The Path to Emergency Electric: Lessons from the Kenzi

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Curated by Greg Smith and Kurt Carlson
A nonprofit organization whose mission is to preserve, create, and sustain affordable, healthy homes that support economic security, racial equity and access to opportunity for all.
DREAM COLLABORATIVE

Architecture Powered by Diversity

We believe broader perspectives and diversity of thought make for more informed decision-making, more contextual architecture, and ultimately, more positive impacts.

› DREAM’s mission is to create beautiful, authentic places and enable better outcomes for all stakeholders through inclusive design practices.
Click [here](#) to view video.
Advocate for why electrification is an environmental justice issue.
Environmental Justice Community
Minority
Income
English Isolation

Image Courtesy of WBUR
MASTER PLAN

214 Rental
166 Homeownership

360 Units Total
BUILDING SYSTEMS

Define the steps required to design battery energy storage systems
ENCLOSURE

R-39 WALL
R-60 ROOF

0.06 CFM/SF
PER ENVELOPE AREA

GLAVEL
ELECTRIFIED SYSTEMS

ERV 2x LEVEL

CENTRAL VRF

HPHW EA LEVEL
W RECIRC.
**PV + EV**
90 kW Solar panel array
EV charging stations

**EJC OUTDOOR**
Terrace + Plaza

**BATTERY BACKUP**
440 kWh Backup
BFD/ISD QUESTIONS/ANSWERS

Strategize your approach to AHJ’s to effect positive outcomes

What is the emergency operations plan?

Where is the remote shutoff location?

Is there any explosion venting?

What are the procedures if an alarm sounds?

Where and what type of system monitoring is done off site?

Please note closest hydrants and distances to ESS

Is there any mechanism in place to make sure the batteries do not overheat i.e. ventilation system?
THREE LEVELS OF BMS HIERARCHY

NESTING BACKUP SYSTEMS
CODE LANGUAGE

Apply code language to your future all-electric project
MA BUILDING CODE
780 CMR, 9TH EDITION
Based off 2015 IBC

- Triggers requirements for emergency backup power above 4 stories
TOTAL SYSTEM 100%

PEAK DEMAND 68%
140 kWh
300 kWh

2 HR LOAD 16%
70 kWh

440 kWh
COST & INCENTIVES
# PV & BATTERY SYSTEM

## COSTS

<p>| | | |</p>
<table>
<thead>
<tr>
<th></th>
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<tbody>
<tr>
<td>PV</td>
<td>90 kw</td>
<td>$160,000.00</td>
</tr>
<tr>
<td>Battery</td>
<td>440 kwh</td>
<td>$500,000.00</td>
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<tr>
<td><strong>TOTAL</strong></td>
<td></td>
<td><strong>$660,000.00</strong></td>
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## INCENTIVES

<table>
<thead>
<tr>
<th>Incentive Description</th>
<th>Amount</th>
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<tbody>
<tr>
<td>Investment Tax Credit (ITC)(30%)</td>
<td>$198,000.00</td>
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<tr>
<td>Energy Savings (total for 30 years)</td>
<td>$508,611.00</td>
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<tr>
<td>SMART 1-20 Year Total (renewable energy certificates)</td>
<td>$251,059.00</td>
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<tr>
<td>SMART Year 21-30 Total (renewable energy certificates)</td>
<td>$22,000.00</td>
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<tr>
<td>Connected Solutions Program</td>
<td>$98,000.00</td>
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<td>MA Clean Peak Program</td>
<td>$18,650.00</td>
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<tr>
<td>ISO-NE On-Peak Hours Resource Program</td>
<td>$18,000.00</td>
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<tr>
<td><strong>TOTAL</strong></td>
<td><strong>$1,114,320.00</strong></td>
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* potential adders for ITC, TBD later in 2023 (20% Total System)                      | $13,200.00 |
** also able to use the value of the system in LIHCT basis                            |          |

## PAYBACK YEAR 8