Agenda

• Background – Why Energy Efficiency for LADWP?

• Our Sustained Effort to Achieve EE for 2020 and Beyond

• The Water-Energy Nexus

• Non-Resource Benefits and Equity

• A Nation-Leading POU-IOU Partnership

• LA Kretz Innovation Campus – Driving the Next Generation of ET
Background – Why Energy Efficiency for LADWP?

- Transportation: 39%
- Electric Power: 19%
- Industrial: 17%
- Residential & Commercial: 11%
- Agriculture: 8%
- Transportation-Related Industrial: 6%

California GHG Emissions by Sector in 2015 (Source: CARB)
Energy Efficiency: A Sustained Effort to Achieve 15% by 2020... And Beyond

Annual EE Investment and Goals: 2010 – 2020

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<tbody>
<tr>
<td>Budget (millions)</td>
<td>$49.5</td>
<td>$37.3</td>
<td>$50.0</td>
<td>$78.0</td>
<td>$79.0</td>
<td>$73.0</td>
<td>$133.0</td>
<td>$178.0</td>
<td>$180.0</td>
<td>$163.0</td>
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<td>GWh Savings</td>
<td>265</td>
<td>228</td>
<td>319</td>
<td>337</td>
<td>343</td>
<td>412</td>
<td>480</td>
<td>412</td>
<td>396</td>
<td>359</td>
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<td>Portfolio Savings Cum’l</td>
<td>1.1%</td>
<td>2.1%</td>
<td>3.4%</td>
<td>5%</td>
<td>6.5%</td>
<td>8.2%</td>
<td>10.4%</td>
<td>12%</td>
<td>13.7%</td>
<td>15.1%</td>
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Actuals | Current Year Plan | Future Planned
Water – Energy Nexus: Water-Related Energy Use In California

Total California Electricity Use = 250,494 GWH

- Other Uses: 81%
- End Users: 19%

Water-Related Use:
- State Water Project: 15%
- Local Conveyance: 3%
- MWD (CRA): 1%
- Other: 0.4%

Bay Delta
LA Aqueduct
Colorado River Aqueduct
State Water Project
Sierra Mountains
Local Groundwater, Stormwater, Conservation & Recycling
Castaic Power Plant
Colorado River Aqueduct
Why Water Conservation and Efficiency?

• Drivers:
  – Most water used in Southern California is not locally obtained
  – Imported sources
    • Sierra snowmelt (SWP)
    • Colorado River (CWA)
  – ALL imported sources are under pressure: climate, population, water quality criteria

• Options:
  – Stormwater capture
  – Recycling
  – Conservation and Efficiency
A High-Resolution Assessment of Water Utility Energy Intensity, UC Davis CWEE (for LADWP), 2016

Average energy intensity values for the LADWP Service Area and per pressure zone from year 2008 to 2013.

- Includes Treatment and Distribution, Wastewater Collection and Treatment (Outdoor and Indoor) within the Service Area
- Does not include energy intensity attributed to Extraction and Conveyance outside the Service Area
- Does not include groundwater sources

Source: UC Davis CWEE, 2016
Non-Energy Benefits & Equity

• We serve Our Customers, not Wall Street
• Board-adopted Guiding Principles for Efficiency programs, which pledge to serve all customers
• Leverage investments in efficiency to achieve equitable access, skilled jobs, transparency, community capacity building
• UCLA-LADWP 2014 Study on Job Creation from LADWP Energy Efficiency Investments:
  – Expect to create 16 jobs per $1M invested
  – Compares favorably to jobs created in residential construction, smart grid deployment, solar generation
  – Estimate creation of 11,000 jobs by 2020
• Water study yielded similar results
Equity Metrics

Geographic Distribution of Los Angeles Poverty Levels (CalEnviro3.0)

*Source: CalEnviroScreen 3.0 - From the 2011-2015 American Community Survey - the dataset contains percent of population living below two times the federal poverty level.

<table>
<thead>
<tr>
<th>Equity Core Category</th>
<th>Metric</th>
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<tbody>
<tr>
<td>Water &amp; Power</td>
<td>1. Water Quality Complaints</td>
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<tr>
<td>Infrastructure Investment</td>
<td>2. Water System Probability of Failure &amp; Planned Replacements</td>
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<td>3. SAIDI &amp; SAIFI</td>
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<td>4. Power System Reliability Program – Pole, Cable, and Transformer Replacements</td>
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<td>Customer Incentive Programs/Services</td>
<td>5. Rain Barrel/Cistern/Water Tank Rebates</td>
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<td>6. Turf Removal Rebates</td>
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<td>7. Tree Canopy Program</td>
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<td>8. Commercial Direct Install Program</td>
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<td>9. Home Energy Improvement Program</td>
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<td>10. Refrigerator Exchange Program</td>
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<td></td>
<td>11. Consumer Rebate Program</td>
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<td>12. Electric Vehicle Infrastructure</td>
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<td>13. Low Income &amp; Lifeline Programs</td>
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<tr>
<td>Procurement</td>
<td>14. LADWP SBE/DVBE Program</td>
</tr>
<tr>
<td>Employment</td>
<td>15. New Hire/Promotion Demographics</td>
</tr>
</tbody>
</table>

*Source: CalEnviroScreen 3.0 - From the 2011-2015 American Community Survey - the dataset contains percent of population living below two times the federal poverty level.
Equity Metrics

Geographic Distribution of Low Income Discount Rates Program, Energy Efficiency and Water Conservation Program Expenditures for Calendar Year 2017

Low Income Discount Rates Program (307,501 Participants)
- Low Income Discount
- Lifeline Discount
- Life Support Discount
- Physician Certified Allowance Discount (PCAD)

Energy Efficiency (52,796 Participants) and Water Conservation Programs (28,209 Participants)
- Commercial Lighting Incentive Program (CLIP)
- Food Services Program (FSP)
- Custom Performance Program (CPP)
- Energy Efficiency Technical Assistance Program (EETAP)
- Retro-Commissioning Program (RCX)
- Upstream HVAC
- Savings by Design
- Home energy improvement program (HEIP)
- AC Optimization program
- Efficient Product Marketplace
- Refrigerator Exchange Program
- RETIRE
- Energy Savings Assistance Program
- Consumer Rebate Program
- MWD Device Rebates
- Technical Assistance Program
- Device Distribution Program
- Direct Install Program
LADWP & SoCalGas Partnership

• LADWP has partnered with SoCalGas since 2012 through a Master Inter-Utility Agreement
• Agreement allows co-funding of efficiency programs that benefit our shared residents & businesses in LA
• Leverages resources to drive energy & water savings benefits more quickly and at lower overall cost
• Currently partnering on 17 programs, including incentives for low-income multi-family residents and single-family homeowners
• Most extensive joint electric, water & gas utility partnership in US
LADWP and LKIC – A Virtuous Cycle for ET Development and Deployment

ET R&D
(Technology Incubation)

Evaluation, Measurement, and Verification
(Utility Program EM&V)

Commercialization
(Business Incubation)

Market Adoption
(Utility Incentives)
Questions?