Department of Water and Power
City of Los Angeles

City of Los Angeles
4th Regional Investors Conference
March 19, 2018

Putting Customers First

www.ladwp.com
LADWP Overview

- Largest municipal utility in the US
- 1.5 million power customers; 680,000 water customers
- Vertically integrated utility
- Owns more than 25% of state’s transmission; not part of California ISO
- Reached 20% renewables in 2010; well-positioned to meet state-mandated level of 33% by 2020
- Diverse water resources; expanding local water supply
- Economically strong and diverse service territory
- Stable, broad customer base with steady growth
- Largest 10 customers provide 10.5% of Power revenues and 6.5% of Water revenues
- Approved multi-year rate increases provide favorable rate restructuring
Key Figures – FY 2017

• Sales:
  – Energy Sales: 24 million MWh
  – Water Sales: 196 million HCF

• Operating Revenue:
  – Energy: $3.7 billion
  – Water: $1.1 billion

• Total Liquidity as of December 31, 2017:
  – Power: $1.93 billion on hand including
    ~$458 million on deposit in a Debt Reduction Trust Fund
    and $100 million in Rate Stabilization Fund
  – Water: $503 million on hand including $50.2 million in
    Expense Stabilization Fund

• Combined $500 million revolving line of credit for both
  Water & Power Systems
**Existing LADWP Governance**

- **General Manager**
  - Administers Department affairs and operations

- **Energy, Climate Change and Environmental Justice Committee**
  - City Council Committee with jurisdiction of matters concerning the Department

- **City Council**
  - Approves rate requests and selection of Board of Water & Power Commissioners and General Manager

- **Board of Water and Power Commissioners**
  - Five-member Board establishes policy for the Department. Members appointed by Mayor and confirmed by City Council for five-year terms

- **Office of Public Accountability**
  - Executive Director is appointed by a citizens committee, subject to confirmation by City Council and Mayor
  - Provides public, independent analysis to the Board and City Council

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[Diagram with roles and responsibilities]
LADWP’s Transformation

- Replace aging infrastructure
- Transition to 100% clean energy
- Protect from drought, expand local water supplies, groundwater cleanup and storage
- Electrify transportation sector
- Improve customer service, keep rates competitive
- Expand customer-facing automation

www.ladwp.com
Snapshot of Just a Few Challenges Ahead (Legal Mandates)

**Power**
- State Mandated Green House Gas Reduction (AB 32, SB32 & AB197)
- Eliminate Once Through Cooling of all Coastal Power Plants (Clean Water Act – Rule 316b)
- South Coast Air Quality Management District Emission Reduction Mandates (NOx, SOx, PM, etc)
- Solar Incentive and FiT Programs (SB 1 & SB 1332)
- Divestiture of Coal Resources (SB 1368)
- Increase Renewable Resources (SB 350: 20% -2010 / 25% 2016 / 33% - 2020 / 50%-2030)
- Cost Effective Energy Storage (AB 2514 & AB 2227 & SB801)
- Minimize Risk of Catastrophic Wildfire (SB 1028)
- Federal Solar Tariff
- Bio Energy Projects (SB 859)
- City Council 100% Clean Energy Motion

**Water**
- Cover all Remaining Open Reservoirs (Long Term 2 Enhanced Surface Water Treatment Rule)
- Convert Chlorine to Chloramines (Stage 2 Disinfectants and Disinfection Byproducts Rule)
- Owens Lake Dust Mitigation (Clean Air Act)
- Mayor’s Executive Directive No. 5
  - Reduce imported water purchases by 50% by 2025
  - Expand local water sources to account for at least 50% by 2035
Revenue Composition
Under New Rate Structure

**Power System**
49% Pass-Through

- ECAF Charges**: 43%
- RCA**: 5%
- ESA**: 1%
- Base Rate*: 51%

**Water System**
63% Pass-Through

- Base Rate*: 37%
- Total Other Pass Throughs**: 30%
- Water Supply Adjustment Factor**: 27%
- Automatic Pass-Throughs**: 6%

* Decoupled Base Revenue
** Pass-Through Costs
Rates Remain Competitive: Residential

Comparative Residential Annualized Power Bills Excluding Tax
Based on 500 kWh per Month as of January 2018

<table>
<thead>
<tr>
<th>Utility</th>
<th>Power System</th>
<th>Water System</th>
</tr>
</thead>
<tbody>
<tr>
<td>LADWP</td>
<td>$78.79</td>
<td>$60.16</td>
</tr>
<tr>
<td>BURBANK</td>
<td>$81.33</td>
<td>$56.37</td>
</tr>
<tr>
<td>GLENDALE</td>
<td>$81.56</td>
<td>$63.00</td>
</tr>
<tr>
<td>PASADENA</td>
<td>$91.90</td>
<td>$64.64</td>
</tr>
<tr>
<td>PGE</td>
<td>$117.21</td>
<td>$70.51</td>
</tr>
<tr>
<td>SCE</td>
<td>$103.57</td>
<td>$76.13</td>
</tr>
<tr>
<td>SDGE</td>
<td>$155.87</td>
<td>$89.03</td>
</tr>
<tr>
<td>SMUD (Fixed Rate)</td>
<td>$62.08</td>
<td>$52.49</td>
</tr>
<tr>
<td>SMUD (ECU)</td>
<td>$20.90</td>
<td>$121.41</td>
</tr>
</tbody>
</table>

Comparative Residential Annualized Water Bills Excluding Tax
Based on 10 HCF per Month as of January 2018

<table>
<thead>
<tr>
<th>Utility</th>
<th>Power System</th>
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<tbody>
<tr>
<td>LADWP</td>
<td>$78.79</td>
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<tr>
<td>SANTA BARBARA</td>
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</tr>
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<td>SAN JOSE</td>
<td>$103.57</td>
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<tr>
<td>SAN DIEGO</td>
<td>$155.87</td>
<td>$89.03</td>
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<td>$62.08</td>
<td>$52.49</td>
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<td>SANTA BARBARA</td>
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<td>$121.41</td>
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Sources:
- https://www.sce.com/wps/portal/home/regulatory/tariff-books/rates-pricing-choices

Rates at other utilities subject to change.
Diverse Generation Mix

**Diverse mix of resources, declining use of coal with net dependable capacity of 120% of peak demand**

### Department Owned Facilities

<table>
<thead>
<tr>
<th>Type of Fuel</th>
<th>Facilities</th>
<th>Net Dependable (MWs)</th>
<th>(%)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Natural Gas</td>
<td>4</td>
<td>3,319</td>
<td>42.4%</td>
</tr>
<tr>
<td>Large Hydro</td>
<td>1</td>
<td>1,175</td>
<td>15.0%</td>
</tr>
<tr>
<td>Renewables</td>
<td>39</td>
<td>285</td>
<td>3.6%</td>
</tr>
</tbody>
</table>

**Total** 44 4,779 61.0%

- Net maximum plant capacity of 9,890 MWs and net dependable capacity of 7,794 MWs
- Peak demand of 6,502 MWs (August 31, 2017)
- Capacity allows minimal exposure to uncertain markets to meet customer demand
- Base load generation is fueled by various sources
- Extensive transmission network
  - The Department owns and operates in excess of 25% of the transmission facilities in the State (over 19,840 miles)
  - Department serves as operating agent for:
    - Pacific DC Intertie (co-owner)
    - Southern Transmission System (contract capacity rights)
    - Mead-Adelanto Transmission Project (co-owner), and
    - Certain Navajo-McCullough facilities (co-owner)

### Jointly Owned Facilities and Contracted Capacity Rights

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<tr>
<th>Type of Fuel</th>
<th>Facilities</th>
<th>Net Dependable (MWs)</th>
<th>(%)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Coal (IPP)</td>
<td>1</td>
<td>1,202</td>
<td>15.3%</td>
</tr>
<tr>
<td>Natural Gas (Apex)</td>
<td>1</td>
<td>480</td>
<td>6.1%</td>
</tr>
<tr>
<td>Hydro (Hoover)</td>
<td>1</td>
<td>304</td>
<td>3.9%</td>
</tr>
<tr>
<td>Nuclear (PVNGS)</td>
<td>1</td>
<td>380</td>
<td>4.8%</td>
</tr>
<tr>
<td>Renewables/DG</td>
<td>32,329</td>
<td>693</td>
<td>8.9%</td>
</tr>
</tbody>
</table>

**Total** 32,333 3,059 39.0%

1. As of January 31, 2018, excludes DWR’s 120 MW share of net maximum capacity and 44 MW share of net dependable capacity.
2. As a percentage of all facilities. May not add due to rounding.
Renewable targets: Strong existing base of renewables, supplying 29% of 2016 energy needs
- Have met RPS targets to date
- Approximately $1.0 billion capital spending anticipated over the next five years for Renewable Portfolio Standard
- Expect to reach 33% Renewable Portfolio Standard by adding approximately 300 MW of new renewables by 2020 through a competitive selection process

Eliminating coal: Either have divested from or have contracts in place to eliminate coal by 2026
- The 2016 divestiture of the Department’s interest in the Navajo plant reduced reliance on coal and cut greenhouse gas emissions
- IPP, which currently contracts 44.6% of its capacity to LADWP, has amended its Power Sales Contract to replace its coal units with combined cycle natural gas units by July 2025

Modernizing Coastal Generation Fleet: Eliminating once-through ocean (OTC) cooling
- Repowering is currently on hold while LADWP conducts an OTC Study to provide a comprehensive reliability assessment to determine whether viable alternative hybrid clean energy solutions exist to maintain reliability

Forecasted RPS Generation

Five-Year Capital Improvement Plan (CIP): $7.83 Billion

Driven by the Power IRP, developed in conjunction with strategic plan goals:

- Safe and reliable electric service
- Cost competitive
- Environmental stewardship

Of $7.8 billion five-year CIP, $4.5 billion (57%) is cash funded and $3.5 billion (43%) is debt funded.

Board-adopted planning criteria targets maintaining debt-to-capitalization ratio of less than 68%.

*Includes the Power 2017 Series C Revenue Bonds
Financial Overview – Power System
Strong Operating Results & Financial Metrics

Prior to FY 2016, the Board Approved Financial Metric for Minimum Cash on Hand was $300 million.
Conservative Debt Profile

- $9.074 billion outstanding (including $200 million CP) payable from the Power Revenue Fund
- 83% of debt portfolio is long-term, fixed-rate bonds.
- 17% is a combination of VRDOs supported by bank facilities with staggered maturities, direct purchase, commercial paper, and a fixed rate note.
- No interest rate swaps or auction rate securities;

Power System Debt Repayment Profile*

*Debt repayment profile excludes $200 million commercial paper.

Power System Credit Ratings as of March 15, 2018

<table>
<thead>
<tr>
<th>Bond Ratings</th>
<th>Long-Term</th>
<th>Outlook</th>
</tr>
</thead>
<tbody>
<tr>
<td>Standard &amp; Poor’s</td>
<td>AA</td>
<td>Stable</td>
</tr>
<tr>
<td>Moody’s Investors Service</td>
<td>Aa2</td>
<td>Stable</td>
</tr>
<tr>
<td>Fitch Ratings</td>
<td>AA</td>
<td>Stable</td>
</tr>
</tbody>
</table>

Debt Composition

- Direct Purchase 2%
- VRDOs 10%
- Fixed Rate Note 3%
- Fixed Rate Bonds 83%
- CP 2%

Note: Debt outstanding As of January 1, 2018. Excludes interest subsidy for BABs and CREBs/QECBs.
LADWP Is Nation’s 2\textsuperscript{nd} Largest Municipal Water Utility

LADWP provides water service to the second most populous city in the U.S. ~4 million residents in 2017; 473 square miles

- Water System revenues of ~$1.12 billion in FY 2017
  - $418.0 million of operating income before depreciation
- Diverse and stable customer base
  - Broad-based economy
  - Top 25 non-governmental employers in LA County comprise about 6.4% of labor force
  - LA County per capita income is above national average
- Commitment to maintaining affordable rates

Water System FYE 2017 Sales

<table>
<thead>
<tr>
<th></th>
<th>Total Sales FYE 2017: 196 M of billing units of 100 CF</th>
</tr>
</thead>
<tbody>
<tr>
<td>Single Family Residential</td>
<td>72.6 37%</td>
</tr>
<tr>
<td>Multiple Dwelling Units</td>
<td>61.2 31.2%</td>
</tr>
<tr>
<td>Other</td>
<td>17.2 8.8%</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Water System Customers</th>
<th>Average Number of Customers</th>
</tr>
</thead>
<tbody>
<tr>
<td>Year Ending June 30</td>
<td>2017</td>
</tr>
<tr>
<td>Single-Family Residential</td>
<td>487,000</td>
</tr>
<tr>
<td>Multiple Dwelling Units</td>
<td>121,000</td>
</tr>
<tr>
<td>Commercial and Industrial</td>
<td>65,000</td>
</tr>
<tr>
<td>Other</td>
<td>7,000</td>
</tr>
<tr>
<td>Total</td>
<td>680,000</td>
</tr>
</tbody>
</table>

Source: Department of Water and Power of the City of Los Angeles
### Water System’s Goals

#### Commitment to Financial Stability
- Management & Board-adopted financial metrics
- Strong cash balances
- Consistently strong debt service coverage

#### Maintain Competitive Rates
- Cost adjustment factors designed to recover certain costs
- Utilize rate increases as appropriate
- Commitment to maintaining affordable rates

#### Maintain Diverse Mix of Water Sources
- Maintain sources from Los Angeles Aqueduct and Metropolitan Water District of Southern California
- Increased use of recycled water
- Clean-up and expand use of groundwater

#### Sound Asset Management Principles
- Maintain and upgrade infrastructure
- Ensure future reliability
Water System Draws From Diverse Water Resources Across the State

Source: Supply data based on unaudited FYE 2017 results
Long-Term Strategy to Diversify Water Supply Mix

Groundwater clean-up and local water supply projects expected to reduce expensive MWD water purchases by 50%

- **Groundwater Clean-Up**
- **Stormwater Capture Master Plan**
  - Master Plan completed in 2015
  - Additional 68,000 to 114,000 AFY captured over the next 20 years
- **Recycled Water Projects**
  - Augment water supply by 59,000 AFY by 2035

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**Water Supply FY 2013-2017 Average**
- MWD 66%
- LA Aqueduct 19%
- Groundwater 13%
- Recycled 2%

**Water Supply 2025 Target**
(Sustainable City pLAN)
- MWD 24%
- Local Sources, Including Storm Water Capture 50%
- Other 26%

Source: Department of Water and Power of the City of Los Angeles
Water Conservation

- Meeting Mayor’s goals
- State conservation targets
- Long-term view of water use

Note: Population was updated with 2010 US Census data.

Fiscal Year Ending June 30
LADWP has implemented an asset management program to address the long-term sustainability of its major facilities and infrastructure.

Focused on projects necessary to:
- Protect existing water supplies
- Comply with increasing water quality standards
- Expand and upgrade the distribution system
- Develop new water resources

Focused on diversifying funding sources:
- Internally generated funds
- Revenue bonds
- CA State Water Resources Control Board

Summary of Capital Improvements

Expected Funding Sources
($6.6 billion over 5 Years)

1. Consists of a portion of the proceeds of the 2018 Series A Bonds, a portion of previously issued Bonds, proceeds of additional Water System Revenue Bonds, and proceeds of additional loans from the State Water Resources Control Board
Prior to FY2016 the Board Approved Financial Metric for Minimum cash balance was $200 million.
Water System Conservative Debt Profile

- Includes $150 million note from Revolving Credit Agreement and $544.8 million of State Loans.
- No interest rate swaps or auction rate securities; VRDB bank facilities extended with staggered expiration dates from 2019 through 2021.

Water System Debt Repayment Profile*

<table>
<thead>
<tr>
<th>Fiscal Year</th>
<th>Principal</th>
<th>Interest</th>
</tr>
</thead>
<tbody>
<tr>
<td>2019</td>
<td>80</td>
<td>120</td>
</tr>
<tr>
<td>2023</td>
<td>160</td>
<td>240</td>
</tr>
<tr>
<td>2027</td>
<td>240</td>
<td>360</td>
</tr>
<tr>
<td>2031</td>
<td>320</td>
<td>480</td>
</tr>
<tr>
<td>2035</td>
<td>400</td>
<td>600</td>
</tr>
<tr>
<td>2039</td>
<td>480</td>
<td>720</td>
</tr>
<tr>
<td>2043</td>
<td>560</td>
<td>840</td>
</tr>
<tr>
<td>2047</td>
<td>640</td>
<td>960</td>
</tr>
<tr>
<td>2051</td>
<td>720</td>
<td>1080</td>
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*Excludes $150 million Note from Revolving Credit Agreement

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Note: Debt outstanding as of January 1, 2018. Excludes interest subsidy for BABs.

Total Debt: $5.245 Billion:
- Includes $150 million note from Revolving Credit Agreement and $544.8 million of State Loans.
- No interest rate swaps or auction rate securities; VRDB bank facilities extended with staggered expiration dates from 2019 through 2021.
# Bond Security Legal Protections

<table>
<thead>
<tr>
<th>Source of Payment:</th>
<th>Power</th>
<th>Water</th>
</tr>
</thead>
<tbody>
<tr>
<td>Power and Water revenue funds are separate funds established by City Charter in the City Treasury under the control of Board of Commissioners.</td>
<td>✓</td>
<td>✓</td>
</tr>
</tbody>
</table>

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<tr>
<th>Rate Covenant.</th>
<th>Power</th>
<th>Water</th>
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</thead>
<tbody>
<tr>
<td>Board sets rates and charges, subject to approval of City Council as mandated by City Charter, to provide revenues that together with other available funds shall be at least sufficient to pay debt service and operating and maintenance expenses.</td>
<td>✓</td>
<td>✓</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Additional Obligations.</th>
<th>Power</th>
<th>Water</th>
</tr>
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<tr>
<td>Adjusted net Income for any 12 consecutive months within 18 consecutive months ending immediately prior to issuance of Additional Parity Obligations shall be at least 1.25 times the Maximum Annual Adjusted Debt Service on all Parity Obligations including proposed bonds.</td>
<td>✓</td>
<td>✓</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Transfer to the City.</th>
<th>Power</th>
</tr>
</thead>
<tbody>
<tr>
<td>May not exceed the net income of the prior fiscal year or increase Power System debt to total capitalization to exceed 75%.</td>
<td>✓</td>
</tr>
</tbody>
</table>
LADWP Is Committed to Meeting Operational Needs and Financial Goals

• Diverse power and water sources
• Meet or exceed all regulatory commitments
  – Power: RPS, carbon reduction, other environmental
  – Water: quality, safety, sustainability, environmental
• Continue investing in Water and Power System reliability
• Maintain competitive retail rates and financial stability
• Improve customer service
Upcoming Financing Transaction

**Power System:** Up to $415.7 M refunding transaction in March 2018*

- Serial bonds maturing from July 1, 2019 – 2038
- Par call in 2028
- Expected to price the week of March 26, 2018

*Preliminary Subject to change