Efficiency Solutions CalPlug Earth Day Workshop: LA's La Kretz Innovation Campus and Clean Tech Incubator

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## Agenda

#### 1. Campus Goals

- LA's Green New Deal Targets
- LA100: Load Projections, Grid Impacts, & Reduction of GHG Emissions

#### 2. Campus Overview

- Features
- LACI
- LADWP Vision
- LACI LADWP Partnership

#### **3. LKIC Exhibits**

- Case Study (Smart) Home
- Customer Engagement Lab (CEL) + Sustainable Living Lab (SLL) Demonstration Space
- Graywater System
- Lighting Lab
- Microgrid
- Plumbing Lab & Display











### **Campus Goals** LA's Green New Deal Targets



Source: https://plan.lamayor.org/

### **Campus Goals**

LA100: Load Projections, Grid Impacts, & Reduction of GHG Emissions



\*Costs, as measured in the study, represent costs of expanding and operating of the power system from 2021. Present values calculated with a discount rate of 0% are equivalent to an undiscounted value. \*\*\*5% confidence interval of values of avoided health impacts in 2045 compared to 2012 is SB100 - M is (-\$480M-\$3,000M) and of Early & No Biofuels - H is (-\$470M-\$4,400 M). \*\*\*Because the contribution to emissions reductions from the power sector is small (ranging from 0.8%-1% for NOx among LA100-evaluated reductions), it is reasonable to qualitatively estimate the results stated.

Comparison of scenarios across select metrics analyzed in LA100

Source: LA100: The Los Angeles 100% Renewable Energy Study Key Findings from the Los Angeles 100% Renewable Energy Study. <u>https://www.nrel.gov/docs/fy21osti/79445.pdf</u>

### Campus Overview Features



### La Kretz Innovation Campus features:

- 3.2 Acre Campus with a 60,000sf Facility
- 30,000sf of Collaborative Workspace
  & Offices
- Advanced Prototyping Center
- 125 person Amphitheater & Conference Space
- Training Center with 3 Large Classrooms
- 175 KW Solar Farm & Micro Grid R&D Center
- LADWP Energy Efficiency & Emerging Technology Center
- LADWP Test Laboratories
- LADWP Customer Engagement Center

## Campus Overview



**Formed:** By the City of Los Angeles and partners in October 2011.

**Mission:** Build a world-class local innovation hub and connect it globally.

**Operate:** Two local incubators (DTLA campus and LACI@CSUN), one in NorCal (SVCI) and other satellite campuses under development in Ethiopia and Mexico City.

**Funding Sources:** Local, state and federal government grants, industry sponsorships, philanthropic funding, contract services, membership fees and rent from selected company residents.

#### **Major Funders:**

- City of Los Angeles
- U.S. Department of Energy (DoE)
- California Energy Commission (CEC)
- Corporate sponsors
- Philanthropic support

Source: <u>http://laincubator.org/wp-content/uploads/LKICDeck\_p\_8.30.16.pptx</u>

### Campus Overview LADWP Vision



- LADWP staff work in various capacities to transition startups to successful businesses by providing technical assistance, piloting their technologies at LADWP facilities, sharing knowledge about customer needs, raising awareness in the Power and Water systems of new technologies, and providing a bridge to stakeholders in the utility industry and rebate marketplace.
- LADWP Efficiency Solutions staff conducts performance tests and assists in developing utility incentives and/or rebate programs for customers to adopt theses new technologies to reduce energy and water consumption.

### **Campus Overview** LACI – LADWP Partnership

#### LACI Start Up Companies



Installed 55 smart water meters in LKIC to continuously monitor flow at all fixtures within the building.



Performance tested lighting products



Installed MOEV controlled EV chargers and charging station monitoring devices at LKIC.



Installed greywater treatment controls at LKIC



Proposed pilots using algae based desalinization at a number of Water treatment facilities in LA City.



Procured demonstration mobile EV chargers at LKIC

pickmysolar

Coordinated offerings under LADWP programs and potential pilots

#### **Other LACI Residents**



Developing tools for LADWP incentive programs, emerging technology assessments, and potential studies



Established MOU to jointly develop the first PV installation standard/manual in collaboration with IAPMO

### LKIC Exhibits Case Study (Smart) Home



- This dual purpose room at LKIC both demonstrates customers and allows ESE staff to test various smart appliances and control devices. These devices offer convenience and efficiency features that LADWP customers may purchase now and in the future.
- This provides valuable insight on new avenues for demand response, and ways for customers to manage their energy & water consumption. ESE staff look for opportunities to incorporate these products in LADWP customer programs.
- Staff also study how interaction with technology changes customer experience and behaviors in consuming energy & water.

### **LKIC Exhibits**

### Customer Engagement Lab (CEL) + Sustainable Living Lab (SLL) Demonstration Space



- The CEL/SLL spaces feature interactive educational displays to engage and educate all segments of LADWP customer portfolio.
- The Efficiency Solutions Engineering (ESE) Group was intimately involved in the review and approval of the display content. The ESE Group is considered the Subject Matter Expert (SME) for most of the displays, and is involved in future updates to the content.

### **LKIC Exhibits** *Graywater System*



- This is one of the first commercial scale graywater treatment and reuse systems in the nation built for certification by the National Sanitary Foundation (NSF) under NSF Standard 350.
- Paving the way for substantially reducing the approval and permitting process for future installations across the city.
- Poised to become a major step in significantly reducing the water needs beyond what is achievable with high efficiency plumbing fixtures.

### LKIC Exhibits Lighting Lab



- The Lighting Lab is a laboratory for testing and evaluating the latest in lighting technologies.
- Results are used to determine product qualifications for LADWP customer lighting incentive programs and Department facility retrofits. Lighting programs accounts for the largest investments within the Efficiency Solutions portfolio.

### LKIC Exhibits Microgrid



- The microgrid controller balances the building demand with the energy output from the PV array and controls energy flows to and from the battery storage system.
- Knowledge gained by programming the Microgrid will assist LADWP's Power System in their goals to greatly increase system resiliency and reliability as customers adopt Distributed Energy Resources in their facilities.

### LKIC Exhibits Plumbing Lab & Display



- A state-of-the-art water conservation laboratory is under construction which will allow LADWP La Kretz engineering staff to evaluate a wide variety of plumbing fixtures for water efficiency and performance.
- Collaboration with International Association of Plumbing and Mechanical Officials (IAPMO) and other industry stakeholders in areas including but not limited to:
  - On-Site Water Treatment & Greywater systems
  - Leak Detection Systems
  - Next generation of high efficiency fixtures
  - Approval of plumbing devices, systems and equipment



# Questions?

