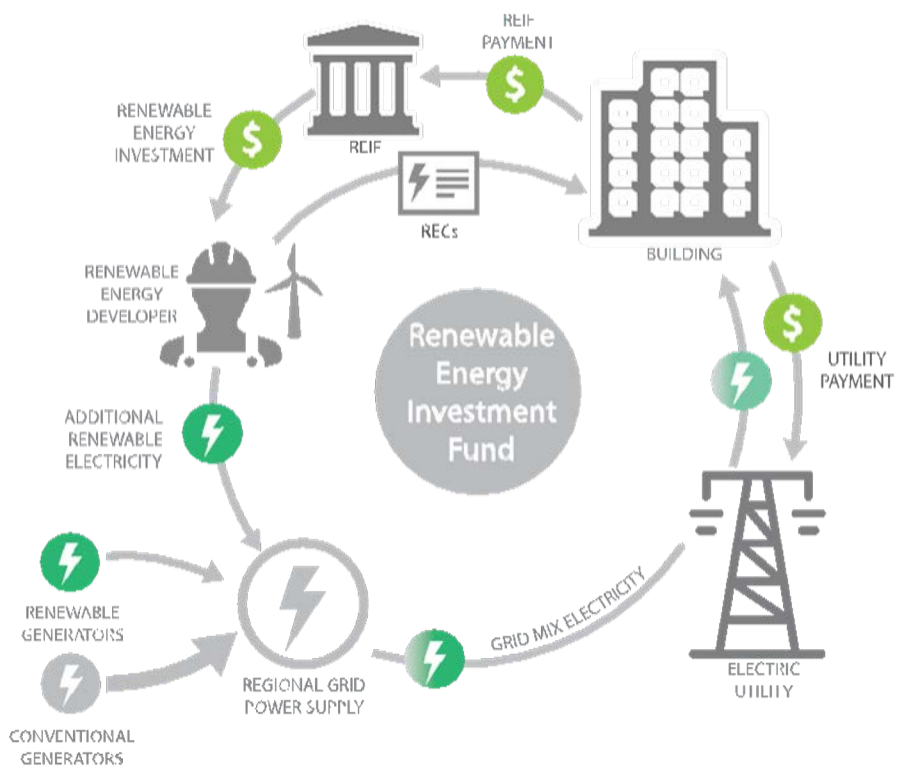
Opportunities:

- Ease of compliance (and and done), flexibility
- Equity and environmental justice opportunities from use of REIF funds: Maybe a summary that we get from this work could include a line or a paragraph on the options that could carry these opportunities. Just to guide us into what work we would need to do internally as follow-ups.
- This could be 3rd party (nonprofit) operated; multiple jurisdictions could combine efforts and resources
- Could potentially set up a regional authority like MWRA or use a public agency with fiduciary powers like MAPC



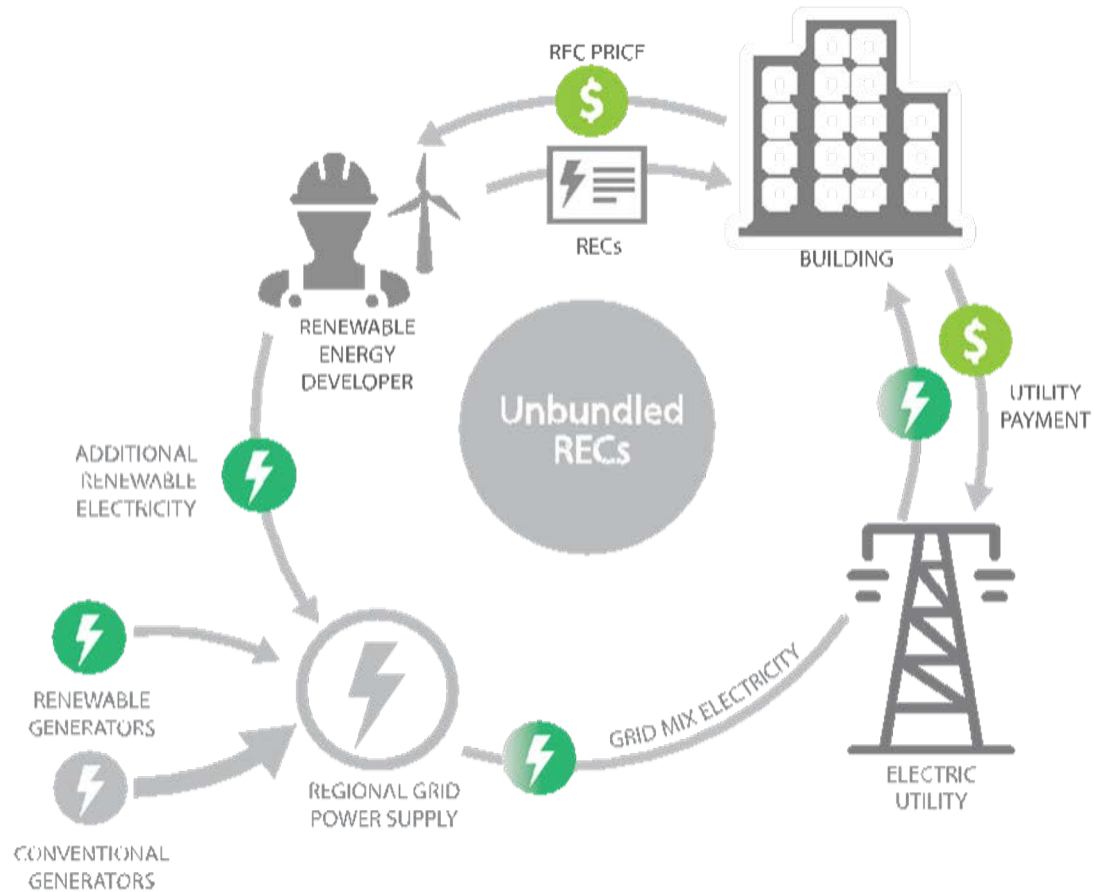
IDEA: Matrix of Procurement Options: x-axis = flexibility; y-axis = potential cost savings

Renewable Energy Investment Fund cont.



- we are thinking a lot about electric and solar, but also wondering, if it makes sense, whether we can think of renewable district energy for some of these options. Could the REIF go to supporting a third party, including local DE companies, to develop/grow a renewable DE system? if it can feed into your smart utility policy and stand up more multi-building renewable DE systems and microgrids, that'd be great.
- Where in the Zero Carbon Zoning can district energy be accommodated? Does it fit into the EE component, the RE component, or somewhere else? Agree that it would be great to consider
- We need to consider DE and the energy sources somewhat independently. The important aspect of DE is that it could enable new renewable energy solutions.
- Plus a carbon performance standard will define what tech options would make sense. Can/should keep it tech agnostic on this end.

Unbundled Renewable Energy Certificates



DISCUSSION:

Challenges:

- Prices for RECs with no restrictions are quite inexpensive, calling to question their effectiveness in achieving additionality.
- Durability requires a forward contract for long-term purchase.
- Renewable energy generators backing the claim may not be new and not always carbon free, e.g. biomass.
- MASS Class 1 requires local generation – could be problematic for multi-region portfolio owners, and might not always result in most GHG reductions when grids are dirtier elsewhere
- MASS EZ Code recommending that unbundled RECs need to be locally generated (MASS Class 1) to drive local demand, but other procurement pathways may allow non-local sources; must be from MASS Class 1 carbon free sources

Opportunities:

- Likely one of main BERDO compliance mechanisms
- MASS Class 1 is best option

Green Retail Tariffs / Green Pricing / Green Municipal Aggregation

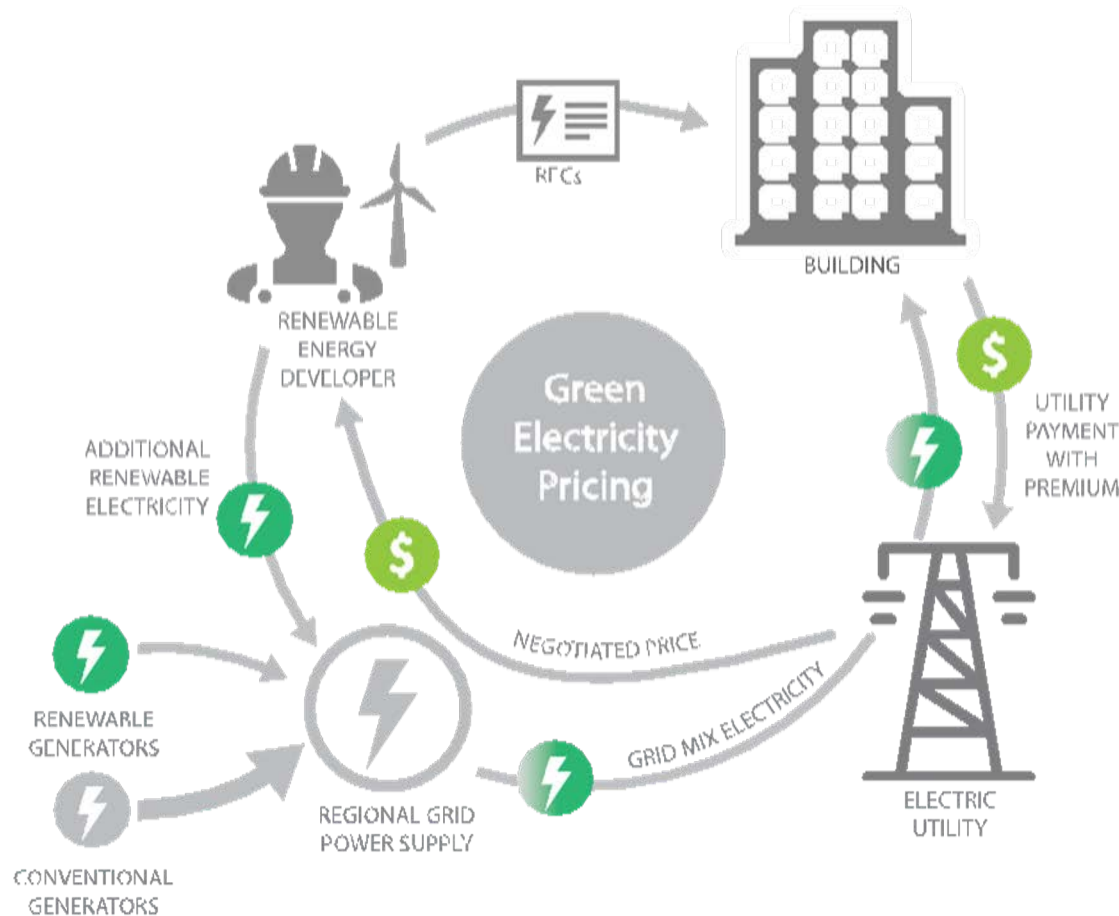
DISCUSSION:

Challenges:

- Purchase cannot exceed building electricity use. (only issue if offsetting on-site combustion)
- It's easy to opt out of the commitment.
- Renewable energy generators backing the claim may not be new and not always carbon free, e.g. biomass. Still some in CCE base standard (are MASS Class 1 but still emitting; Green 100 is all Class 1, 82% non-emitting)
- Offerings are sometimes based on the purchase of unbundled RECs.
- Utility green tariffs not available in MA because they are not generally allowed to own generation.
- Does MASS Class 1 always lead to additionality? Not always (yet). MASS Class 1 RECs are the best option out there, and driving demand will (eventually) lead to additionality.
- Owner/developer choosing re compliance pathway but tenants are ones w/ relationship w/ utility and required to comply w/ BERDO (are there lease agreement precedent examples to address this? **Ask Boston Properties, IMT, MASS Landlords Association**)

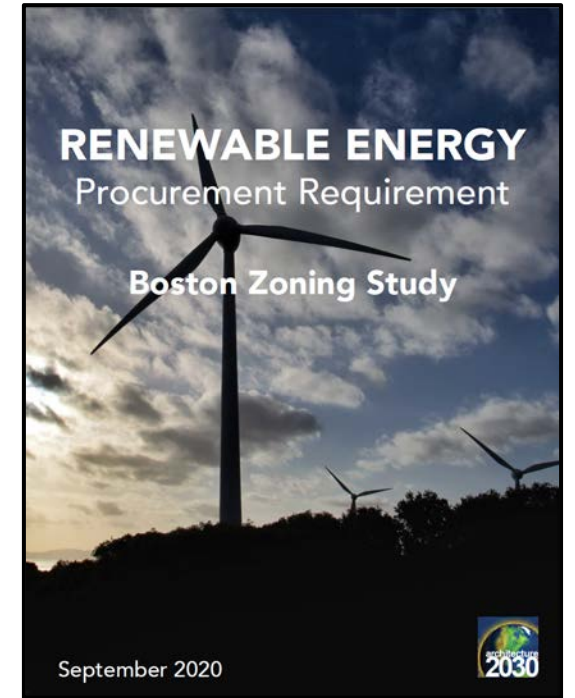
Opportunities:

- Cooperation Agreement: catch-all for commitments design team makes during permitting process. includes details on phasing, timing, durability; could support BERDO compliance; disallow opting out/require alternative compliance if opting out; could allow flexibility in choice of (multiple) procurement options, switching of options



Procurement Option Variations

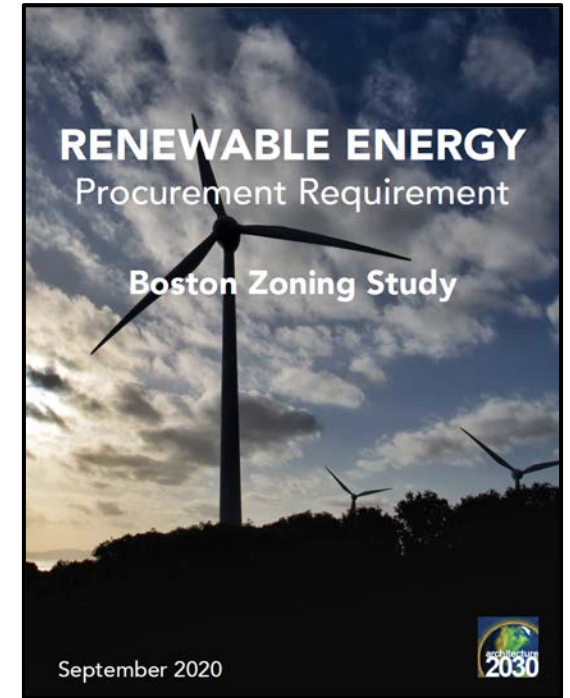
- Class of Generator, Source of Generation
- Unbundled RECs
- Electricity Credit: limited to self-owned off-site, community solar, or REIF depending on type of generation funded by REIF (would have to be generated within Eversource grid to use net metering)



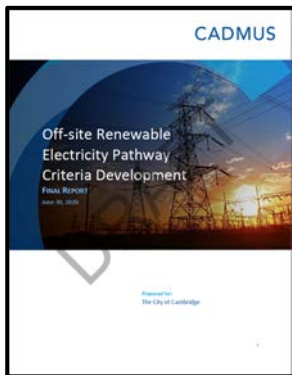
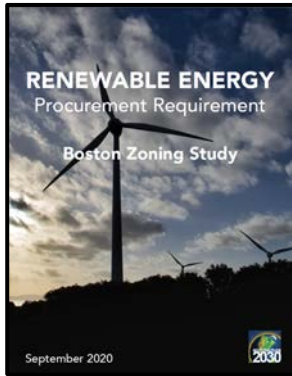
Procurement Option Variations

Table 10 – Procurement Options and Variations for Boston

<i>Procurement Method</i>	<i>Variation</i>	<i>Notes</i>
On-Site	n.a.	Basis of comparison
Self-Owned	n.a.	Located in community with electricity and RECs
Community Solar	Up-Front Payment	Cost of participation is paid in advance
	Subscription	Risk of loss of durability
Virtual PPA	MA Class I Generator	DOER approved generator in ISO New England region
	Out of Region	Probably wind from Texas or Great Plains
Unbundled RECs	MA Class I	DOER approved generator in ISO New England region
	Other	Probably wind from Texas or Great Plains
Green Pricing (RECs)	MA Class I	Backed by Massachusetts Class I RECs
	Other	Typically backed by wind RECs from Texas or Great Plains
Utility Contract	Bilateral Agreement	Custom long-term contract
	Special Green Tariff	Standard long-term contract
REIF	Local PV System	PV system is constructed in community
	vPPA Investment	Third-parties add capacity through a vPPA or other financial instruments
	Unbundled RECs	Money is used to buy unbundled RECs on behalf of program participants



Evaluation Criteria / Guiding Principles



- **Impact / Additionality**
- **Durability /Long-Term Commitment**
- **Locality / Local Impact**
- **Assignment to Building**
- **Environmental Impact:** have as a minimum requirement but with very straightforward requirements for what we don't allow (ILFI, Zero Carbon Certification has guidelines)
- **Renewable Generation Sources:** Challenge - no requirements now or in the future for all CCE RECs to be from all carbon free sources; depends on how this is framed (e.g. MASS Class 1 are all considered "renewable"); could define this requirement differently for each procurement pathway
- **Equity**
- **Public Health**

- **Electricity Credit:** only consideration w/ a few procurement options
- **Incremental Acquisition:** A Better City example shows this doesn't have to be barrier
- **Inspirational/Educational Value:** could be encompassed in equity & local impact conversations
- **Permanent Financing:** lower priority if using cooperation agreement
- **Grid Management:** could take on role of increasing local generation to reduce new infrastructure to bring electricity into city

define/weight these specifically for each procurement mechanism

Other Community Concerns

- Local Markets
- Local Investments (e.g. Community Controlled)
- Community Solar
- **DISCUSSION: Others?**

Minimum Requirements

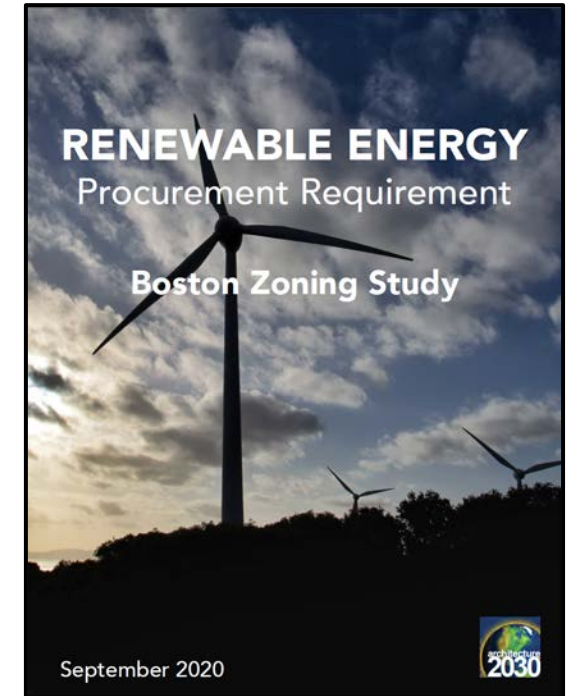
- Generation Source

The renewable energy generating source shall be photovoltaic systems, solar thermal power plants, geothermal power plants, wind turbines, or other Class I renewable energy generators approved by the Massachusetts DOER.

Language from proposed MA EZ Code: MA Class I (Inclusive of the Following Types)

- a) Solar photovoltaic
- b) Solar thermal electric
- c) Wind energy
- d) Small hydropower
- e) Marine or hydrokinetic energy
- f) Geothermal energy (without vapor compression cycle)

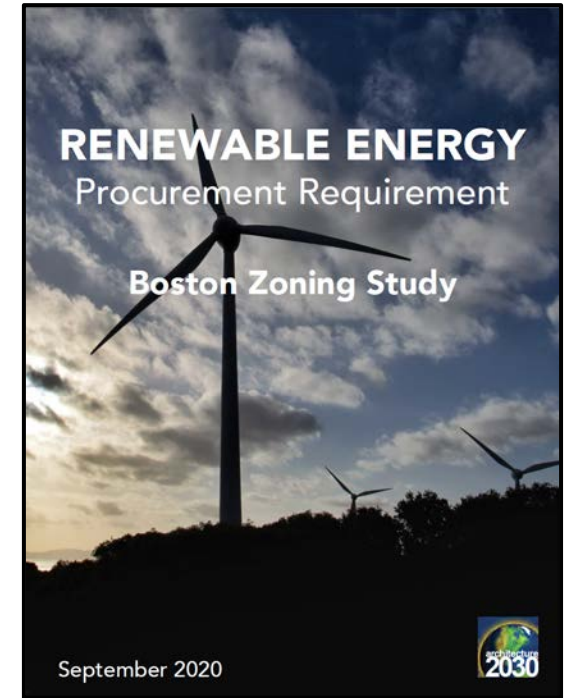
Exception: For existing district energy plants that serve thermal energy to multiple buildings, all MA Class I renewable energy sources are acceptable, including: landfill methane, anaerobic digester gas, and eligible biomass fuel.



Minimum Requirements

- Renewable Energy Certificates.

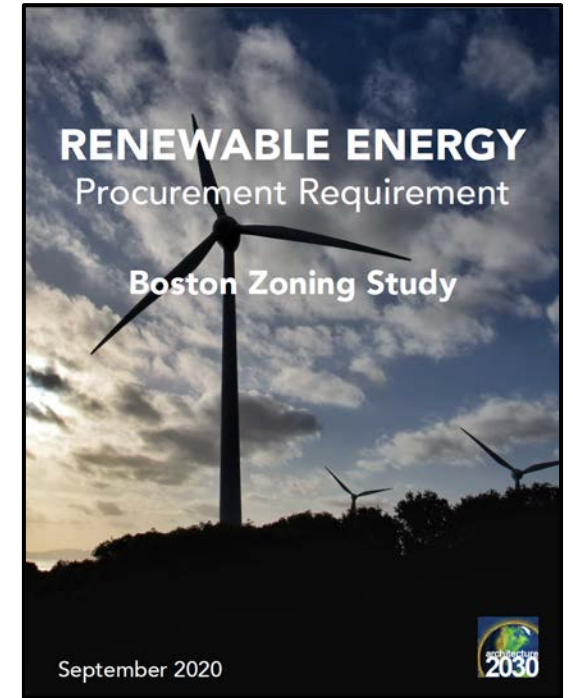
RECs and other environmental attributes associated with the renewable energy shall be assigned to the building project for the duration of the contract.



Minimum Requirements

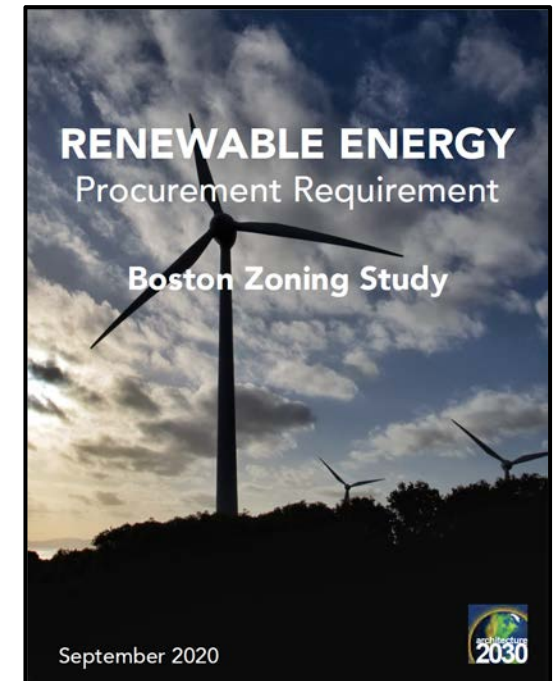
- Durability

The building owner shall sign a legally binding contract to procure qualifying off-site renewable energy for a period of 15 years and the contract shall be structured to survive a partial or full transfer of ownership of the property.



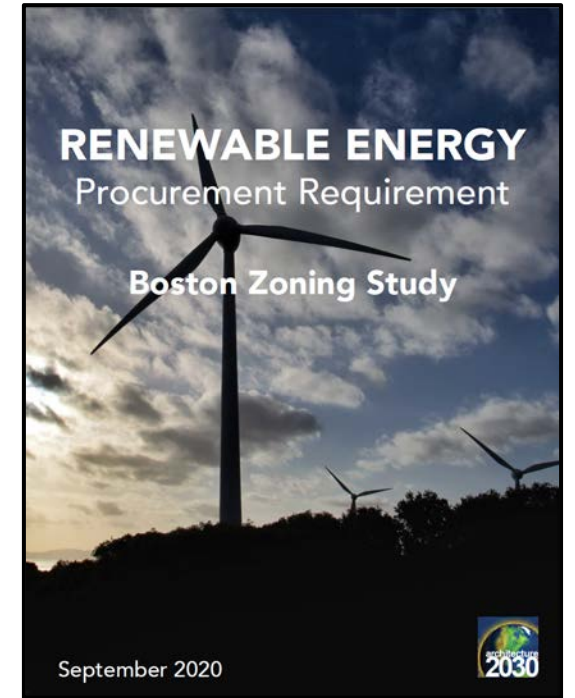
Minimum Requirements

- Generation Source
- Durability
- Renewable Energy Certificates
- **DISCUSSION:**
 - **Additionality**
 - Limit to New England ISO? Allow to go outside?
 - Local impact is priority (prioritize new local renewable assets)
 - could be challenge for national/international companies
 - Consider link between Additionality and Durability: are these separate criteria or different ways of getting at same goal?
 - **Equity + Public Health**
 - Critical city and community priority
 - **Actual GHG reduction impact**
 - What fuel are the (new) renewables actually displacing from the grid?
 - GHG impact may be better w/ non-local renewables, but that does not have a local GHG impact
 - These are guiding principles – what are the criteria we establish to measure these?



Minimum Requirements

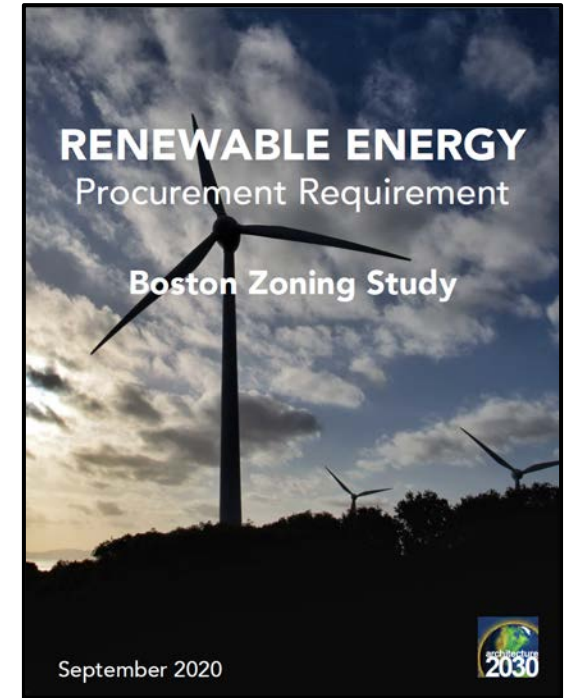
- **DISCUSSION:**



Minimum Requirements

Table 12 – Minimum Requirements for Off-Site Procurement Options

Procurement Option	Minimum Requirements		
	Generation Source	Durability	Renewable Energy Certificates
On-Site (Off-site options are compared to this)	Will be solar in almost all cases.	The system is on-site but can be self-owned or installed through a solar lease or direct PPA.	Yes. But some owners have been known to sell the RECs and direct PPA contracts often assign the RECs to the seller.
Self-Owned (viable for Boston and supported by virtual net-metering)	Will typically be wind or solar.	Forward contract for RECs can provide durability in the event that the system is sold separately from the complying building.	Yes. Should not be a problem.
Community Solar (no known programs in Boston)	Usually solar but could be another type of generator.	It's easy to opt out of most programs.	No. Most community solar programs usually do not provide RECs to the participant
Virtual PPA (limited to large credit-worthy organizations)	Wind and solar are the most common, but other generator types are possible.	Not a problem. The renewable energy developer requires a long-term commitment.	Yes. This is the essence of the deal.
Unbundled RECs (Massachusetts Class I RECs are preferred)	Can be anything, but mostly wind with some solar.	Forward contracts can be used to establish a long-term commitment.	Yes. RECs are the asset being purchased.
Green Tariffs (includes competitive suppliers and CCAs)	Most are backed by wind RECs from Texas or the Great Plains.	The longest typical contract is 36 months – it's easy to opt out.	Yes. Most green tariffs in Massachusetts are REC buying programs.
Utility Renewable Contracts (none in Massachusetts)	Wind and solar are most typical.	Contracts are for the long-term.	Yes. Customers contract for RECs and energy.
Renewable Energy Investment Fund (REIF) (three investment options)	REIF management establishes criteria	Contribution can be an up-front payment or a subscription	Yes. Should not be a problem, but there are no precedents.



RE Procurement TAG Process

TAG Meetings:

- Meeting 1 - Framework and Pathways
- Meeting 2 (today) – Deep Dive on Procurement Options & Minimum Requirements
- **Meeting 3 – Deep Dive on Procurement Factors & Weighting Criteria**
- Meeting 4 – Finalizing Recommendations