Community/Utility Partnerships That emPOWER Success

Thursday, August 23rd, 2018 from 8:30 – 10:00 AM
Room 11
Panelists

Nancy Sutley
Chief Sustainability Officer
Los Angeles Department of Water and Power

Rebecca Rasmussen
Associate Director of Infrastructure
City of Los Angeles

Brad Swing
Director of Energy Policy and Programs
City of Boston

Jenah Zweig (Moderator)
Supervisor of Partnerships & Technical Assistance
U.S. Department of Energy
Brad Swing, City of Boston
COMMUNITY ENERGY SOLUTIONS IN BOSTON

BRADFORD SWING
DIRECTOR OF ENERGY POLICY AND PROGRAMS
CITY OF BOSTON

City of Boston
Mayor Martin J. Walsh

boston planning & development agency
**Boston Harbor**
Nor’easter - March 1-3, 2018

**Back Bay**
Blackout – Scotia Street Substation

**North End**
Repetitive Street Openings

**Boston Underground**

**Mass Ave.**
Traffic Congestion

**Mass Ave. & Beacon St.**
Smart Sensors Pilot

The City is using technology to improve traffic safety. For more information visit:

boston.gov/smart-streets
BOSTON INITIATIVES

Private Sector – Boston Smart Utilities Policy
Adopted by the BPDA Board June, 2018

Requires integration of 5 Smart Utility Technologies (SUTs) across Energy, Water, Transport, Telecom

Energy SUT: District Energy Microgrids

Public Sector – Raymond L. Flynn Marine Park (RLFMP) Solution
MassCEC Community Microgrid Feasibility Assessment

Will assess two governance and financing models
  Public-Private Partnership (3P)
  Utility-driven solution
BOSTON SMART UTILITIES VISION

- Led by inter-departmental Steering Committee
- Provides new model for integrated utility planning and design
- Encourages deployment of Smart Utility Technologies
- Focuses on utilities across four sectors

GOALS

- **Efficiency**
  Make utilities easier to build, maintain and upgrade

- **Equity**
  Reduce utility costs for residents and businesses

- **Resiliency**
  Harden infrastructure against flooding risk and heat waves

- **Economic Development**
  Attract businesses and jobs through world-class essential services

- **Innovation**
  Integrate cutting edge technologies and lead through innovation
SMART UTILITIES POLICY FOR ARTICLE 80

Energy
- District Energy Microgrid
- Solar / Battery / EV Microgrid

Water
- Green Infrastructure
- Water Reuse- Rainwater
- Water Reuse- Grey water

Transportation
- Adaptive Signal Tech.
- Autonomous Vehicles

Communications
- Smart Street Lights
- Public Wifi, Smart Sensors
- Telecom Utilidor
DISTRICT ENERGY MICROGRID – COMBINED HEAT AND POWER ("CHP")

An energy system for cluster of buildings that:

**Generates electricity on-site**

**Captures excess heat** (otherwise wasted) to provide useful thermal energy (i.e., steam, hot and cold water)

**Reduces capital and O&M costs** by substituting in-building boilers and chillers

**Promotes resiliency** when operated in “island” mode, separate from electrical grid
DISTRICT ENERGY MICROGRID – SMART UTILITIES POLICY FOR ARTICLE 80

Threshold:
- 1.5 million SF developments

Requirements:
- Feasibility Assessment
- District Energy Microgrid Master Plan
- District Energy Microgrid – Ready Design

01 Central Energy Plant
  - Energy Generation
  - Boilers / Chillers
  - Sewage Heat Exchange
  - Thermal / Electric Storage
02 Hot & Cold Water Distribution
03 Energy Transfer Station
04 Sewage Heat Recovery
RAYMOND L. FLYNN MARINE PARK SOLUTION

Owned by Economic Development and Industrial Corporation (EDIC, dba the BPDA)

Protects and enhances maritime industrial and industrial activities

Prime location for District Energy Microgrid solution because of its location along the South Boston Waterfront

MassCEC Feasibility Assessment builds on years of engagement with tenants
WORK PRODUCTS

Decision-Making Tools
PLAN: Dot Ave – 10 Technologies

BUSINESS-AS-USUAL REPORT
- Baseline analysis of utility construction in BAU manner in Study Area

COST BENEFIT ANALYSIS
- Analysis of Costs and Benefits impacts of Smart Utility Technologies deployed in Study Area

RECOMMENDATIONS

Implementation Tools
City-Wide

SMART UTILITY STANDARDS
- A guide with standards for planning and integration of Smart Utility Technologies infrastructure

SMART UTILITIES POLICY FOR ARTICLE 80 DEVELOPMENT REVIEW
- Policy defining size thresholds and specifications of select Smart Utility Technologies for city-wide implementation
GREEN INFRASTRUCTURE

Uses sidewalk gardens and pavers to allow rainwater to percolate into the ground.

Provides resiliency during storms.

01 Green Infrastructure/Permeable Pavement
ADAPTIVE SIGNAL TECHNOLOGY ("AST")

AST is a series of motion sensors and traffic signals that communicate in order to improve traffic flow and safety for all modes.

01 Road Re-Striping
02 Smart Traffic Signals
03 Charging/Idling Spaces
04 Communications Equipment
SMART STREET LIGHTS

Smart technology **mounted on traditional light poles**

01 Public Wi-Fi Access Point
02 Smart Sensors
03 Smart Streetlights
TELECOM UTILIDOR

A set of encased pipes that consolidate wires and fiber optics of cable/internet

Eliminates repetitive street openings

Reduces barriers to entry in telecom sector

Notes:
- Connections and splices will occur at vaults.
- Access is not provided between vaults.
## SMART UTILITIES POLICY FOR ARTICLE 80

<table>
<thead>
<tr>
<th>Article 80 Size Threshold</th>
<th>Specifications</th>
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<tbody>
<tr>
<td>&gt;1.5 million SF</td>
<td>Feasibility Assessment; if feasible, then Master Plan &amp; District Energy Microgrid Ready design</td>
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<tr>
<td>&gt;100,000 SF</td>
<td>Install to retain 1.25&quot; rainfall on impervious areas (Increase from 1&quot; currently required by BWSC)</td>
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<tr>
<td>All projects requiring signal installation or improvements</td>
<td>Install AST &amp; related components into the traffic signal system network</td>
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<tr>
<td>All Projects requiring street light installation or improvements</td>
<td>Install additional electrical connections &amp; fiber optics at pole</td>
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### District Energy Microgrid
- Green Infrastructure
- Adaptive Signal Tech.
- Smart Street Lights

### Solar / Battery / EV Microgrid
- Water Reuse- Rainwater
- Water Reuse- Grey water
- Autonomous Vehicles
- Install Telecom Utilidor
- Public Wifi, Smart Sensors
- Telecom Utilidor
SMART UTILITY STANDARDS

Mini “Complete Streets” for the Underground

With a staggered “Laterals Envelope”, the potential for both horizontal and vertical clearance conflicts can be avoided.

With the proper planning and coordination between stakeholders, Smart Utility Technologies can be successfully integrated into the existing utility-busy streets of Boston, even at the location for the most potential horizontal and vertical conflicts: Intersections.
A Note on Implementation

2-year pilot

Action items from consultation session with developers

Key Developer Requests

1. Assistance to explore financing and ownership structures for District Energy

2. Assistance with utilities coordination
# SMART UTILITIES POLICY FOR ARTICLE 80

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<td><strong>Telecom Utilidor</strong></td>
<td>&gt;1.5M SF of Development, or &gt;0.5 Miles of Roadway</td>
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Rebecca Rasmussen, City of Los Angeles
Partnerships that emPOWER Success

Better Buildings Summit, August 23, 2018
Rebecca Rasmussen, Associate Director of Infrastructure Office of Mayor Eric Garcetti
Over 4 million residents

+ 500,000 more by 2035

47.3 million visitors annually

Diverse geography
Net zero by 2050

1.5°C Goal

Original pLAN Goal

Energy Efficiency:
- Use energy efficiency to deliver 15% of all of LA’s projected electricity needs by 2020, including through rebates, incentives, and education.
Where to Focus Efforts

Electrification

Energy efficiency

Electricity decarbonization

Source: Siemens Climate LA report
Benefits of Municipal Facility

Gather and analyze data for informed decision making.

Use data to more effectively develop programs and allocate funds.

Markets react, impact measured.

Reporting

Transparency
Example: Existing Building Energy and Water Efficiency Ordinance (EBEWE)

- Reporting: Require benchmarking and audits to spur informed decision making
- Transparency: Local government and utility use data to more effectively allocate funds
- Market: Market uses data to compare performance and reward efficiency
Make data available and useable
Coordinate on Program Development
Energy and Water Savings Programs

SAVE ENERGY LA
It doesn’t take much. But it does take all of us.

Heroic Savings
$400 Rebate on qualified clothes washers
It doesn’t take much but it does take all of us.

Charge Up LA!
Plug in and save with electric vehicle programs, chargers & rebates.

Los Angeles Department of Water & Power

REAJUSTA LA
APAGA LA
Electric Vehicle Accessibility
100% Renewable Energy Study
IN THE FUTURE, I WANT BUILDINGS TO

Building
Forward
LA

BE SUSTAINABLE
BE float
BE ADAPT
BE MORE THAN JUST A BUILDING
EDUCATE
BE COMBAT CLIMATE CHANGE
BE NET ZERO
BE WORK FOR PEOPLE
BE GENERATIONAL
BE PROTECT
BE RESILIENT
BE RESTORATIVE
BE IN PRACTICE
BE FOUNDATION
BE INSPIRE
BE EXCITE
BE EXCEED
BE UNITE
BE BREATHE
BE COMMUNICATE
BE REJUVENATE
BE ENGAGE
BE SHELTER EVERYONE
Challenges
Nancy Sutley, Los Angeles Department of Water and Power
Community/Utility Partnerships that emPOWER Success

DOE’s Better Buildings Summit
August 23, 2018

Nancy Sutley
Chief Sustainability Officer, LADWP

Putting Customers First
Overview of LADWP

- Established 1902 to deliver water to Los Angeles; electrical distribution began in 1916.
- Largest municipal utility in the USA, covers LA’s 465 square miles
- Over 4 million residents in the City of LA
- 1.5 million electric customers; 680,000 water customers
- Vertically integrated utility
LADWP’s Key GHG Emissions Reduction Programs

- Reduce GHG emissions 40% below 1990 levels by 2030
- RPS Goals: 36% by 2020, 55% by 2030, 65% by 2036
- Achieve 15% Energy Efficiency by 2020
- Identify Options to Replace OTC In-Basin Generation
- Accelerate Electric Vehicle Expansion
LADWP’s Community Partnership Programs

- Equity Metrics Data Initiative
- Transportation Electrification
- Community Solar
- 100% Clean Energy Initiative
- Community Outreach
LADWP’s Equity Metrics Data Initiative
CalEnviro Poverty Characteristic vs Pollution Burden Maps
Transportation Electrification

Charge Up LA!

Watts Neighborhood Council
President Mac Shorty, Board
of Water and Power
Commissioners Vice
President William
Funderburk, and LADWP
Director of Power
Engineering Marvin Moon
charge up an electric vehicle
at the new pole mounted EV
charger in Watts.
LADWP Community Solar Program

- Developed with stakeholder input
- Part of LADWP’s Strategic Long Term Resource Plan (SLTRP) outreach
- Research and Partnerships
100% Clean Energy Initiative

- Developed as part of the Strategic Long Term Resource Plan (SLTRP) outreach
- Partnership with research universities, neighboring utilities, business, community and environmental
Community Partnerships Program

• Offers grants to local non-profit organizations and CBO’s
• Awarded through a competitive selection process. One in each of 15 Council Districts.
• Targets Hard-to-reach customers
LaKretz Innovation Campus
Questions and Feedback
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