

Briefing Book 2017 - 2018



Putting Customers First





Mission Statement

*The Los Angeles Department
of Water and Power (LADWP)
provides our customers and the communities
we serve safe, reliable and cost-effective
water and power in a
customer-focused and
environmentally responsible manner.*

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Introduction

The Los Angeles Department of Water and Power (LADWP) is the nation's largest municipal utility, with a 7,880 megawatt (MW) electric capacity and serving an average of 438 million gallons of water per day to the 4 million residents of the City of Los Angeles, its businesses and visitors. For more than 100 years, LADWP has provided the city with reliable water and power service in a cost-effective and environmentally responsible manner. With a workforce of more than 9,000 employees, LADWP is guided by a five-member Board of Water and Power Commissioners, appointed by the Mayor and confirmed by the City Council. LADWP is a proprietary agency of the City of Los Angeles, with full responsibility for meeting the electric and water needs of city's residents and businesses.

Working together with the Mayor and City Council, LADWP is creating a clean energy future, planning for a more sustainable water supply, rebuilding aging infrastructure, and improving our customers' experience in all interactions. LADWP is aggressively working to reduce greenhouse gas emissions by expanding renewable energy, energy efficiency and other clean energy alternatives. Although winter 2016-2017 saw a record snowpack in the Sierra Nevada, ending the statewide drought, LADWP urges customers to continue making conservation a way of life. LADWP is also making progress on expanding local water supplies to reduce dependence on imported purchased water and help protect the city from future drought conditions.

Under the leadership of General Manager David H. Wright, LADWP developed a five-year Strategic Plan, "Putting Customers First," which provides the framework for implementing the key funding priorities of the 2016-2020 rate adjustments, which became effective in April 2016. These include:

- Ramping up the replacement of aging water and power infrastructure to ensure service reliability.
- Transforming power supplies to meet local and state clean energy and greenhouse gas emissions reduction mandates.
- Protecting the water supply from future drought through water conservation and local water supply development projects.
- Continuing to improve customer service and keeping rates competitive.

The Strategic Plan identifies LADWP's mission, vision, core values, five-year goals, and measurements of success. The plan will guide LADWP through an unprecedented, rapid transformation that is changing the way the utility has operated for more than a century. With measurable goals and performance targets for every aspect of our business, the plan aims to ensure accountability and transparency while putting customers first.

This Briefing Book, updated in August 2017, is designed to highlight the key initiatives over the past year, and help frame issues that drive the Department's operations, programs and policies.

LADWP Leadership



David H. Wright, General Manager

David H. Wright is the General Manager of the Los Angeles Department of Water and Power. A seasoned executive with nearly 30 years in the utility industry, Mr. Wright had worked at the Las Vegas Valley Water District and the Southern Nevada Water Authority as Chief Financial Officer. He also spent 25 years working for the City of Riverside, Calif. where he most recently served as the Public Utilities General Manager. He came to LADWP in February 2015 as the Senior Assistant General Manager of the LADWP's Power System. Shortly thereafter, he became the Chief Operating Officer, and was appointed General Manager by the Mayor in 2016.



Martin L. Adams, who has worked for LADWP for more than 30 years, was appointed Chief Operating Officer in September 2016. As COO, Mr. Adams oversees the Water and Power Systems, Fleet, Security Services and Landscaping. Most recently, Mr. Adams has been Senior Assistant General Manager of the Water System and has been involved in local and regional water issues throughout a career that has touched on just about every aspect of the Los Angeles water system, including planning, design and operation. Prior to serving as head of the Water System, he led the LADWP Water Operations Division, which is responsible for the day-to-day operation and maintenance of the city's water supply system. Mr. Adams also serves as Chairman of the Board of the new San Fernando Community Health Center and recently completed nine years on the Water and Power Board for the City of Burbank.



Board of Water and Power Commissioners



Board President Mel Levine was appointed to the Board of Water and Power Commissioners by Mayor Eric Garcetti and was confirmed by the City Council on September 11, 2013. He was elected President of the Board on October 1, 2013. Mr. Levine joined the international law firm of Gibson, Dunn & Crutcher as a partner in 1993. He retired as a partner in the firm in 2012 but continues to act as Counsel. He served as a member of the United States Congress from 1983 until 1993 and as a member of the California Assembly from 1977 to 1982.



William W. Funderburk Jr., Vice President, was appointed to the Board of Water and Power Commissioners by Mayor Garcetti and was confirmed by the City Council on September 11, 2013. He was reconfirmed for a second term on June 21, 2017. Mr. Funderburk is a founding partner of Castellón & Funderburk LLP, a business litigation boutique firm.



Jill Banks Barad was appointed to the Board of Water and Power Commissioners by Mayor Garcetti and was confirmed by the City Council on September 11, 2013. A recognized civic leader and businesswoman, Ms. Barad founded the Valley Alliance of Neighborhood Councils and has been a strong leader of the Neighborhood Council system in Los Angeles.



Christina Noonan was appointed to the Board of Water and Power Commissioners by Mayor Antonio R. Villaraigosa and confirmed by the City Council on August 10, 2010. She was re-appointed by the Mayor and then re-confirmed by City Council on August 12, 2011. She is a Senior Vice President of the real estate office, Jones Lang LaSalle's Los Angeles office.



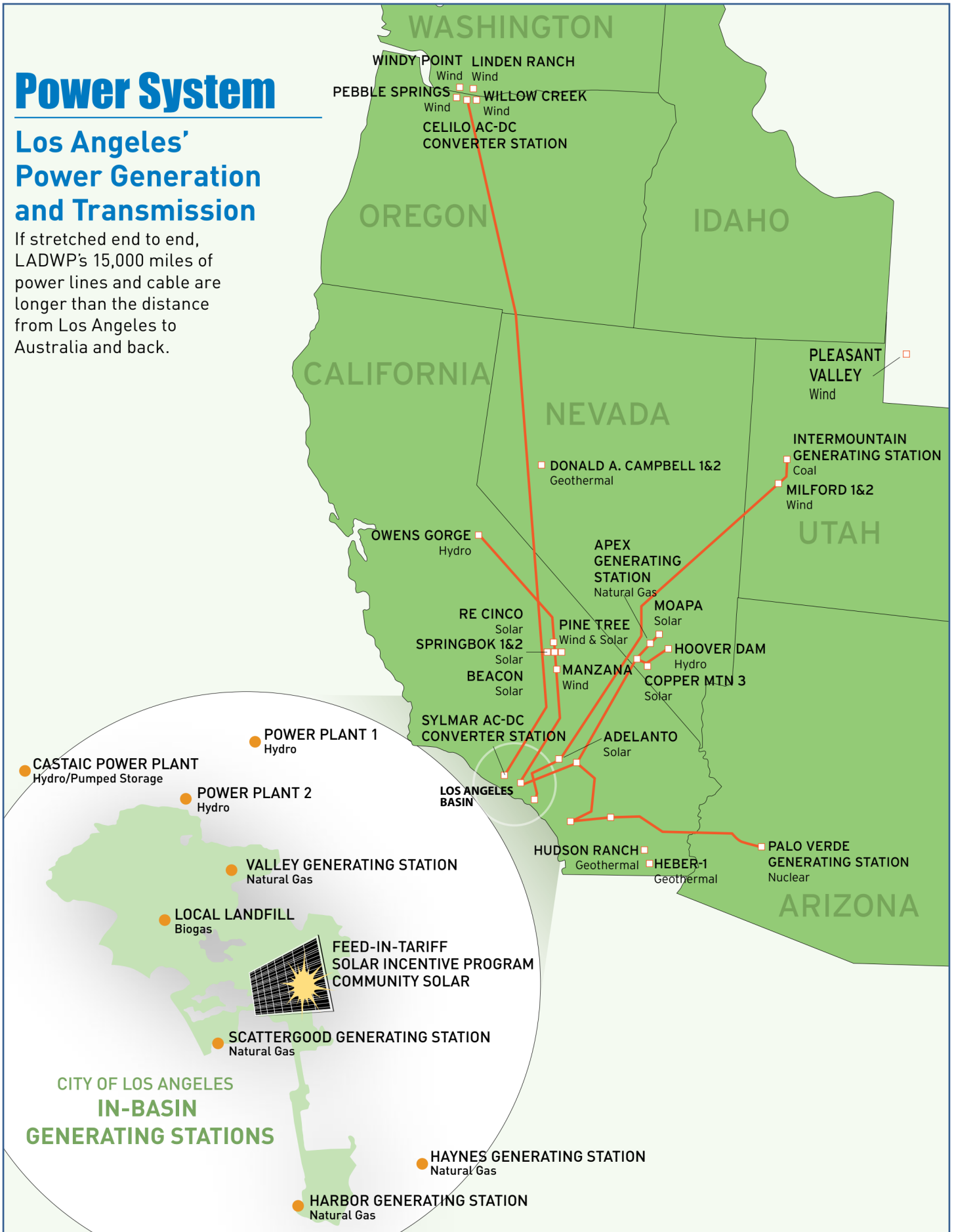
Aura Vasquez was appointed to the Board of Water and Power Commissioners by Mayor Garcetti and was confirmed by the City Council on May 3, 2017. Ms. Vasquez is an organizer, advocate, and activist for environmental and social justice issues with more than 10 years of experience in New York, Washington D.C. and California. A native of Colombia, she brings her experiences as a Latina immigrant, woman of color and successful environmental leader to many issues concerning frontline communities.



Power System

Los Angeles' Power Generation and Transmission

If stretched end to end, LADWP's 15,000 miles of power lines and cable are longer than the distance from Los Angeles to Australia and back.



Power System



Andrew C. Kendall
Senior Assistant General Manager -
Power System Construction, Operations
and Maintenance



Reiko Kerr
Senior Assistant General Manager -
Power System Engineering, Planning and
Technical Services

Power Facts and Figures

LADWP's Power System supplies more than 26 million megawatt-hours (MWh) of electricity a year for the City of Los Angeles' 1.5 million residential and business customers as well as over 5,000 customers in the Owens Valley.

Approved Budget

For fiscal year 2017-18, the Power System budget is \$4 billion. This includes \$1.1 billion for operations and maintenance, \$1.4 billion for capital projects, and \$1.5 billion for fuel and purchased power.

City Transfer

The Power System transfers 8 percent of its gross operating revenue (\$264 million was transferred in FY 2016-17 and \$242 million is estimated for FY 2017-18) to the City's General Fund each year to provide critical City services such as public safety.

Electric Capacity

LADWP has over 7,880 megawatts (MW) of generation capacity from a diverse mix of energy sources.

Power Resources (2016)*

Renewable energy.....	29%
Biomass & Biowaste.....	2%
Geothermal.....	5%
Small hydroelectric.....	2%
Solar.....	5%
Wind.....	15%
Natural gas.....	34%
Nuclear.....	9%
Large hydro.....	3%
Coal.....	19%
Unspecified purchased power.....	6%

*Percentages are preliminary pending final audits.

Power Use

Typical residential energy use per customer is about 500 kilowatt-hours (kWh) per month. Business and industry consume about 70 percent of the electricity in Los Angeles, but residents constitute the largest number of customers. The record instantaneous peak demand is 6,502 MW reached on August 31, 2017; the second highest peak is 6,430 MW reached on September 1, 2017.

Power Infrastructure

The Power System is responsible for inspecting, maintaining or replacing, and operating the following:

Generation

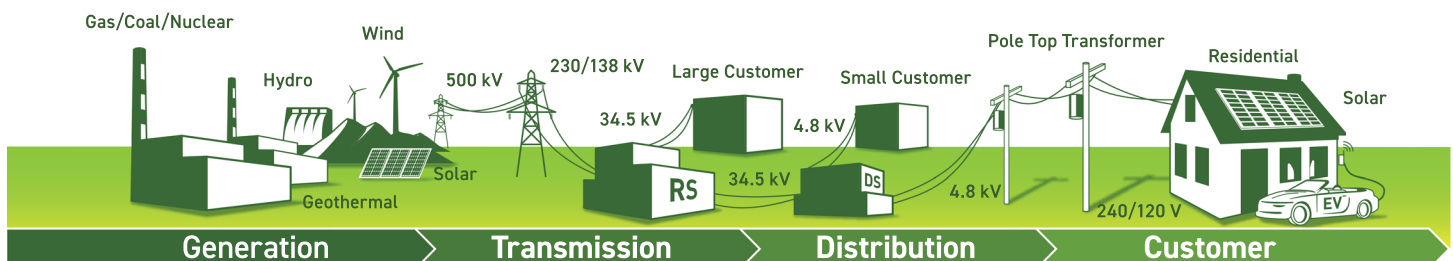
- 4 in-basin thermal plants
- 1 out-of-basin thermal plant
- 14 small hydroelectric plants
- 1 large hydroelectric plant
- 1 wind plant
- 2 solar photovoltaic plants

Transmission

- 3,507 miles of overhead transmission circuits (AC and DC) spanning five Western states
- 124 miles of underground transmission circuits
- 15,452 transmission towers

Distribution

- 6,752 miles of overhead distribution lines
- 3,626 miles of underground distribution cables
- 160 substations
- 50,636 substructures
- 308,523 distribution utility poles
- 3,166 pole-mounted capacity banks
- 1.28 million distribution crossarms
- 31,728 utilitarian streetlights
- 128,693 distribution transformers





Power Supply Transformation

LADWP is in the midst of a major power supply transformation, replacing more than 70 percent of its existing power supply as well as rebuilding and modernizing much of its aging power grid infrastructure used to reliably deliver power to its customers.

LA's clean energy future—a future with more efficient use of energy, expanded renewable energy, and zero coal—is being built right now through a complete transformation of LADWP's power supply. To transition to a clean energy future, LADWP is making unprecedented investments in:

- Coal Transition
- Energy Efficiency
- Renewable Energy
- Power Reliability
- Electric Transportation

All of these elements are essential to replacing coal power, reducing greenhouse gas emissions from power plants, and creating a clean energy future for LA.

Integrated Resource Plan

The Power Supply Transformation is guided by LADWP's Integrated Resource Plan (IRP), a roadmap for transitioning out of coal and reducing greenhouse gas emissions, while maintaining a reliable power supply, and doing so in a cost-effective manner. The IRP has been developed through a collaborative process and is updated every two years with input from customers and stakeholders.

The IRP balances key objectives of:

- Maintaining high level of service reliability
- Maintaining competitive rates
- Exercising environmental stewardship, including a reduced carbon footprint

➔ Go to www.ladwp.com/powerIRP to learn more.

Coal Transition

Legislative Requirement

The California Greenhouse Gas Emissions Performance Standard (SB 1368) sets a cap on the level of greenhouse gas (GHG) emissions from power imported into the state and requires California utilities to stop importing coal-fired power when current contracts or agreements for coal expire.

Coal Transition Strategy

The Power IRP calls for replacing coal power by increasing energy efficiency, expanding renewable energy, developing energy storage, and implementing demand-response measures. Where necessary, combined-cycle natural gas power—the cleanest technology available today for natural gas power generation—is used to offset variable renewable energy and to ensure reliability.

Recent Accomplishment

Coal Transition Progress

In July 2016, LADWP completed the sale of its share of Navajo Generating Station in Arizona to the Salt River Project and discontinued receiving energy from that plant. LADWP plans to stop receiving coal power from the Intermountain Power Project (IPP) by 2025, two years before the current agreement expires in 2027. LADWP is working with IPP partners in California and Utah to develop a smaller combined-cycle natural gas plant. Reducing the amount of power from IPP will also free up transmission capacity for more renewable energy from that region. The Navajo and IPP actions are major steps toward the transformation of LADWP's power supply to create a cleaner and more sustainable energy future for Los Angeles.

Prior to current climate change legislation, LADWP had reduced greenhouse gas emissions from its power generation by divesting of the Colstrip Generating Station, and shutting down Mohave Generating Station in December 2005.

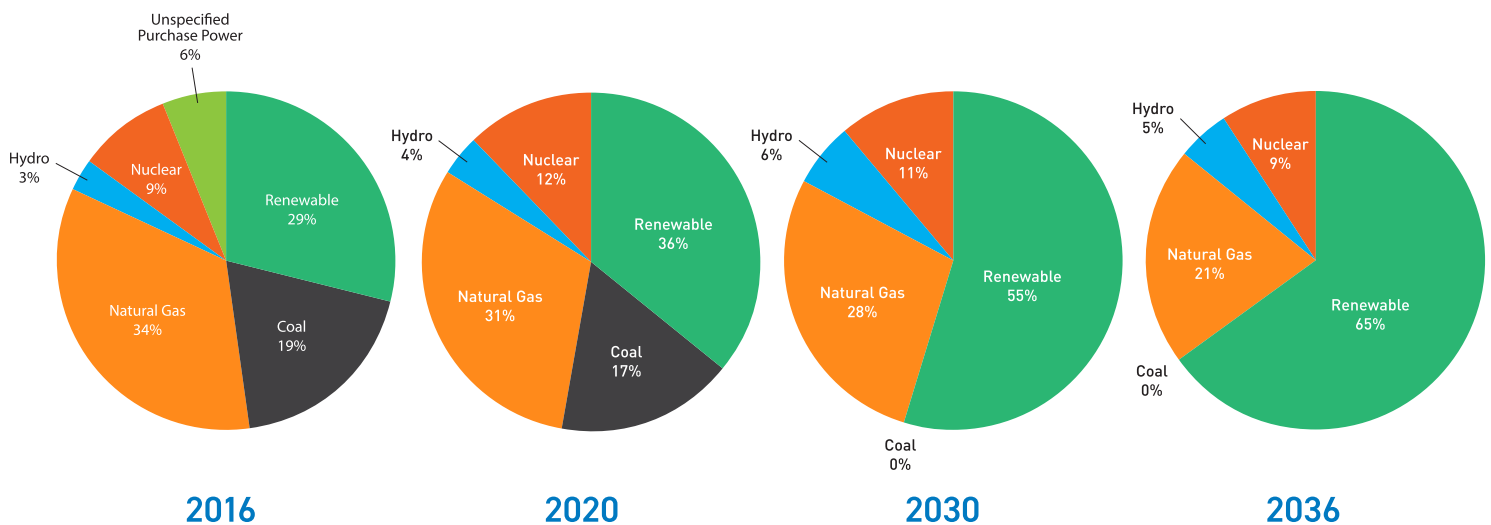
100% Renewable Energy Study

LADWP—working with city leaders along with representatives of business, the environment, and communities we serve—is investigating the feasibility of achieving 100 percent renewable energy for Los Angeles. Under the direction of the Mayor and City Council, LADWP is engaged in a 100 Percent Renewable Energy Study to determine what investments are required to achieve a 100 percent renewable energy supply. The study is being carried out by the Department of Energy's National Renewable Energy Laboratory in partnership with research universities, neighboring utilities, energy experts, businesses, and community and environmental groups, among others. The goal is to thoroughly investigate the feasibility of achieving 100 percent renewables and what that would mean for power system reliability. The study is a multi-year effort, with initial findings expected in approximately two years. The 100 percent Renewable Energy Advisory Group first convened in June 2017.

The analysis will include an in-depth study of how to reduce or replace LADWP's existing in-basin natural gas generating stations, which are currently vital to the reliability of the power system. It will be necessary to understand and evaluate the risks, investments, impacts on reliability, and proven technologies for achieving a 100 percent renewable energy supply. Possible alternatives to be evaluated include 100 percent fossil free and 100 percent GHG neutral scenarios. While moving toward that goal, LADWP must always balance the expansion of renewable energy with its mandate to provide customers with reliable electric service at competitive rates.

➔ Go to www.ladwp.com/CleanEnergyFuture to learn more.

LA's Future Power Supply Is Coal-Free



Power supply was reduced by 8 percent through energy efficiency savings in 2016. The 2016 percentages are estimates and may differ from final reporting to the CEC.

Energy efficiency is expected to account for 15 percent of power needs in 2020 and beyond.

Road To Renewables

Legislative Requirement

State law (SB2 (1X) and SB350), as recently interpreted by the California Energy Commission (CEC), requires that California utilities meet the following Renewable Portfolio Standard (RPS) levels:

- Maintain average of 20 percent between 2011 and 2013
- 25 percent by 2016
- 27 percent by 2017
- 29 percent by 2018
- 31 percent by 2019
- 33 percent by 2020
- 40 percent by 2024
- 45 percent by 2027
- 50 percent by 2030 and thereafter

Recent Accomplishment

RPS Goal Achieved

LADWP achieved 29 percent renewable energy (based on preliminary estimates) delivered to customers in 2016, and is on track to meet the next milestone of 33 percent by 2020.

LADWP's long-term targets are more aggressive than state legislation. Although SB350 calls for 50 percent renewables by 2030, the 2016 IRP recommends 55 percent by 2030 and 65 percent by 2036.

RPS Expansion Policy

As LADWP expands its renewable resource portfolio, it is important that it do so in a cost-effective manner to minimize the impact on ratepayers. Some of the key considerations in selecting these resources include:

- Costs and operational impact of integrating renewables
- Technologies that deliver more energy during peak hours
- Preference for local projects
- Locating projects near existing transmission and other LADWP assets such as land and power infrastructure
- Diversification of resources

Recent Accomplishment

Barren Ridge Renewable Transmission Project

LADWP completed and placed into service the Barren Ridge Renewable Transmission Project (BR RTP) in September 2016, providing additional power transmission capacity to access vital wind and solar resources that are necessary to help meet the RPS goals. Spanning 62 miles across Kern and Los Angeles Counties, this critical transmission line enables LADWP to deliver 1,000 MW of additional power from the Tehachapi Mountains and Mojave Desert areas to Los Angeles, including energy generated from Beacon Solar, Springbok 1, 2 and 3 Solar, RE Cinco solar, the Pine Tree wind and solar facilities and LADWP's small hydroelectric plants along the Los Angeles Aqueduct, with more renewable projects in the planning stages.

The BR RTP also increased the transmission capacity to the Castaic Pump Storage Power Plant, providing enhanced operational flexibility and integration of variable renewable energy.

Components of the BR RTP include:

- New Haskell Canyon Switching Station
- New double-circuit 230-kV transmission line from the Barren Ridge Switching Station to the new Haskell Canyon Switching Station
- Expansion of Barren Ridge Switching Station

Utility-Scale Solar

By the end of 2016, LADWP had completed connections with approximately 900 MW of utility-scale solar, and additional projects are slated to come online in 2017. Following are the most recent projects completed or under construction.



Moapa Southern Paiute Solar Project

Recent Accomplishment

Beacon Solar Project - 250 MW

The 250 MW Beacon Solar Project is strategically situated adjacent to the Barren Ridge Switching Station in Kern County and accesses the newly completed BR RTP. LADWP purchased the land already permitted for building ground-mounted solar photovoltaic systems and made five sites available for large-scale solar under contracts to build the project and sell the power to LADWP. Two of the sites were completed and placed into service in December 2016, helping LADWP meet the 25 percent RPS goal. A third site was completed in May 2017. The remaining two sites will be in operation by the end of 2017.

Recent Accomplishment

Springbok Solar Projects 1 and 2 - 260 MW

Los Angeles began receiving 260 MW of clean sun power from the Springbok 1 and 2 projects, placed into service in July and September 2016 respectively. Springbok Solar is also located in the Mojave Desert and accesses the BR RTP. In 2016, the LADWP Board approved the next phase of the project—Springbok 3—which will generate 90 MW when completed in early 2019.

Recent Accomplishment

RE Cinco Solar Project - 60 MW

In addition to Beacon and Springbok solar projects, the RE Cinco Solar Project was completed and began delivering solar energy in August 2016. RE Cinco provides Los Angeles with 60 MW of clean solar power.

Recent Accomplishment

Moapa Solar Project - 250 MW

The Moapa Southern Paiute Solar Project, located on the Moapa River Indian Reservation in Clark County, Nev., began sending 250 MW of solar power to Los Angeles residents and businesses in December 2016. The facility generates enough clean energy for nearly 111,000 Los Angeles homes, offsetting over 341,000 metric tons of carbon emissions from a traditional power plant. That amount of carbon emissions is equivalent to removing about 73,000 gasoline vehicles from the road for one year. The facility is the first utility-scale solar power plant to be built on tribal land, and provides solar energy to Los Angeles through a 25-year power purchase agreement.

the Northern Nevada Geothermal Portfolio Project, which will be developed by ONGP LLC, a subsidiary company of Ormat Technologies, Inc. based in Reno, Nevada.

The 26-year power sales agreement provides renewable energy from a portfolio of geothermal facilities that will be brought online over three development periods. The first facility is expected to provide 24 MW of power by December 31, 2017, and subsequent development will bring the remainder in commercial operation by December 31, 2022.

Recent Accomplishment

Hudson Ranch 1 Geothermal - 55 MW

In July 2016, with completion of the sale of Navajo Generating Station to the Salt River Project, LADWP began receiving 55 MW of geothermal energy from the Hudson Ranch Geothermal Project, located in the Imperial Valley. LADWP acquired the rights to the Hudson Ranch geothermal power from Salt River Project as part of the sale of Navajo Generating Station.

New Geothermal Projects

Recent Accomplishment

Northern Nevada Geothermal Project - 150 MW

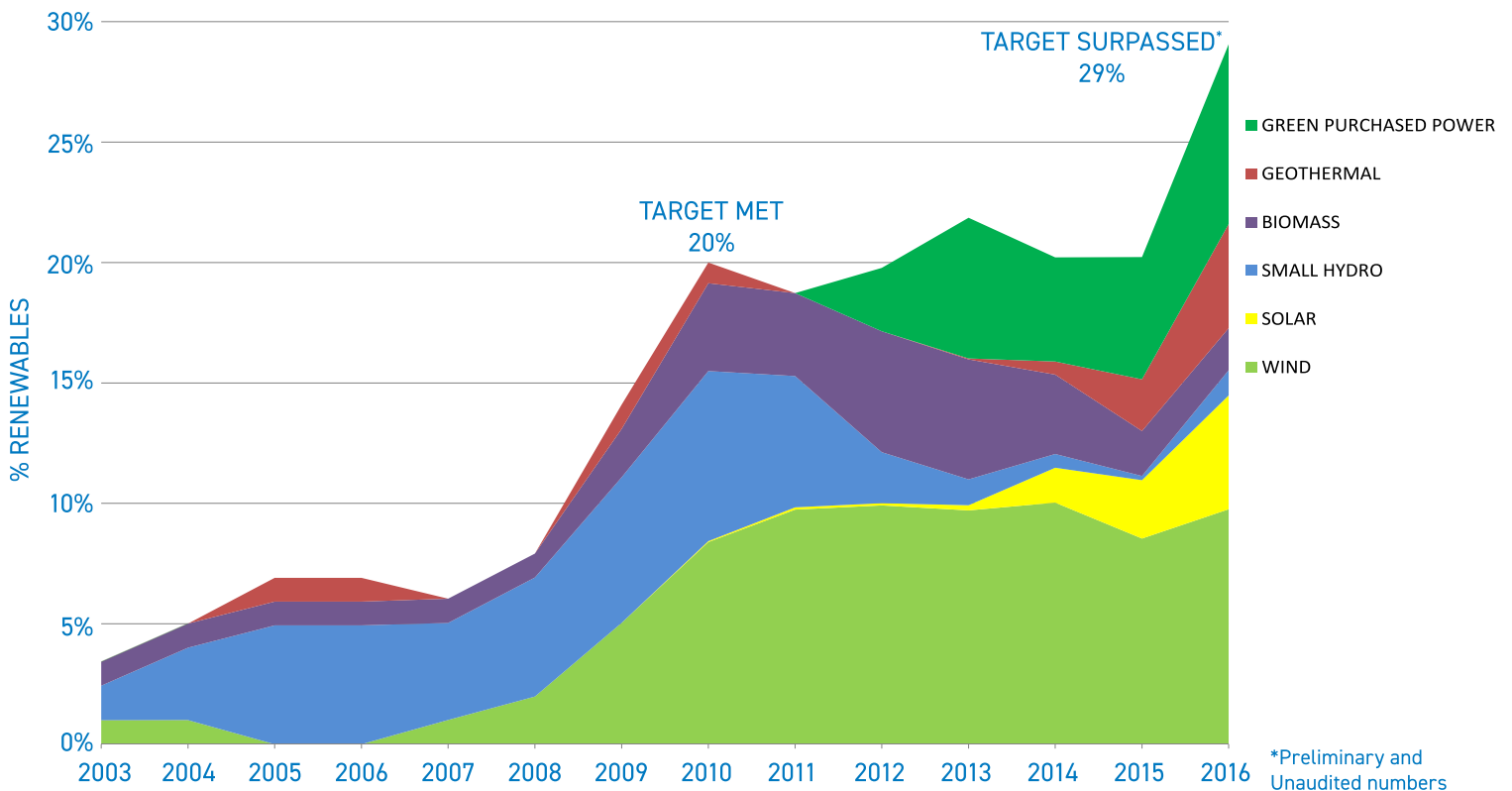
Approved by the Mayor and City Council in May 2017, an agreement between LADWP and the Southern California Public Power Authority (SCPPA) will provide Los Angeles with about 150 MW of clean, around-the-clock renewable energy from

Recent Accomplishment

Ormesa Geothermal - 30 MW

A power purchase agreement for a new geothermal plant—Ormesa Geothermal—was approved by the Board of Water and Power Commissioners in June 2016. The Ormesa project, developed in partnership with the Imperial Irrigation District in Imperial Valley, will provide LADWP customers with 30 MW of renewable power. Ormesa Geothermal is expected to be placed in service by November 30, 2017.

Increasing Renewable Energy



Local Solar Programs

A key element of LADWP's renewable energy program is the development of local solar, particularly customer-based programs that tap into the city's abundant sunshine and provide residents and businesses with the ability to generate their own power.

Local solar projects help to meet LADWP's renewable energy targets and reduce the carbon footprint created by fossil fuel-burning power plants. Solar also brings economic benefits for Los Angeles as a catalyst for creating jobs and stimulating the green economy. Local solar projects support the reliability of LADWP's power grid. They are "distributed generation," functioning like mini power plants that generate energy right where it is being used.

LADWP now offers three local solar programs: the Solar Incentive Program (SIP), the Feed-in Tariff (FiT) Program, and the pilot Community Solar Program (CSP), which launched in late 2016.

Solar Incentive Program

LADWP has been helping residential and business customers to go solar since 1999 through SIP, which offers a one-time rebate to offset the cost of installing a solar rooftop system on a customer's home or business.

Legislative Requirement

In September 2007, LADWP revised its original SIP guidelines to comply with SB1, the California Solar Initiative. Under this requirement LADWP committed to provide \$313 million to support solar photovoltaic (PV) projects through 2016, with a goal of achieving 280 MW of solar PV by the end of that period.

Recent Accomplishment

Solar Achievements

At the end of 2015, Los Angeles led the nation in installed solar capacity as one of America's "Shining Cities 2016" by Environment America. In 2016, LADWP received an award from Smart Electric Power Alliance (SEPA), placing fifth in the nation in annual megawatts installed and surpassing larger investor owned utilities in the country.

As of December 31, 2016, LADWP had paid \$298 million to customers in solar incentives. This amount included \$55 million paid to customers prior to implementing the SB1 required program, and \$243 million under SB1. There are over 26,000 customer-installed solar systems connected to the grid. This represents 187 MW of solar capacity and generates 308,000 MWh per year.

Program Extended and Streamlined

Per SB1 legislation, the 10-year solar program was scheduled to end on December 31, 2016. But the LADWP Board agreed to extend the life of the program until all remaining incentive

funds—\$15 million—have been paid as solar incentives to customers.

A new streamlined SIP has replaced the prior SB1 program, effective January 3, 2017. The new program includes a revised residential customer incentive rate, a cap on incentives for commercial customers, a simplified application process, and more flexible reservation terms for commercial projects, among other changes.

→ Go to www.ladwp.com/solar to learn more.

Feed-in Tariff Program

Legislative Requirement

State legislation SB1332 requires utilities to provide a Feed-in Tariff (FiT) program that enables third parties to develop solar power, or other renewable energy, to sell to the utility. LADWP's share of the statewide program is 75 MW.

Overview

LADWP operates the nation's largest municipal FiT program, aiming to provide up to 150 MW—double the state requirement—to expand solar power in Los Angeles and boost the local economy. The FiT program allows third parties to enter into an agreement with LADWP to develop solar or other renewable energy and sell it to LADWP for distribution on the grid. The FiT program provides opportunities to solar developers within LADWP's service territory, and helps LADWP to meet state-mandated renewable energy targets.

The program, which evolved through external meetings and discussions with over 500 stakeholders, began as a 10 MW pilot program in 2012. Since 2013, LADWP has offered a set-pricing program for 100 MW of renewable projects, which provides a fixed price for allocations of 50 MW. The program was relaunched with a reoffer of 65 MW and new guidelines in mid-2017. LADWP also provided a 50 MW FiT program that bundled local solar installations with an LADWP utility-scale solar project in the Mojave Desert.



A FiT project at the U.S. Postal Service in South Los Angeles

FiT Achievements

As of April 2017, the FiT programs altogether achieved 41 solar projects totaling 36.2 MW in service. The energy produced from these projects is enough to supply about 10,500 homes.

Recent Accomplishment

FiT50 Projects

Four separate rooftop solar projects, generating 10.6 MW, were completed and energized by April 2017 on a U.S. Postal Service warehouse and carports in South Los Angeles. The projects were originally part of the FiT50 Program, bundled with the utility-scale Beacon Solar Project in the Mojave Desert. Another FiT50 solar project, called the Westmont project, was completed in June 2017 on a warehouse in the Harbor area, and will generate 15.6 MW (16.4 MW-DC). Comprised of six separate solar rooftop systems with 2 million square feet of solar panels, the Westmont project is the most powerful FiT project in the world.

Recent Accomplishment

Owens Valley FiT Projects

The first solar FiT projects in the Owens Valley began operating in December 2016. Comprised of two separate metered systems, the Owens Valley projects generate a combined 4 MW of solar power serving the Owens Valley. The ground-mounted projects, located just outside the town of Olancho, took several years of planning, design and construction to complete.

→ Go to www.ladwp.com/FiT to learn more.

Recent Accomplishment

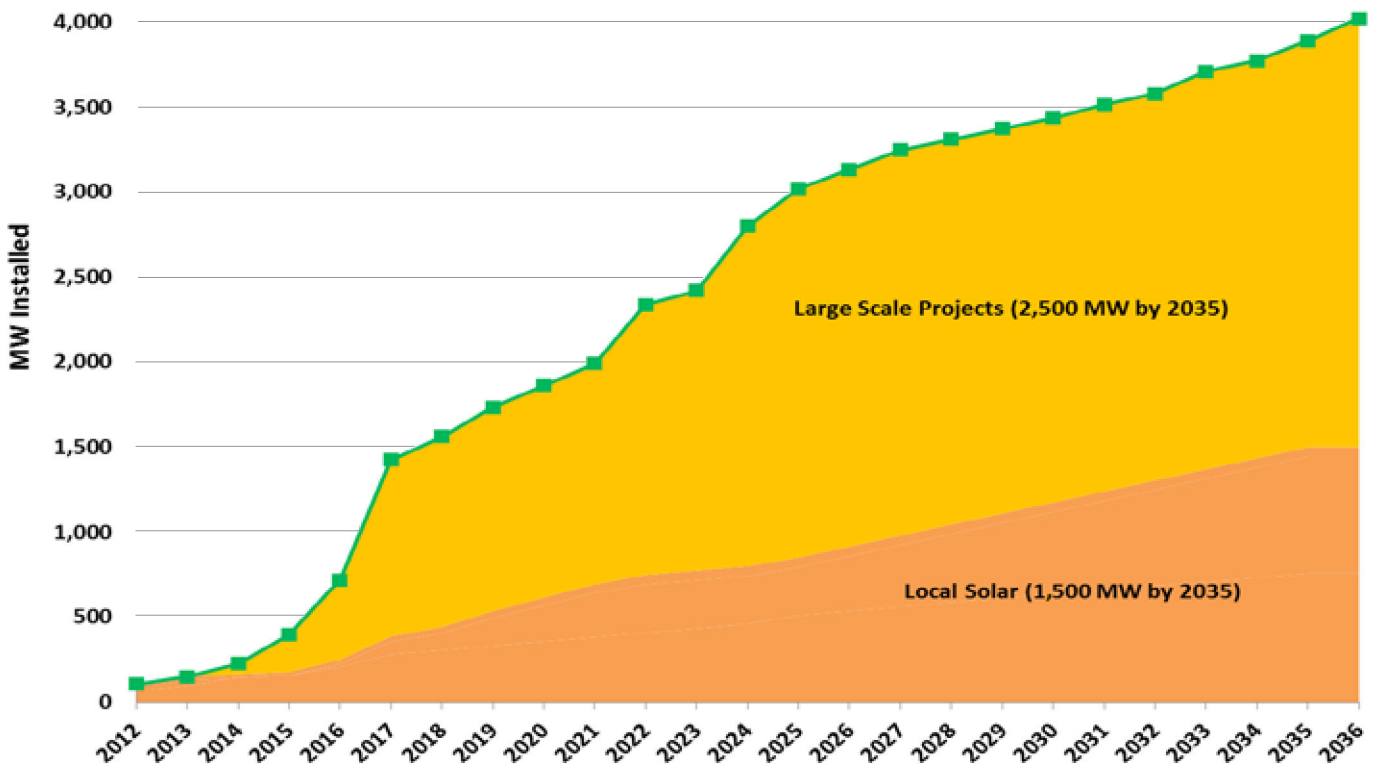
Community Solar Program – Solar Rooftops

In February 2017, LADWP launched Solar Rooftops, a Community Solar Program (CSP) designed to expand access to solar savings for LADWP residential customers who otherwise may not be able to go solar because of the high cost of installing panels. Solar Rooftops is a pilot program open to qualifying residential homeowners on a limited basis in LADWP's service territory. Solar Rooftops is another step toward providing clean, efficient and sustainable sources of energy to customers, including those in underserved communities.

The pilot aims to install solar panels on approximately 400 Los Angeles rooftops over a three-year period, and will create local jobs through LADWP's Utility Pre-Craft Trainee (UPCT) Program, which gives trainees valuable experience in solar installation. There are no up-front costs to customers, no credit checks are required, and LADWP will be responsible for operation and maintenance of the solar panels.

→ Go to www.ladwp.com/csp to learn more.

LADWP Solar Program Forecast



Modernizing Local Power Plants Regulatory Issue

Once-Through Cooling (OTC) is the process of drawing ocean water and pumping it through a generating station's cooling system, then discharging it back into the ocean. The impact of OTC on ocean habitat is governed by the Federal Clean Water Act Section 316(b), administered by the State Water Resources Control Board (SWRCB), which developed a statewide policy in 2010 to reduce or minimize the impact of OTC on marine life.

To comply with the OTC regulation, LADWP is required to eliminate the use of ocean water for cooling at its three coastal power plants—Scattergood, Haynes and Harbor Generating Stations—by 2029 under an extended timeline negotiated with the regulatory agencies.

LADWP originally planned to meet the OTC requirement while also rebuilding and modernizing these older power plants to improve fuel efficiency, increase their flexibility to adjust to variable renewable energy, and maintain in-basin reliability. LADWP has completed the first two modernization projects at Haynes and Scattergood Generating Stations. LADWP must eliminate OTC at Scattergood Units 1 and 2 by the end of 2024,

and subsequently at five units located at Haynes and Harbor generating stations by 2029. The long-term program was estimated to cost about \$2.2 billion.

Reliability Challenge

Both solar and wind energy contain significant intra-hour variability depending on whether the sun is shining or the wind is blowing. This creates a "ramping challenge" when relying on solar and wind energy alone. This is a challenge facing not only LADWP but utilities throughout the state as they strive to achieve California's renewable energy goals.

LADWP uses local natural gas plants to meet system reliability requirements by providing sufficient ramping power (also called "dispatchable" power). Newly built gas-fired units at Scattergood and Haynes Generating Stations are designed with a combination of cleaner combined-cycle technology and peaking turbines. All the new units have much faster start-ups than the dinosaurs they replaced. In particular, the peaking turbines are like jet engines, ramping up to full power within 10 minutes. They are fired up to maintain reliability when solar energy falls away later in the day, clouds block the sun, or wind dies down, and during hot summer days when electricity is in high demand by customers.



Reassessing Repowering Projects

As part of our effort to create a clean energy future for Los Angeles, LADWP has undertaken an independent, third-party study (OTC Study) that will determine the need for modernizing the older generating units that still operate with once-through cooling. Through the study, LADWP will explore developing alternative energy projects that incorporate solar power with energy storage, and other solutions that are environmentally responsible while ensuring reliability.

The analysis will also consider the cost and feasibility of expanding transmission to bring more renewables from outside the LA basin to the areas served by Scattergood, Haynes and Harbor stations, along with developing alternative energy storage solutions. The study will address such issues as:

- Adequacy of power resources
- Local transmission system reliability
- Ability to meet federal and regional reliability standards
- Ability to maintain and balance local generation while integrating renewable energy
- Potential mitigation measures and practical alternatives along with impact on the environment and local communities
- Necessary investments and impact on rates

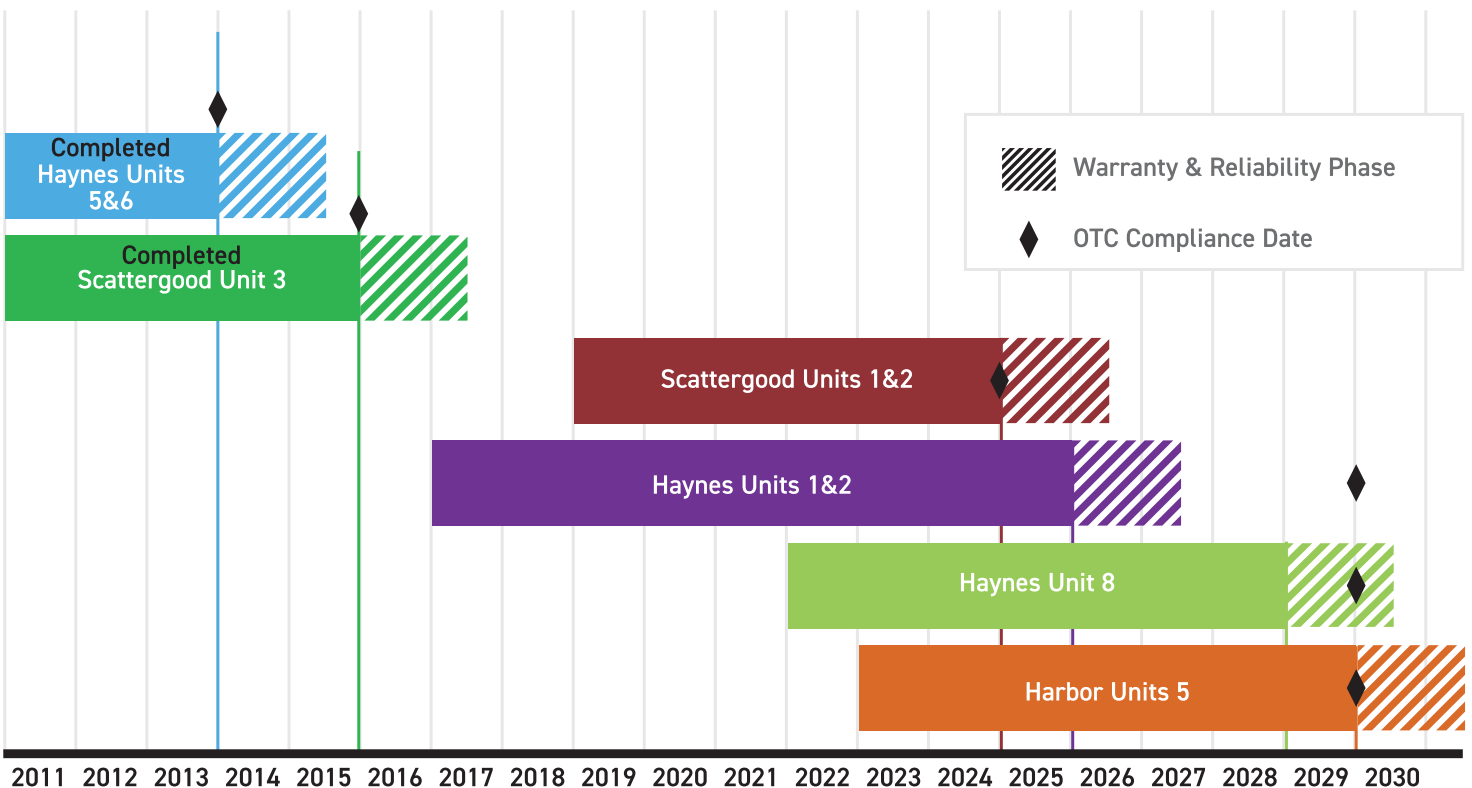
Recent Accomplishment

Scattergood Unit 3 Decommissioning

In early 2017, LADWP began an 18-month project to dismantle Scattergood Generating Station Unit 3, in compliance with South Coast Air Quality Management District regulations, that require the existing Unit 3 to be fully disabled. Scattergood Unit 3 was removed from service in December 2015 after LADWP completed the first phase of modernizing the plant in Playa Del Rey. The original 1970s-era conventional steam turbine was replaced with 533 MW of a highly efficient gas-fired generation system consisting of a combined cycle system (natural gas and steam), reducing emissions by 33 percent, and two quick-start turbines that can ramp up within 10 minutes from cold iron to full power.

The Scattergood project has also reduced harmful impacts on marine life by replacing ocean cooling with an advanced air-cooling system. The flow of ocean water through Scattergood generating units has declined by over 54 percent, from approximately 495 million gallons per day (MGD) in 1990 to 224 MGD as of December 31, 2015.

Timeline for Meeting OTC Requirements



Investing in Energy Efficiency

Legislative Requirement

Under AB 2021, publicly-owned utilities such as LADWP must identify, develop and implement programs for all potentially achievable, cost-effective energy efficiency savings and establish annual targets.

Transformation Element

Recognizing energy efficiency is a key element in the power supply transformation and aligning with the State legislation, LADWP has increased its goal to 15 percent cumulative energy savings by 2020, based on the most recent potential study completed in 2014. The new cumulative energy savings target, covering a 10-year period through 2020, is equivalent to powering about 61,500 homes annually. An updated potential study is expected to begin in summer 2017.

Increased Investment

To achieve the 15 percent energy reduction goal by 2020, LADWP has significantly increased investment in energy efficiency over the past five years. Energy efficiency will continue to be a higher funding priority, augmented through the 2016-2020 rate increases.

Guiding Principles

LADWP applies the following guiding principles for launching new and redesigned energy efficiency programs:

- Promoting energy efficiency programs for all customer sectors
- Targeting “hard-to-reach” customers (i.e. low-income residents, small businesses)
- Achieving tangible economic benefits for low-income customers
- Leveraging programs to support jobs for local workforce
- Working collaboratively with partner agencies on outreach and education, and to reach a broad and diverse customer base through a Southern California Gas Co. (SoCalGas) partnership
- Operating transparently and reporting results regularly

Southern California Gas Co. MOU

LADWP and SoCalGas continue a unique public-private partnership that has expanded the reach of efficiency programs for both LADWP and SoCalGas customers. To date, 19 joint programs have been launched and several others are under development, or being considered.

Recent Accomplishment

Energy Savings

As of March 2017, LADWP energy efficiency programs saved 325,987 MWh cumulatively for the year. That amount of energy savings is comparable to offsetting electricity used by 54,330 homes and reducing greenhouse gas emissions by 369 million

pounds for the year, which also equates to about 35,868 gasoline fueled cars being removed from the road.

Recent Accomplishment

Save Energy LA Campaign

During the summer of 2016 and 2017, LADWP partnered with the Mayor’s office in a major media campaign to help customers cut energy use, save on their electric bills, protect the environment, and conserve electricity during hot summer days to protect against outages. The “Save Energy LA” campaign spread the word through ads in bus shelters, bus benches, DASH buses, and in print, television, social media, and direct email blasts. Customers are encouraged to watch out for hot weather forecasts and comply with Flex Alerts.

Recent Accomplishment

LED Distribution

In 2016, LADWP delivered two free LED bulbs to 1.2 million residential customers as part of the city’s “Save Energy LA” campaign. The program is expected to result in 1,640 gigawatt-hours (GWh) of energy saved and up to \$246 million in customer bill savings over the lifetime of the LED bulbs. Additionally, the avoided cost of producing energy is estimated to be \$146 million, representing a lifetime return on investment for this program to LADWP of almost 10 to 1.



➔ Go to www.ladwp.com/energyefficiency for more detailed information about Efficiency Solutions programs.

Greenhouse Gas Reductions

Legislative Requirements

In 2006, California Assembly Bill 32 (AB 32), the California Global Warming Solutions Act of 2006, established a target of reducing statewide greenhouse gas emissions back to 1990 levels by 2020. In 2016, California Senate Bill 32 (SB 32) established a new target to reduce statewide greenhouse gas emissions 40 percent below 1990 levels by 2030. In 2017, California Assembly Bill 398 (AB 398) authorized extension of California’s cap-and-trade program for reducing greenhouse gas emissions to 2030. Also in 2017, the California Air Resources Board amended its cap-and-trade regulation to include amendments for the 2021-2030 period, allowing for the continued allocation of allowances to electric utilities, based on projected emissions for the 2021-2030 period. This will allow revenues generated through customer rates to be invested in renewable energy and energy efficiency projects, assist in meeting environmental goals, minimize costs to utility customers, and protect low-income and disadvantaged communities.

LADWP’s efforts to stop importing coal power are governed by SB 1368, which established a GHG emissions performance standard at the level of, or below, the emissions rate of gas-fired combined cycle units. Although changes in greenhouse gas

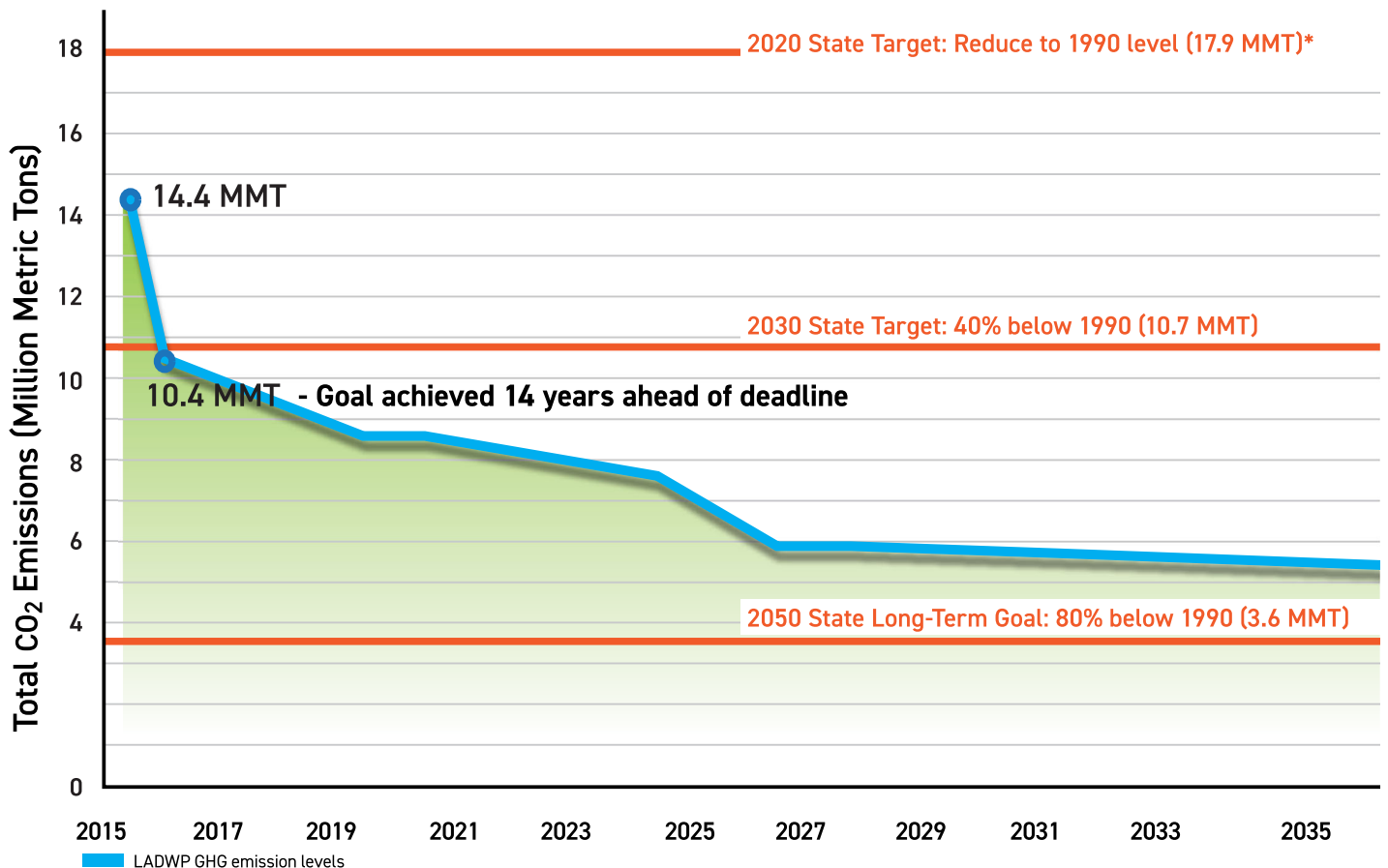
policy—such as the possible repeal of the Clean Power Plan—are occurring at the federal level, the State of California and City of Los Angeles remain leaders in addressing climate change. The City of Los Angeles released its first-ever Sustainable City pLAn in 2015, with a vision to reduce GHG emissions by 45 percent below 1990 levels by 2025, 60 percent below 1990 levels by 2035, and 80 percent below 1990 levels by 2050.

Progress in GHG Emissions Reduction

LADWP’s 1990 baseline for GHG emissions is 17.9 million metric tons (MMT). By divesting of Navajo Generating Station in 2016 and using greater amounts of renewables and other low GHG emission generating resources, LADWP’s estimated 2016 GHG emissions were approximately 42 percent below its 1990 emissions baseline, exceeding the state-legislated target 14 years earlier than required by SB 32. LADWP expects to reach 63 percent below 1990 emissions levels by 2027 after eliminating coal power produced by IPP.

Even prior to climate change legislation, LADWP had been moving away from coal-fired power. LADWP achieved significant GHG emissions reductions due to the shutdown of the Mohave Coal Power Plant in 2005, ongoing modernization projects that began in the 1990s, and expansion of renewable resources.

LADWP GHG Emissions Levels Beat State Targets



*LADWP emissions have been below the 1990 level since 2002 (16.4 MMT), 18 years ahead of 2020 state target.

In 2025, LADWP will have reduced CO₂ emissions by 9.8 million metric tons, compared to the 1990 baseline level, equivalent to removing 2.1 million cars from the highway.

Power Reliability

An ongoing priority for LADWP's Power System is the need to upgrade or replace critical aging power infrastructure to ensure continued reliability for its customers. With approval of increased investments through rate adjustments from 2016 to 2020, LADWP is ramping up the replacement of distribution infrastructure, such as poles, transformers, overhead circuits and underground cables.

The majority of LADWP's 308,500 power poles were installed during the city's rapid growth—1940s through 1960s—and have reached the end of their useful lifespan of 60 years. For example, if LADWP were to replace 5,000 poles a year, it would take over 25 years to replace all of the poles older than 60 years. During that time another 110,000 poles will become 60-plus years old, which would take another 22 years to replace. While not all poles over 60 years of age need to be replaced, some newer poles may need to be replaced due to other factors.

Power System Reliability Program

To address the problem of aging infrastructure, LADWP has: 1) expanded the original Power Reliability Program (PRP) to encompass all major functions of the power system, including generation, transmission, substation, and distribution; 2) cost effectively prioritized reliability expenditures; 3) accelerated the replacement of aging power system equipment; and 4) initiated a process to use contractors to assist in replacing aging poles and cables.

Recent Accomplishment

Inspection Program

LADWP has stepped up inspections of all power infrastructure to proactively identify issues in need of corrective action. LADWP has about 63,000 "fix-it tickets" in the queue. These "fix-it tickets" have grown in relation to LADWP's more proactive approach to inspections. They include all infrastructure repair jobs, ranging from a broken cross-arm to an abnormal circuit. In FY 2016-17, LADWP crews completed repairs on more than 8,000 jobs—2,000 more than completed in FY 2015-16 and historically the most repairs completed in one year.

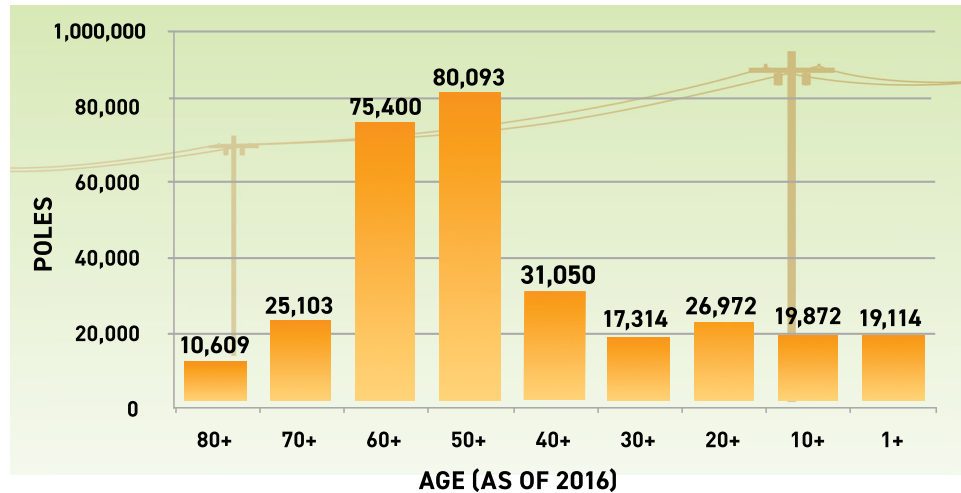
Aliso Canyon Natural Gas Facility

Following a moratorium on new injections of gas at the Southern California Gas Co.'s Aliso Canyon Natural Gas Facility resulting from the major gas leak in October 2015, LADWP continues to take all proactive measures possible to mitigate the need for emergency natural gas to keep electricity flowing in Los Angeles. In 2016, no gas curtailment occurred that caused LADWP to take emergency measures or reduce power to any customers. During the summer of 2017, LADWP will continue efforts to ensure reliability through mitigation measures, such as operational changes to reduce the need for natural gas generation, energy efficiency and demand response programs targeting large commercial and industrial customers, and participating in regional outreach to promote saving energy during peak demand periods.

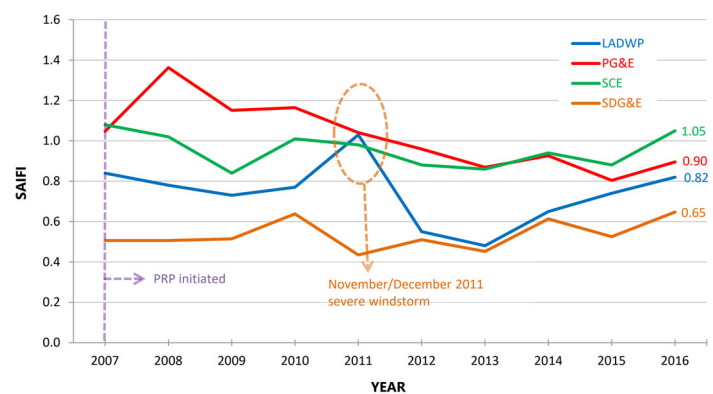
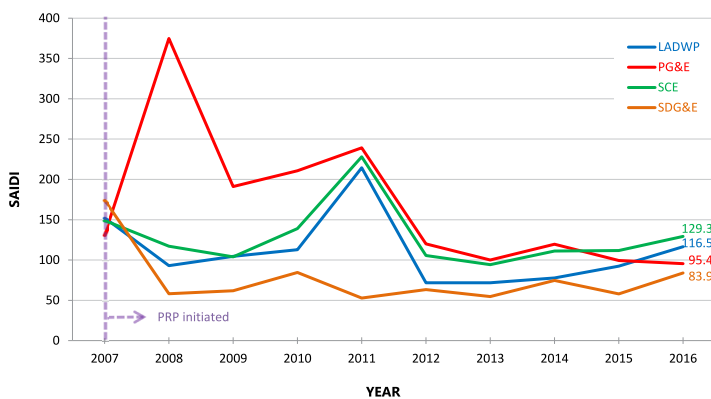


Work progresses on the installation of the Scattergood - Olympic Transmission Power Line Project.

LA's Power Poles are Aging Rapidly



How Power Reliability Measures Up



SAIDI (system average interruption duration index) measures the amount of time the average customer experienced a sustained outage in a given year.

SAIFI (system average interruption frequency index) shows the number of times the average customer experienced an outage for more than five minutes in a year.

Electric Transportation

LADWP is a leader in fostering electric vehicle (EV) technology. The benefits of electrification include reducing the city's carbon emissions, saving costs for drivers because charging up vehicles is less expensive than gas, and helping integrate renewable energy into the LADWP power grid.

Recent Accomplishment

Charge Up LA! Rebate Program

To encourage Angelenos to buy or lease an electric vehicle, LADWP offers the "Charge Up LA!" EV Charger Rebate Program for residential, commercial and public agency customers.

In February 2016, the Board of Water and Power Commissioners renewed the program with a higher rebate for commercial customers—up to \$4,000 per installed charger—to foster more widespread installation of EV charging stations at large businesses for their own employees, as well as small businesses and multi-family buildings. The goal is to build confidence among EV drivers that they can travel farther from home without fear of running out of power.

The program, which will run through June 2018, continues offering rebates of up to \$500 to residential customers for the first home charger and an additional \$250 if the customer installs a dedicated electric submeter for charging an EV.

From 2013 through May 2017, the program has provided close to \$1.45 million in rebates for residential and commercial charging stations, as well as EV submeters for residential customers.

Recent Accomplishment

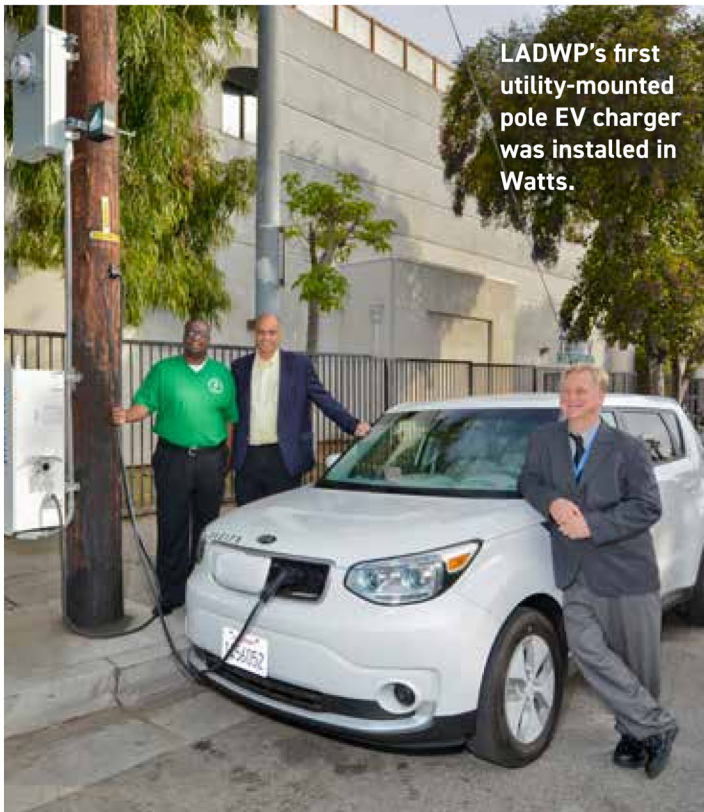
Public Charging Stations

LADWP has installed over 400 Level-2 chargers located at LADWP facilities and other City of Los Angeles property, as well as at private, publicly accessible locations. LADWP has also installed 14 DC fast chargers at publicly accessible locations. LADWP continues to assist other City facilities, such as libraries, the airport, and police stations, with the installation of an additional 200 public chargers. Altogether, there are over 1,000 publicly available chargers in Los Angeles. LADWP has a five-year goal of installing 10,000 commercial EV chargers across the city, and 4,000 EV chargers on City-owned property.

Recent Accomplishment

Plug Into Power Poles

In a pilot program to expand EV infrastructure citywide, LADWP installed the city's first utility-mounted EV charger in Watts in December 2016. A second utility pole charger is now located in San Pedro. Up to four power pole EV chargers will be installed by the end of 2017. The use of the chargers is currently free to the public. Unlike EV chargers that connect to underground electric lines, the pole EV chargers require no additional street work other than connecting the charging equipment to the existing wires on the power poles.



LADWP EV Fleet

LADWP operates one of the largest plug-in fleets in the city with 114 plug-in hybrid sedans and plug-in electric sedans, along with six plug-in hybrid bucket trucks and digger derrick trucks. In the next year, LADWP plans to add over 200 Chevy Volts to its fleet, 25 Chevy Bolts, and an additional 26 plug-in hybrid trucks. This will result in a total of 371 electric and hybrid vehicles in LADWP's fleet, which translates to about one million pounds of CO₂ avoided annually.

Smart Grid/Advanced Meter Initiative

The Smart Grid Regional Demonstration Program, called Smart Grid LA, was a joint effort of LADWP, the U.S. Department of Energy, and a consortium of the region's top research institutions, including USC, UCLA, and JPL. The goal was to deploy and test a host of new technologies, such

as automated switches, monitors, controllers, and meters that relayed information to each other through a near-real-time communications network. The Demonstration Program, initiated in 2010, was completed in 2016. It featured a web portal that allowed participating customers to share efficiency achievements, receive notifications to reduce energy during peak demand periods, and help meet energy use targets.

With the conclusion of the demonstration program, LADWP has begun work on the advanced meter implementation program. Over the next five years, the program will phase in the system-wide deployment of advanced meters and the underlying communication network that comprises the infrastructure. During the deployment phase, LADWP expects to initiate broader demand response offerings and other customer programs that will be expanded in subsequent phases.

Using Advanced Metering Infrastructure (AMI), LADWP will empower customers with the knowledge and tools to manage their usage and costs, providing them superior reliability and value in their electric service, and continuing to provide responsible environmental stewardship. LADWP will focus on these objectives while engaging in a new partnership with our customers. Ultimately, the program will be broadened to include smart grid technologies for water distribution to improve leak detection and help customers better manage their water use.

➔ Go to www.ladwp.com/smartgrid to learn more.

Jobs: Utility Pre-Craft Trainee Program

Initiated in 2010, the Utility Pre-Craft Trainee (UPCT) Program is a partnership between LADWP and IBEW Local 18 to address the challenge of training the next generation of highly skilled employees to provide water and power to the City of Los Angeles, and provide a path for new jobs in the community. Since its inception, the program has employed 248 trainees, including 107 who worked their way into permanent positions—84 at LADWP and 23 hired within other city departments.

An integral part of the green jobs pipeline for Los Angeles, the UPCT Program provides pre-apprenticeship training for entry-level workers who are looking for long-term positions in the water and power utility fields. The UPCT Program prepares the trainees for feeder classes such as: Apprentice Machinist, Apprentice Metal Trades, Electric Meter Setter, Electric Station Operator, Electrical Craft Helper, Electrical Mechanic, Electrical Repairer, Electrical Tester, Maintenance and Construction Helper, Mechanical Helper, Steam Plant Assistant, and Warehouse and Tool Room Worker.

The program offers on-the-job training, classroom training and computer-based training in subject areas such as electricity, water distribution, safety, weatherization, test preparation, and computer skills. As part of the on-the-job training, the UPCTs are deployed to various sections in LADWP and go on rotation

every six months in programs such as energy efficiency, water conservation, electrical substation construction and maintenance, conduit work, water distribution work, mechanical repair work, test lab and support services.

Electric Rates and Finance

LADWP continues investing in the funding priorities established through the 2016-2020 electric rate action approved in March 2016—complying with regulatory mandates, upgrading aging infrastructure to maintain reliability, and providing customers with opportunities to reduce or control their energy bills. The FY 2017-18 \$4 billion Power System budget, approved in May 2017, also reflects continued cost control and enhanced performance metrics as required by the rates ordinances. The performance-based rates are designed to demonstrate the Department’s accountability, transparency, and fiscal responsibility—all of which are among the core values of the LADWP Strategic Plan.

Recent Accomplishment

Successful Bond Sales

Within a few months of the electric rate approval, Moody’s Investor Service upgraded its long-term rating of LADWP’s Power Revenue Bonds from Aa3 to Aa2. In addition, Fitch Ratings revised its outlook of Power Revenue Bonds from “stable” to “positive,” and indicated a rating upgrade is in LADWP’s future. Standard & Poor’s revised its outlook of the Power Revenue Bonds from “stable” to “positive” in December 2016. This positive response from Wall Street translates directly into reduced borrowing costs for LADWP and led to the most successful bond sales in LADWP’s recent history.

LADWP received \$1.5 billion of orders for \$275 million of Power System bonds, and high investor demand drove the interest rate down to a low of 3.26 percent. The sale included refinancing \$80.6 million in outstanding power bonds, saving an estimated \$11.6 million in interest costs over the next eight years.

Recent Accomplishment

Performance-Based Rates

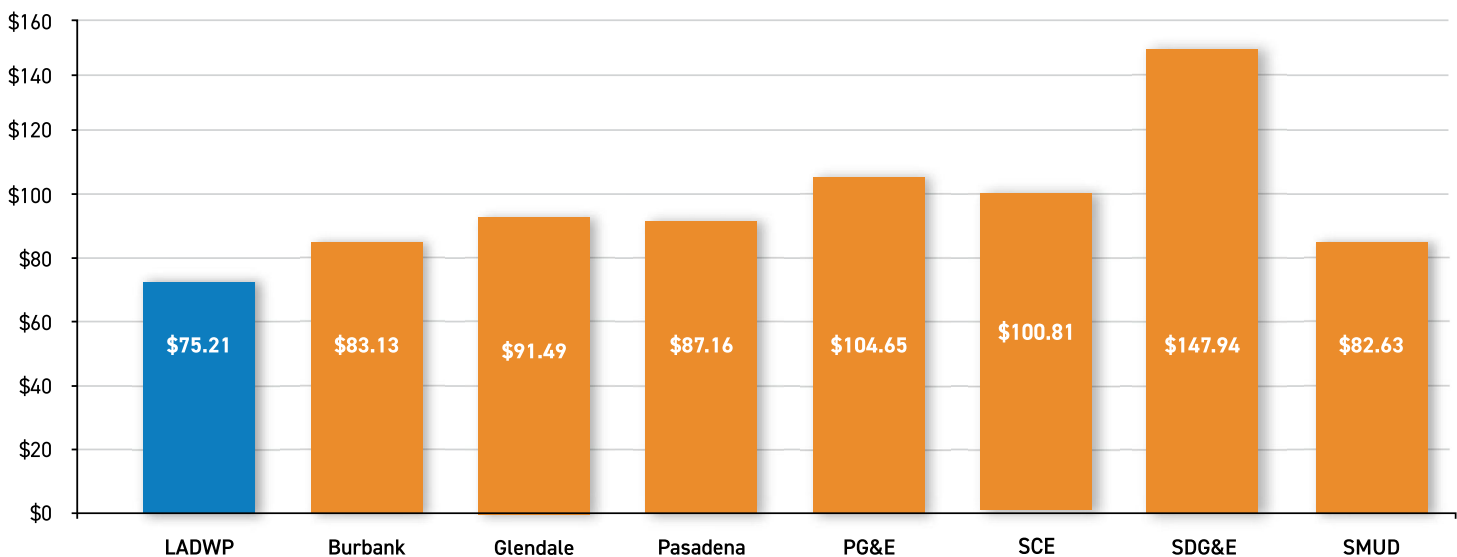
In January 2017, LADWP began providing quarterly reports to the Office of Public Accountability/Ratepayer Advocate (RPA) as required by the electric rates ordinance to demonstrate accountability. Beginning March 2017, semi-annual reports are submitted to the Board of Water and Power Commissioners, with review opportunities available to the City Council and committees. The power-related metrics cover power infrastructure reliability, energy efficiency, renewable energy, greenhouse gas emissions, human resources and labor costs, and many other areas.

Rates Comparison

Despite the modest rate increases implemented in FY 2016-17, LADWP customers still enjoy lower electric rates than other major cities in the state. A typical electric customer in LADWP’s service area pays approximately 10 to 30 percent less than similar customers served by investor-owned utilities in California. LADWP is undertaking the largest capital investment program in its history, while keeping rates competitive by maintaining favorable financial metrics.

➔ Go to www.myLADWP.com to learn more.

Comparison of Typical Residential Monthly Bill*



*Based on using 500 kWh/month as of January 2017.

Water System

Los Angeles' Water Sources



Water System



Richard F. Harasick
Senior Assistant General Manager -
Water System



LADWP's Water System is the nation's second largest municipal water utility, and serves a population of 4 million people within 472 square miles. The Water System supplies approximately 160 billion gallons of water annually and an average of 438 million gallons per day (GPD) for 681,000 residential and business water service connections.

The availability of water significantly contributed towards the tremendous growth and development of Los Angeles. Since 1902, when the population in Los Angeles was approximately 146,000, until today, the Water System has worked tirelessly to ensure that Angelenos receive a safe and reliable water supply.

The Water System has identified three areas as its top priorities: safety of drinking water, reliability of water infrastructure, and sustainability of water supplies.

Water Facts and Figures

The Water System is responsible for supplying, treating, and distributing water to the City of Los Angeles.

Approved Water Budget

For fiscal year 2017-18, the Water System budget is \$1.45 billion, including \$478 million for operations and maintenance, \$861 million for capital projects, and \$114 million for purchased water.

Water Supply Sources (5-year average, FY 2012-2016)

LA Aqueduct (Eastern Sierra Nevada)	20%
Purchased water (MWD)	64%
Bay Delta	54%
Colorado River.....	10%
Groundwater	14%
Recycled water	2%

Water Use

Average Daily Use Per Capita (gallons):..... 104

Residential Customers

308,000 acre-feet (380 million cubic-meters) per year,
or 275 million GPD

Commercial/Industrial/Institutional Customers

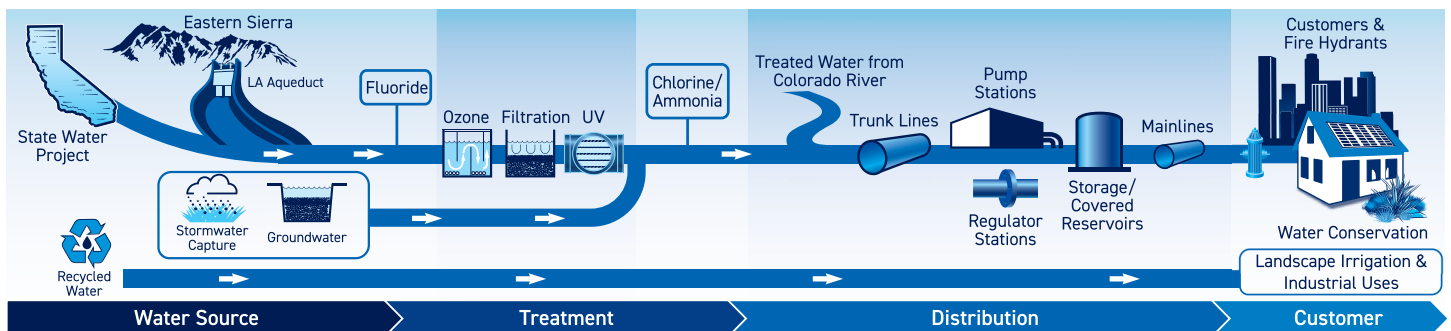
147,000 acre-feet (181 million cubic-meters) per year,
or 131 million GPD

Annual Water Sales to Customers

(as of FY 2015-16)
148 billion gallons (or 560 billion liters)
681,000 Water Service Connections (active)

Water Infrastructure

Tanks and Reservoirs	118
Pump Stations.....	96
Ammoniation Stations.....	8
Chlorination Stations.....	21
Regulator Stations.....	328
System Pressure Zones	113
Distribution Mains and Trunk Lines (miles)	7,337
Fire Hydrants	60,747
Total Storage Capacity (acre-feet)	311,000



Sustainability

Urban Water Management Plan

LADWP's Urban Water Management Plan (UWMP) provides a strategy for developing a sustainable water future for the City of Los Angeles. The UWMP is updated every five years under state mandate, and analyzes water supplies to meet projected demand for the next 25 years. The goal is to meet new demand for water through additional conservation and local resource development.

In April 2015, Mayor Eric Garcetti issued the city's first-ever Sustainable City pLAN, which established targets for the city over the next 20 years to strengthen and promote sustainability. The pLAN set forth a number of water resources goals, including: reduce average per capita potable water use by 25 percent by 2035, reduce imported water purchases from the Metropolitan Water District of Southern California (MWD) by 50 percent by 2025, and expand all local sources of water so that they account for at least 50 percent of the total supply by 2035. LADWP's 2015 UWMP incorporated the pLAN's goals and long-term local water supply strategy, focusing on:

- Expanding water conservation
- Expanding water recycling
- Enhancing stormwater capture
- Cleaning up the San Fernando groundwater basin

➔ Go to www.ladwp.com/uwmp to learn more.

Recent Accomplishment

Mayor's and State's Water Use Reduction Goals

After stretching over six years, the record statewide drought finally met its demise in April 2017, thanks to the extreme snowpack in the Sierra Nevada. Citing the need to think long term, however, LADWP continues to urge customers to make water conservation a way of life. LADWP will maintain all water conservation policies and programs, and continue investing in developing local water supplies through stormwater capture and recycled water to protect the city from future drought. LADWP has met the conservation targets established by the Mayor and previously by the state.

- The Mayor's Executive Directive No. 5 (ED5) called for a reduction in per capita water use of 10 percent by July 1, 2015, 15 percent by January 1, 2016, and 20 percent by January 1, 2017.
- The State Water Resources Control Board (SWRCB) Emergency Conservation Regulation mandated that LADWP reduce water use by 16 percent from June 2015 through February 2016. The SWRCB revised LADWP's water conservation target to 14 percent from March 2016 through May 2016.

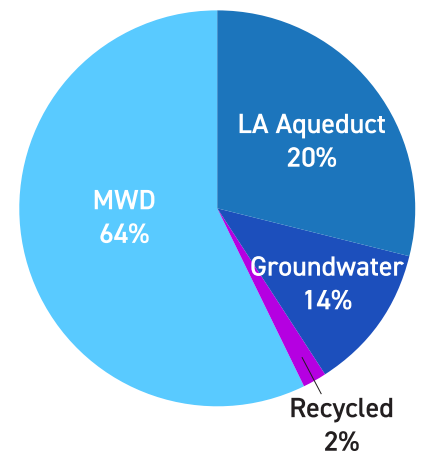
In August 2016, the SWRCB approved LADWP's "stress test" showing the city is prepared to meet the demands of its customers should another three years of dry weather conditions continue. Therefore, retroactively since June 2016, LADWP's mandated conservation target was reduced to 0 percent. Despite the SWRCB's retraction of a mandatory conservation target, LADWP continues to exceed expectations in conserving water throughout the city.

LADWP met all of the Mayor's ED5 targets for July 1, 2015 through January 1, 2017. By February 2017, a typical LA resident's daily water consumption was an average of 104 gallons per day—meeting the Mayor's 20 percent reduction requirement. From June to December 2016, LADWP had reduced water use by 16 percent, which exceeded the State Emergency Conservation Regulation's target. These impressive water savings were achieved through a combination of aggressive conservation outreach, increased enforcement of water restrictions, and a wide array of rebates and incentives.

Water Supply

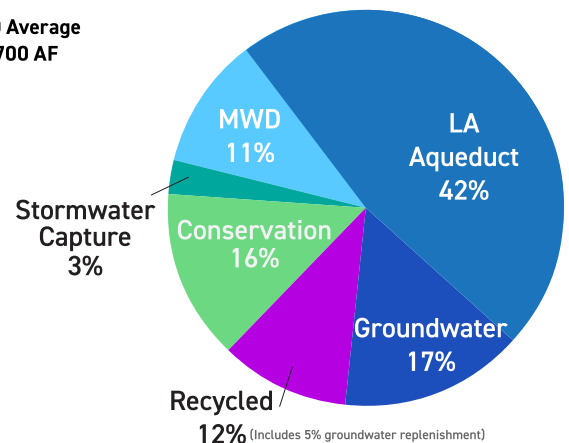
Present

FY 2012-16 Average
Total - 542,700 AF



Future

FY 2039-40 Average
Total - 675,700 AF



Water Conservation

The Sierra Nevada, which provide the majority of LADWP's water supply via the Los Angeles and California aqueducts during a typical winter season, experienced a record snowpack in FY 2016-17. The anticipated runoff is expected to fill all reservoirs to their maximum capacity, essentially erasing the drought condition that affected Los Angeles for the past six years. But even full, these reservoirs only have enough supply for at most 18 months, and after that, no one knows for certain whether another dry spell will occur, or for how long. As a result, LADWP continues to urge customers to use water wisely.



Historically, Angelenos have a strong conservation ethic. The City of Los Angeles has long recognized water conservation as the core of multiple strategies to improve overall water supply reliability. At 102 GPD, Los Angeles has one of the lowest water use per capita levels of any major U.S. city. Water use today is about the same as it was in the 1970s, despite a population increase of over 1 million people.

Recent Accomplishment

Outreach and Rebate Programs

In partnership with the Mayor's office, LADWP continued the "Save the Drop" campaign throughout 2016 and early 2017, pushing out the message for customers to conserve water.

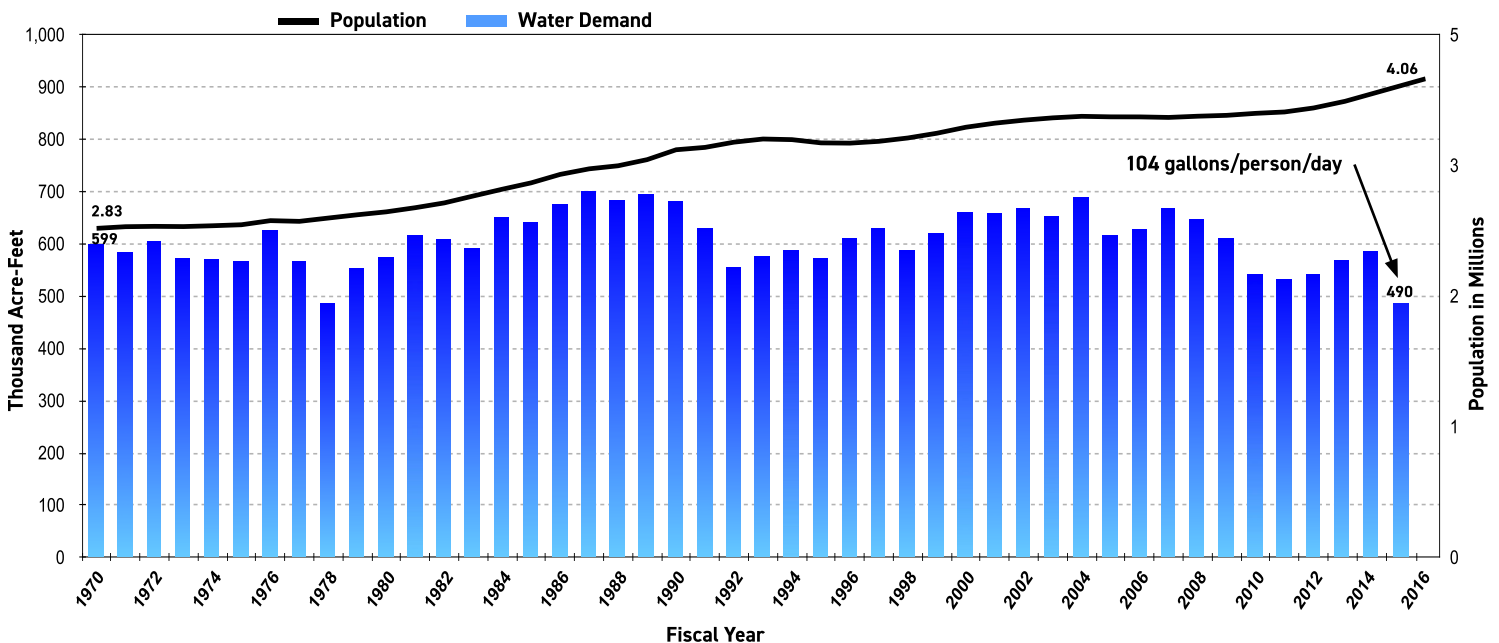
Outreach materials have included public service announcements, radio spots, event handouts, and signage on the sides of Los Angeles Bureau of Sanitation (LASAN) trash trucks. The campaign focuses on behavioral changes and rebates to help meet the Mayor's water conservation goals.



LADWP continues to offer myriad rebate options to customers to help them respond to the call to conserve water. LADWP's current rain barrel rebate is \$75 per barrel, cistern rebate is up to \$500, and turf removal rebate is \$1.75 per square foot for residential customers and up to \$1.00 per square foot for commercial customers. From 2009 through April 2017, LADWP customers have removed 47.7 million square feet of turf and replaced it with California Friendly landscaping. Since the Mayor's ED5 was issued in 2014, 38.1 million square feet have been removed, resulting in about 1.9 billion gallons of water saved annually.

In 2016, LADWP added a watershed approach to the turf removal rebate program. The watershed approach incorporates rain capturing features, reduces non-vegetated material, and requires that at least 50 percent of the landscape incorporate native vegetation. This sustainable landscaping approach helps achieve LADWP's water conservation goals while also capturing stormwater and preventing urban runoff.

Historic and Projected Water Use and Population



Recent Accomplishment

Home Water Report Pilot Study

LADWP continues the Home Water Report Pilot Study, a water conservation engagement program that provides customer-specific education and outreach. Through the program, approximately 72,000 single-family customers are receiving bi-monthly home water reports. These reports provide the customers with easy-to-understand information on their water usage, statistics on how they compare to similar households with average and efficient water use, and customized water saving tips and rebate recommendations.

After the pilot is completed in 2017, LADWP will analyze results to determine the savings potential and cost-effectiveness of the program. The results of the pilot will assist LADWP in planning a long-term program that targets all single-family residential customers.

Water Conservation Response Unit

LADWP's Water Conservation Response Unit (WCRU) patrols the city in bright blue cars that say "Keep Saving Water LA!" and respond actively to complaints about water waste as well. The team continues to implement the mandatory water conservation ordinance. However, with the more favorable water supply situation in 2017, the WCRU now focuses on helping customers detect and fix leaks on private properties.

In 2016, the WCRU handled 10,525 water waste complaints, mailed 6,302 informational or warning letters, and conducted 3,005 inspections.

Recycled Water

Recycled water is a critical element of LADWP's local water supply strategy. Since 1960, the city has recognized the potential for water reuse and invested in recycled water treatment that meets federal and state standards (Title 22) for non-potable water uses, including irrigation, industrial and environmental uses, and in infrastructure (commonly known as purple pipes) to convey recycled water to customers.

Under the 2015 Urban Water Management Plan, LADWP's goal is to use 75,400 AFY of recycled water by 2040.

Recent Accomplishment

Recycled Water Expansion

Recycled water was first used in Los Angeles in 1982 for park and landscape irrigation, and is a growing component of LADWP's local water supply. In fiscal year 2015-16, LADWP used 9,913 AF of recycled for irrigation, industrial and seawater barrier intrusion prevention. LADWP serves recycled water to 50 customers (200 metered connections), including Griffith Park, seven City-owned golf courses, Loyola Marymount University, Los Angeles World Airports, Valley Generating

Station, Playa Vista Development, Forest Lawn Memorial Park, CalTrans, and NBC Universal. LADWP's newest recycled water customers are the Van Nuys Orange Line Station, Bette Davis Picnic Area near Griffith Park, and Branford Park in Panorama City, along with new connections in Playa Vista.

LADWP also provides about 38,000 AFY of treated wastewater to West Basin Municipal Water District, which serves treated recycled water to municipalities in West Los Angeles County. Approximately 25,000 AFY of recycled water is used for environmental purposes at Lake Balboa, the Donald C. Tillman Japanese Garden, and the Wildlife Lake.

Implementation of LADWP's recycled water program continues to move forward with the addition of new purple pipe. Agreements recently approved will expand the Terminal Island Water Reclamation Plant in the Harbor, and create new connections to Burbank's recycled water lines to provide recycled water to North Hollywood. LADWP is also undertaking an ambitious plan to bring recycled water as far south as the University of Southern California by constructing the Downtown Water Recycling Project.

Recent Accomplishment

Groundwater Replenishment

In December 2016, the Board of Water and Power Commissioners adopted the Environmental Impact Report for LADWP's proposed groundwater replenishment (GWR) project at the Donald C. Tillman Water Reclamation Plant. By upgrading the reclamation plant with advanced treatment technology, the GWR project will use up to 30,000 AFY of highly purified recycled water to recharge the San Fernando Groundwater Basin.

Stormwater Capture

Stormwater is an underutilized resource in Los Angeles. Capturing and reusing more stormwater is a natural way to replenish local groundwater aquifers while improving water quality in our ocean, rivers and other water bodies.

Currently, the average stormwater capture is about 64,000 AF annually. By 2035, the annual stormwater capture is expected to more than double to 132,000 AF. Stormwater enhancement efforts include larger, centralized projects that will increase groundwater pumping by an estimated 15,000 AFY in the San Fernando Groundwater Basin. Smaller, localized stormwater capture projects will provide an additional 2,000 AFY.

Stormwater Projects

In partnership with the Los Angeles Flood Control District (LAFCD), Los Angeles Department of Public Works and LASAN, and other governmental and non-governmental agencies, LADWP has completed several stormwater capture projects



Purple Pipe Bridge at Hansen Dam Golf Course



Cisterns capture stormwater



Hansen Dam Golf Course

while others are underway. A few of the notable projects include improving the Tujunga Spreading Grounds, Pacoima Spreading Grounds, and funding the Laurel Canyon Boulevard Green Street Project.

Recent Accomplishment

Tujunga Spreading Grounds Enhancement Project

In July 2016, LADWP held a groundbreaking ceremony for the Tujunga Spreading Grounds Enhancement Project. The enhancements will include relocating and automating the current intake structure on Tujunga Wash, installing two additional automated intakes to receive flows from the adjacent Pacoima Diversion Channel, and reconfiguring the existing spreading basins, among other upgrades. LADWP is providing \$27 million to LAFCD for construction. The project is expected to increase stormwater capture by 8,000 AFY and be completed by 2019.

Pacoima Spreading Grounds Improvement Project

LADWP provided \$15 million to LAFCD to reconstruct the basins and intake to increase the capacity and efficiency of the

Pacoima spreading grounds. The improvements are expected to create an average of 5,300 AFY of captured stormwater. Construction is planned to start in late 2017 and be completed by late 2018.

Laurel Canyon Boulevard Green Street Project

To augment water supply and improve water quality, LADWP is partnering with LASAN on construction of the Laurel Canyon Boulevard Green Street Project in Pacoima. The Laurel Canyon project will convert the existing parkway into a sustainable, stormwater capture system using drywells and vegetated infiltration swales. Designed to capture 40 AFY of water from the 123-acre residential tributary area, the project will also mitigate localized flooding and enhance the pedestrian sidewalks. The \$3.6 million project is being funded through a \$2 million State Water Resources Control Board grant administered by LADWP, \$1.47 million directly from LADWP, and \$200,000 of in-kind services from LASAN. With the project nearly complete as of July 2017, Laurel Canyon is the third “green street” project funded by LADWP.

Groundwater Cleanup

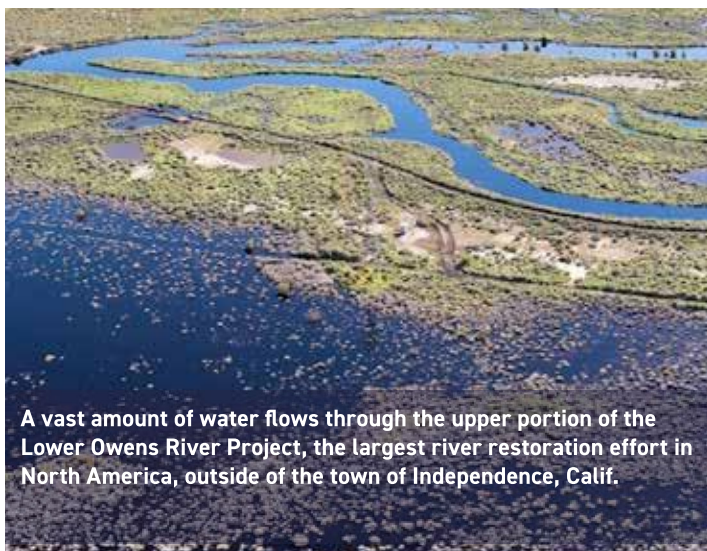
Man-made pollution, likely caused by industrial activities dating back to the 1940s, has severely impaired the quality of San Fernando Basin (SFB) groundwater, forcing closure of approximately half of LADWP's active production wells. LADWP is taking action to remove the contamination from the groundwater to restore the beneficial uses of the aquifer, which once provided adjudicated water rights of 87,000 AFY.

The SFB Remediation Program will result in a Comprehensive Environmental Response, Compensation, and Liability Act (CERCLA) quality groundwater cleanup that restores the beneficial use of SFB as a natural resource. The program will consist of several separate response actions or projects, and will leverage work being implemented under the oversight of state and federal regulatory agencies.

LADWP undertook an extensive SFB well field characterization evaluation from 2009 through 2015. The six-year \$11.5 million evaluation characterized the groundwater basin contamination. Twenty-six new monitoring wells were also installed and sampled in support of the project at a cost of approximately \$22 million. These new wells, along with a network of more than 70 existing wells, continue to be used to evaluate groundwater quality in the northern portion of the SFB, which contains the city's most productive well fields, including: Tujunga, North Hollywood West, Rinaldi-Toluca, and North Hollywood East (offline due to high concentrations of contaminants).

Efforts are underway to better define contamination of the southern SFB well fields, including the following well fields: Erwin, Whitnall, Verdugo, Headworks (no active wells, planned for future development), and Pollock.

LADWP will continue to pursue funding from potentially responsible parties and other state and federal funding opportunities, including State of California Proposition 1 grant funding.



A vast amount of water flows through the upper portion of the Lower Owens River Project, the largest river restoration effort in North America, outside of the town of Independence, Calif.

Owens Valley

LADWP has maintained a significant presence in the Owens Valley for over 100 years. Since the early 1900s when the City of Los Angeles began purchasing land in the Owens Valley to secure water rights, the City has been the single largest landholder on the valley floor. Since construction of the First Los Angeles Aqueduct in 1913, a major portion of LA's water supply has come from the Owens Valley.

LADWP manages nearly 315,000 acres of land in the Eastern Sierra to protect the city's watershed. Throughout the past century, LADWP has followed a consistent policy of making Owens Valley lands available for recreation, ranching, horse and mule packing, and use by businesses, schools, and public agencies.

The Water System operates and maintains water supply facilities in the Eastern Sierra, including the First and Second LA aqueducts, several reservoirs, and hundreds of miles of canals and ditches.

Recent Accomplishment

Preparing for Record Water Runoff

Two years after the worst drought in California's history, the Sierra Nevada experienced the second largest snowpack on record. As of April 1, 2017, the snowpack level in the Eastern Sierra was measured at 203 percent of normal. Concerns about the impact of flooding led to an emergency declaration by Mayor Garcetti that allowed LADWP to take immediate steps to protect infrastructure and aid in managing flood waters while also protecting public health and safety. Inyo County issued a similar declaration.

LADWP began bracing for the anticipated high water flows in late February 2017. LADWP's efforts to prevent flooding and related damage included preparing, cleaning, and repairing water conveyance ditches, spreading basins, sand traps, and protecting people, property and infrastructure in the Owens Valley and along the LA Aqueduct. As of June, LADWP was working to maximize flows in the LA Aqueduct by lowering reservoirs to create more storage space for runoff water. LADWP also provided maximum water allotments for irrigation, environmental projects and recreation commitments in the Owens Valley, and worked to recharge the Owens Valley aquifer for future use.

Protecting Owens Lake

Because Owens Lake is the terminus for rain and snowmelt flowing down the Owens River, LADWP anticipated that excess water runoff, which did not make it into the LA Aqueduct or spread to recharge Owens Valley aquifers, would end up at Owens Lake. As a result, LADWP was working hard to protect the lakebed's expansive dust mitigation projects from serious damage due to the anticipated heavy water flow. LADWP took immediate steps to manage the flow of water onto the lake playa in a manner that would avoid creating additional air

quality problems. LADWP also planned to repair, replace and remediate damaged dust mitigation infrastructure at the lake to ensure air quality is maintained. The dust mitigation facilities were constructed over the past 17 years, and have effectively reduced dust pollution in the area by 96 percent. Damage to these dust control areas may result in increased air pollution that could threaten the health of the public after the runoff evaporates in 12 to 18 months.

Owens Lake Trails

The formerly dry and dusty Owens Lakebed has been transformed into a mecca for migratory birds and other wildlife now accessible to the public via the Owens Lake Trails. The trails feature three distinct areas—the Boulder Creek Trailhead, Plaza Trailhead and Dirty Socks Trailhead—which consist of four miles of walking paths, overlook areas and land art installations. The three trail locations are each located near the habitat areas within a safe viewing distance of more than 120 bird species that visit Owens Lake each year.

The Owens Lake Trails satisfy the public access, education and recreation component of the Owens Lake Dust Mitigation Program, and meet the program’s requirements for controlling dust: protecting, creating and enhancing wildlife habitat; protecting cultural resources; providing area-wide economic development; and creating a viewshed that is in harmony with the surrounding environment. The land art installations include a prominent shade structure, inspired by the wings of a small bird found nesting on the lake, located at the central plaza. The project received the American Society of Landscape Architects Award for Landscape Art in 2016.

At the time of publication, the Owens Lake Trails were not expected to be adversely affected by the high runoff from the record snowpack of the 2016-2017 winter season.

➔ Go to www.ladwp.com/losangelesaqueduct to learn more.



High water flows from the record snowpack threaten to flood Owens Lake dust mitigation facilities.

Safety

Water Quality

Ensuring the city's water quality meets the highest federal and state standards is paramount to LADWP's water operations. In 2016, LADWP supplied nearly 160 billion gallons of safe, clean drinking water to more than 4 million Angelenos. Over the year, LADWP collected nearly 40,000 water samples throughout the city and conducted more than 140,000 water quality tests for compliance with safe drinking water standards.

LADWP is investing in major infrastructure projects to safeguard the city's drinking water and meet all state and federal drinking water regulations, including the Long Term 2 Enhanced Surface Water Treatment Rule (LT2), which protects drinking water in uncovered reservoirs from microbiological contamination. LADWP is also engaged in water quality projects to meet the Stage 2 Disinfectants/Disinfection By-Products Rule (DBP2).

→ Go to www.ladwp.com/waterquality to learn more.

Reservoir Projects

Efforts have focused on bringing LADWP's uncovered drinking water reservoirs into compliance with the LT2 rule. The rule affected six reservoirs altogether, three of which (Silver Lake, Elysian and Santa Ynez Canyon) are now in compliance. LADWP is progressing on bringing the three remaining open reservoirs (Los Angeles, Upper Stone Canyon and Ivanhoe) into compliance by dates set by the State Water Resources Control Board, Division of Drinking Water (SWRCB-DDW). Compliance is achieved by covering the reservoir, removing it from service, or providing additional treatment to protect the drinking water.

Recent Accomplishment

Ivanhoe and Silver Lake Reservoirs

The Headworks Reservoir Complex, including East and West, will completely replace Ivanhoe and Silver Lake reservoirs' storage capacity. In order to remove Ivanhoe and Silver Lake from service, LADWP constructed a pipeline to bypass the reservoirs. Silver Lake was removed from service and drained to construct the bypass project, which was completed and put into service in February 2017.

With the bypass pipeline project completed, Ivanhoe Reservoir was removed from serving the distribution system in April 2017. By summer 2017, Ivanhoe was isolated to comply with drinking water standards.

Headworks East was completed in November 2014 and is replacing storage at Silver Lake Reservoir. Construction continues on Headworks West. Completion is expected by April 2020.

Recent Accomplishment

Refilling Silver Lake

In April 2017, LADWP fulfilled its pledge to the Silver Lake community to refill the reservoir back to its historic level ahead of schedule, thanks to the record snowpack that blanketed the Eastern Sierra and created surplus water coming through the Los Angeles Aqueduct. Using this surplus water source, LADWP refilled the reservoir within weeks. LADWP will still connect Silver Lake Reservoir to an existing groundwater well. That water source will be used to maintain the level of water in the reservoir and tapped as needed.

Recent Accomplishment

Lower Franklin Reservoir No. 2

Lower Franklin Reservoir No. 2 was returned to service in March 2017 with a brand new floating cover replacing the old deteriorated one. The new cover will satisfy water quality requirements and improve reliability. In addition to the cover, construction occurred inside the reservoir to improve operation and maintenance.

Upper Stone Canyon and Elysian Reservoir Projects

LADWP is moving forward with plans to install floating covers on both Upper Stone and Elysian Reservoirs. The reservoir covers will save more than \$100 million compared to the cost of keeping them uncovered and meeting regulations by alternative measures. The design for Upper Stone Canyon's cover was completed in 2016. LADWP plans to remove the reservoir from service and start construction in summer 2017. Since being removed from service in December 2015, Elysian Reservoir is undergoing construction and is expected to be back in operation in late 2017.

Los Angeles Reservoir Project

Los Angeles Reservoir will be brought into compliance with the LT2 and DBP2 regulations through a combination of shade balls and a new ultraviolet (UV) treatment plant. The "shading" of the reservoir was completed in 2015 when nearly 96 million shade balls were deployed to control the formation of disinfection byproducts and algae. The new UV treatment facility is in progress and will disinfect water leaving the Los Angeles Reservoir to satisfy the LT2 water quality regulation.

Citywide Chloramination

LADWP has nearly completed a long-term project to expand the use of chloramine to disinfect most of its water distribution system to reduce disinfection byproducts (DBPs). Chloramine is formed by mixing chlorine and ammonia and will help LADWP meet the DBP2 rule. Both chlorine and chloramine are approved disinfectants for use in drinking water by the U.S. Environmental Protection Agency and the California Department of Health, but chloramine forms fewer DBPs. Due to the size and complexity of LADWP's system, the chloramine conversion was conducted in phases. Areas with the highest DBP levels were converted first. Among the

last phases will be the conversion of the Green Meadows and Watts areas. These areas historically have lower DBP levels. The benefits of chloramine expansion include:

- Compatibility with purchased water from MWD
- Improving system reliability
- Providing water free of a chlorine taste or smell
- Lower DBP formation
- Longer lasting protection as the water moves through the pipes to a customer's tap, because chloramine is more stable than chlorine

Recent Accomplishment

99th Street Wells Chloramination Station

In September 2016, LADWP began construction on the 99th Street Wells Chloramination Station and Filtration Plant to address the final phase of the disinfectant conversion from chlorine to chloramine. Servicing the Watts and Green Meadows communities, the project includes construction of new equipment to add chloramine to the local groundwater as well as filter the water to

reduce naturally occurring iron and manganese before entering the distribution system. The new filtration plant will help eliminate the buildup of sediment that has been problematic in the neighborhood water supply pipelines for LADWP customers. The filtration plant will in turn help reduce the need for large-scale systematic flushing of the neighborhood pipelines. Full completion of the project is expected by February 2020.

Grants and Loans

To help fund large-scale projects, LADWP has been awarded approximately \$956.5 million in grants and loans from the Safe Drinking Water State Revolving Fund, including \$45 million in grants through the American Recovery and Reinvestment Act, and \$14 million in grants from the State Revolving Fund. These awards have helped reduce the potential rate impacts to customers from these projects while improving water quality.



LA Reservoir is covered with 96 million shade balls to help meet water quality standards.

Reliability

Infrastructure Replacement and Upgrade

LADWP maintains a vast array of infrastructure that is critical for reliably delivering high quality water to Angelenos. With a significant amount of pipe installed at the turn of the century, LADWP faces the challenge of keeping pace with the replacement and upgrade needs of the aging water mains and riveted-steel trunk lines.

The Water System has developed a Water Infrastructure Plan, which utilizes an Asset Management Program to prioritize efforts, develop strategies, and determine the resource needs. However, because more than 29 percent of the city's pipes are over 80 years old, and the average lifespan of an iron water main is 100 years old, infrastructure reliability challenges are imminent. Moving forward, LADWP must take additional actions to accelerate the replacement and upgrade of its aging infrastructure.

Financial Plan

Toward this end, the Water System's financial plan calls for investing over \$2.2 billion in the next 10 years for infrastructure reliability. A significant amount of these expenses—about \$1 billion—will go toward replacing mainlines that have undergone a thorough assessment and have been prioritized as vulnerabilities within the water distribution system. Additional expenses will be incurred to replace and rehabilitate the Los Angeles Aqueduct, tanks and reservoirs, pump stations, pressure regulating stations, system valves, water meters, as well as ancillary infrastructure required to deliver water to its customers.

Infrastructure Replacement Goals

The Water System sets goals for infrastructure that are deemed critical for delivering reliable water supplies. These goals are tracked and reported on a monthly basis.

Infrastructure goals for FY 2016-17 include:

- Mainline Replacement: 184,000 feet
- Small Meter Replacement: 27,500 meters
- Large Valve Replacement: 5 valves



Crews work with earthquake resistant pipe in Northridge.

- Corrosion Protection Anode Stations Replacement: 250 stations
- Los Angeles Aqueduct Concrete Top Replacement: 15,000 feet
- Pressure Regulator Station Retrofit: 4 stations
- Pumps and/or Motor Replacement or Rehabilitation: 12 pumps/motors
- Water Tank Cleaning and Rehabilitation: 6 tanks

Significant challenges exist to replace and upgrade LADWP's infrastructure. Despite these challenges, LADWP maintains a high level of reliability. LADWP's leak rate has averaged 18 leaks per 100 miles of pipeline over the past five years, below the national average of 25 leaks per 100 miles of pipeline. Through the Asset Management Program, LADWP is working to prioritize its efforts on infrastructure asset replacement to achieve maximize benefits and minimize reliability risks to our customers.

Recent Accomplishment

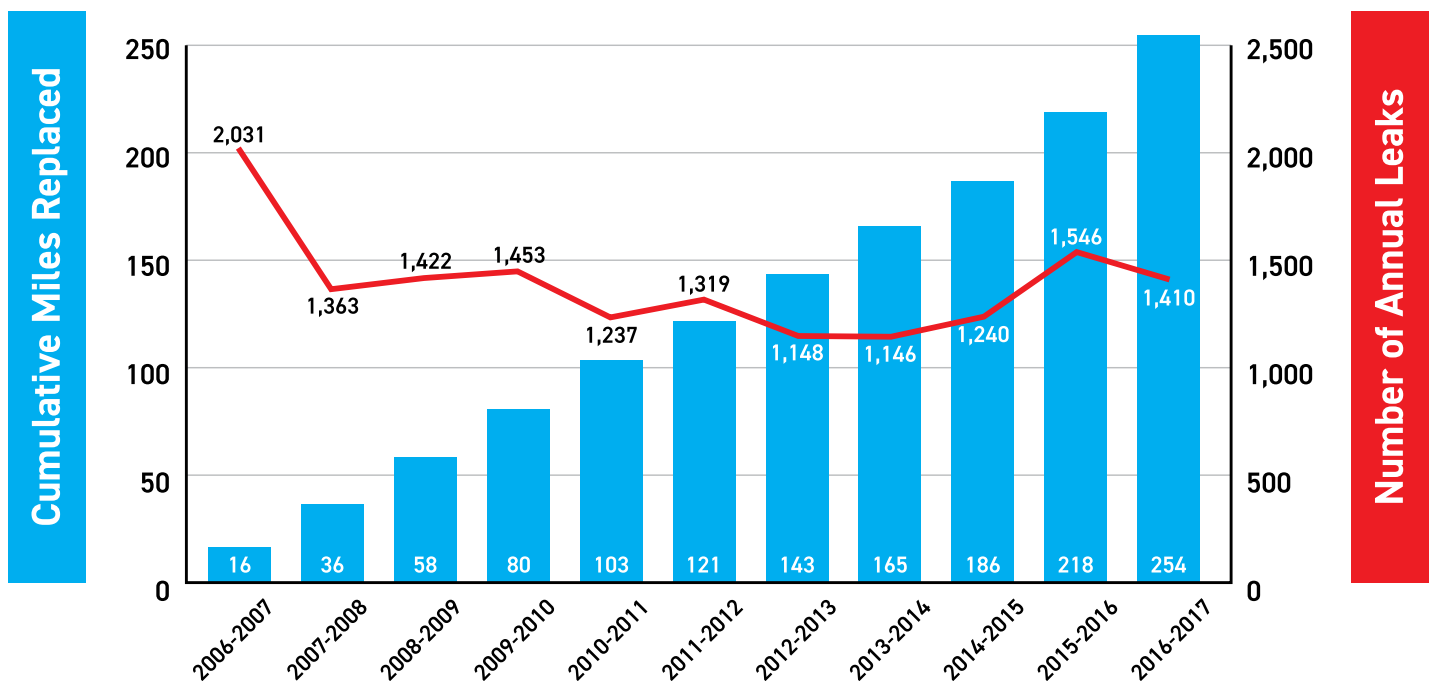
Earthquake Resistant Pipe Projects

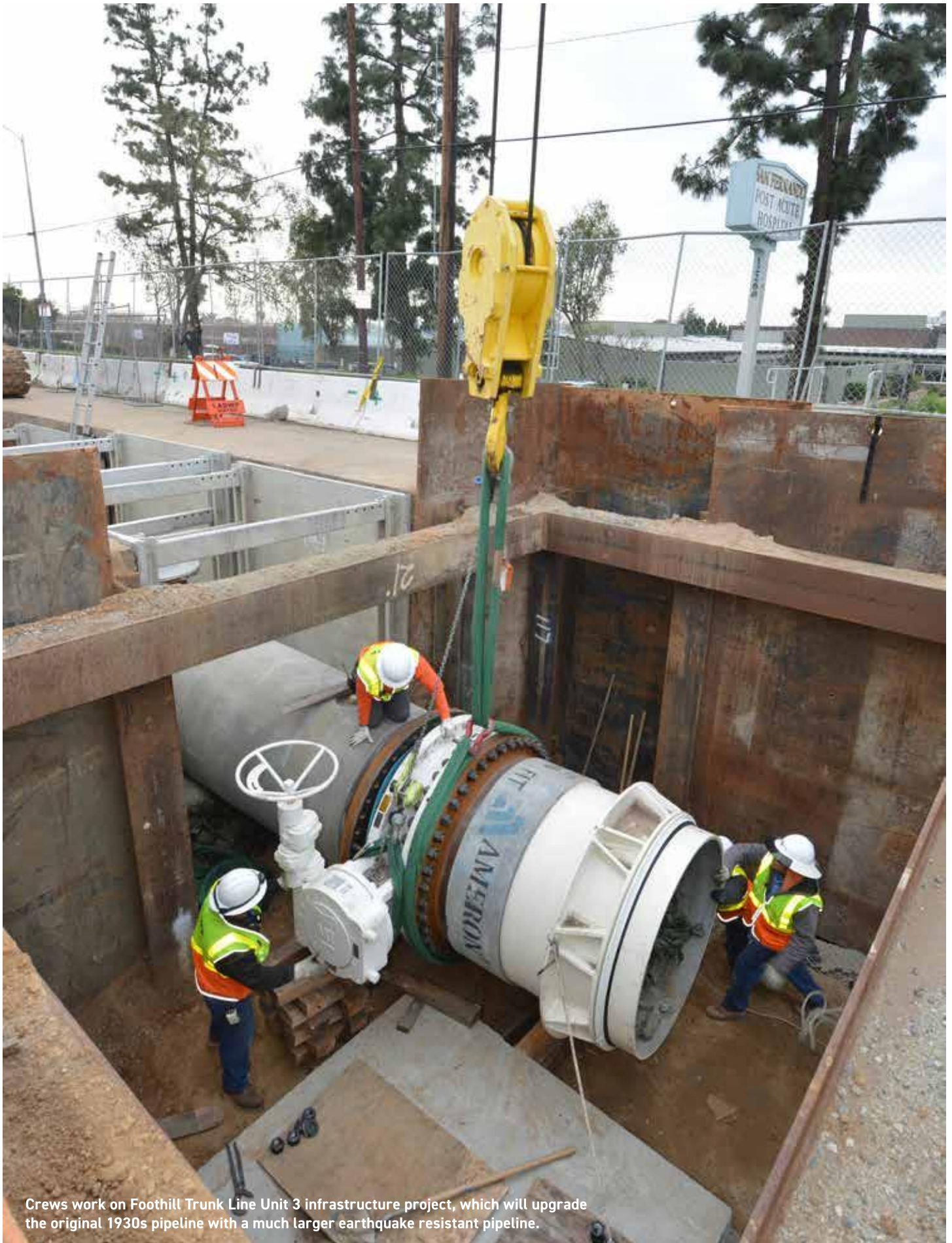
LADWP is a leader among water utilities nationwide in pioneering the installation of high-tech, earthquake resistant pipe to provide greater system reliability and resiliency in the face of seismic activity. LADWP has installed 13,600 feet of Earthquake Resistant Ductile Iron Pipe (ERDIP) throughout Los Angeles, including the East Valley, West Valley, Central, Western, and Harbor areas of the city. The initial ERDIP

installation involved laying 6,500 feet of ERDIP on streets surrounding Northridge Hospital Medical Facility in April 2016. Part of the Mayor's Resilience Plan, the pilot program was the first of its kind in the United States. The high-tech pipe's innovative, segmented design provides flexibility that allows up to one percent axial movement and up to eight degrees rotation to deal with the strains associated with earthquakes, landslides, and temperature changes. Forces exceeding one percent of the pipe length cause a locking mechanism to activate to keep pipe joints from pulling apart.

Plans are now underway for the installation of 14 miles of earthquake resistant pipe over the next three years. Among the projects will be the largest ERDIP pipe installed to date—a two-mile segment of the 54-inch Foothill Trunk Line where this major water distribution artery crosses the San Fernando Fault in Sylmar. In addition to the Foothill Trunk Line section, LADWP has purchased materials and is completing the design for 13 separate projects to replace 10 miles of pipe throughout the city. Locations target areas with critical earthquake hazards such as fault crossings and liquefiable soils, and critical facilities such as hospitals, shelters, and schools. LADWP is currently developing an entire network of earthquake-resilient pipe, which will foster the development of new and innovative seismic resilient products and standards, and encourage competition among pipe manufacturers. Current and future seismic resilient pipe replacement will be planned in conjunction with LADWP's infrastructure improvement program.

Mainline Replacement and Leak Rate





Crews work on Foothill Trunk Line Unit 3 infrastructure project, which will upgrade the original 1930s pipeline with a much larger earthquake resistant pipeline.

Water Rates and Finance

Since the 2016-2020 rate adjustments were approved in March 2016, LADWP has been putting customers' investments to work. The FY 2017-18 Water System funding priorities reflect the core elements of the rate request—complying with regulatory mandates, upgrading aging infrastructure, and creating a more sustainable and local water supply to protect against drought conditions and reduce dependence on imported purchased water. The final FY 2017-18 \$1.7 billion Water System budget, approved by the Board of Water and Power Commissioners in May 2017, also reflects continued cost control and enhanced performance metrics as required by the 2016 rates ordinances. The performance-based rates are designed to demonstrate the Department's accountability, transparency, and fiscal responsibility—all of which are among the core values of the LADWP Strategic Plan.

Recent Accomplishment

Tiered Rates to Promote Conservation

One year after the residential water rates were expanded from two to four tiers, LADWP residential customers reduced their water consumption overall by an average of 14 percent. However, Tier 3 and Tier 4 customers reduced their water use by 35 percent, indicating customers who used more water also did the most conservation as intended by the new rate structure. The expanded tiers were designed to reflect the higher cost of supplying water to customers who consume more water while also having the effect of encouraging customers to conserve. Meanwhile, LADWP was still able to meet its bottom line costs as a result of the new rate component called "decoupling." Through decoupling, LADWP can recover the fixed cost of providing reliable water and electric service using a rates factor called the Base Rate Revenue Target Adjustment.

LADWP has worked with customers to achieve significant reductions in water consumption. These conservation efforts

have led to more sustainable water practices and resulted in a reduction in the average monthly single-family residential customer usage from 12 HCF to 10 HCF.

Recent Accomplishment

Historic Bond Sales

Shortly after the City Council gave final approval of the water and power rate changes, Standard & Poor's upgraded LADWP's long-term Water Revenue Bond credit rating from AA to AA+. The upgraded credit ratings provided LADWP with the financial position to successfully sell \$628.6 million in Water System Revenue Bonds 2016 Series A in April 2016. High investor demand generated over \$5 billion worth of orders, leading to an interest rate of 3.19 percent—the lowest rate achieved by LADWP in the past 15 years. LADWP also expects a \$97.7 million in total debt service savings over the next 24 years—equivalent to \$74 million in today's dollars—by refinancing \$183.9 million of outstanding high-interest debt during the same transaction.

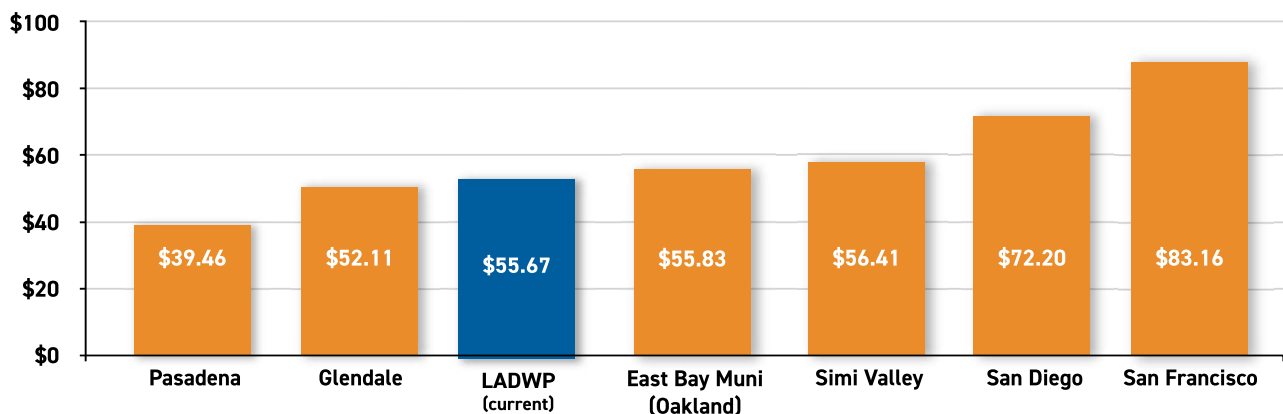
Reduced Purchased Water

Thanks to the past winter season's formidable snowpack, LADWP water rates will decrease during the period of July through December 2017 by \$1.93 per month—from \$76.50 to \$74.57 for residential customers using a typical amount of water. The savings are related to the major increase in water supply tumbling down from the Eastern Sierra Nevada to Los Angeles via the Los Angeles Aqueduct. This year's high runoff will enable LADWP to decrease the amount of water purchased from MWD during FY 2017-18. With the average snowpack runoff at over 200 percent of normal, LADWP anticipates that the Los Angeles Aqueduct will be supplying its maximum capacity of water—representing about 80 percent of total water supply.

➔ Go to www.ladwp.com to learn more.

Comparison of Typical Residential Monthly Water Bills*

LADWP water rates are among the lowest in California.



*Based on using 10 HCF/month as of January 2017.

Customer Experience

Providing Exemplary Customer Service

LADWP's Strategic Plan, "Putting Our Customers First," reflects the heightened importance of customer service throughout the Department. Customer service is no longer under the purview of one division, but is the responsibility of all LADWP employees. In addition, the Customer Bill of Rights describes LADWP's commitment to providing our customers with the highest quality water and power, with prompt, consistent and easily accessible customer service. In this respect, all LADWP employees take pride in personalizing each customer interaction by striving to deliver the highest level of service in all areas.

LADWP is committed to:

- Treating customers with courtesy, honesty, empathy, and respect.
- Providing customers with easy-to-understand, straight-forward, and prompt resolution to their inquiries.
- Supporting the customer class action settlement terms by achieving customer metrics and correcting all inaccurate billing.
- Increasing the ways that customers can engage with LADWP to resolve their issues and participation in our programs.
- Developing and changing program offerings to meet the changing needs and preferences of our customers, utilizing web-based platforms, such as chatrooms and messaging options.

Following are examples of programs and accomplishments that demonstrate LADWP's commitment to exemplary customer service.

Recent Accomplishment

Sustainability Awards Program

To recognize customers for their strong commitment to energy efficiency and water conservation, the Customer Service Key Accounts Section, with support from LADWP Sustainability Office, established the Sustainability Awards Program in 2016. The program honors commercial, industrial and governmental customers who are leading the way with cutting-edge water and energy savings measures. The customers are honored in a special ceremony and receive recognition from LADWP officials and city leaders for their above-and-beyond efforts at conservation. Awards are given for Energy Management, Water Management, Electrification of Transportation and Demand Curtailment. Customer efforts in these areas contribute to achieving the Mayor's Sustainable City pLAN goals and contribute directly to a Los Angeles that is environmentally healthy and economically prosperous.

➔ Go to www.ladwp.com/SAP to learn more.

Recent Accomplishment

Customer Satisfaction on the Rise

LADWP customer satisfaction is on the rise, according to recent surveys. Substantial improvements overall were shown in the Residential Utility Trusted Brand and Customer Engagement Survey by Market Strategies International. Out of 59 utilities surveyed, LADWP was ranked among the top three utilities in the western U.S. and 10th in the nation for business customer experience. Specific areas of improvement included communications effectiveness, environmental dedication, reputation and advocacy, customer focus, reliability, and community support. Furthermore, LADWP showed significant improvement in the J.D. Power Overall Customer Satisfaction Index, which was up 42 points in 2016 compared to 2013. Customer service satisfaction increased 79 points.

Recent Accomplishment

Customer Bill of Rights

For the first time ever, LADWP has formalized customer service standards by adopting a Customer Bill of Rights, which was approved by the Board of Water and Power Commissioners in January. This landmark document establishes service levels that will be tracked, holding LADWP accountable, and promises safe, sustainable and reliable water and power service for all customers. The Bill of Rights makes four core commitments to LADWP customers: timely, clear and consistent customer service; reliable, safe and sustainable power; reliable and high-quality water; and a collaborative approach to implementing customer programs like rebates and incentives.

Each core commitment contains details about LADWP's service philosophy in that area, as well as specific, measurable service standards. For example, the document promises customers that call wait times will not exceed three minutes on average, and that all questions sent via email will receive a response within 24 hours, or one business day. In some cases, failing to meet the service level will cost LADWP either by waiving a fee or giving customers a bill credit.

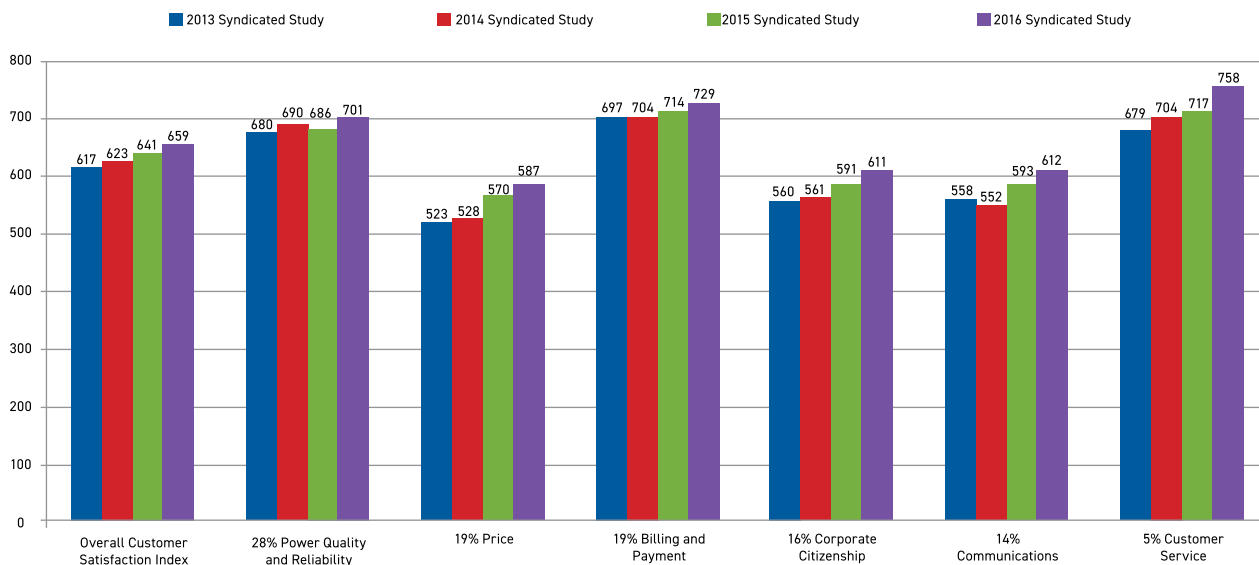
➔ Go to www.ladwp.com/CustomerBillOfRights to learn more

Training and Employee Development

Customer Service developed a centralized training program for employees who interact directly or indirectly with customers on bills, service requests, field work and other functions. The training focuses on building relationships and trust with customers, by making it easy to do business with LADWP and by having our customers' best interests at heart. Trainees receive initial training and then work—either in the Customer Contact Center (CCC) or Service Centers—for a short trial period before

J.D. Power Overall Customer Satisfaction Index, 2013 - 2016

J.D. Power's year-over-year scorecard shows all elements are trending in the right direction. Overall customer satisfaction improved 42 points since 2013.



returning to their regular assignments. Nearly 900 customer service representatives (CSRs) received the training in 2016.

Billing Support

The CCC often provides support to other operational groups within Customer Service to assist with increased transaction volumes or specialized work requiring immediate attention. Due to the recently filed class action lawsuit, the CCC provided support to several areas:

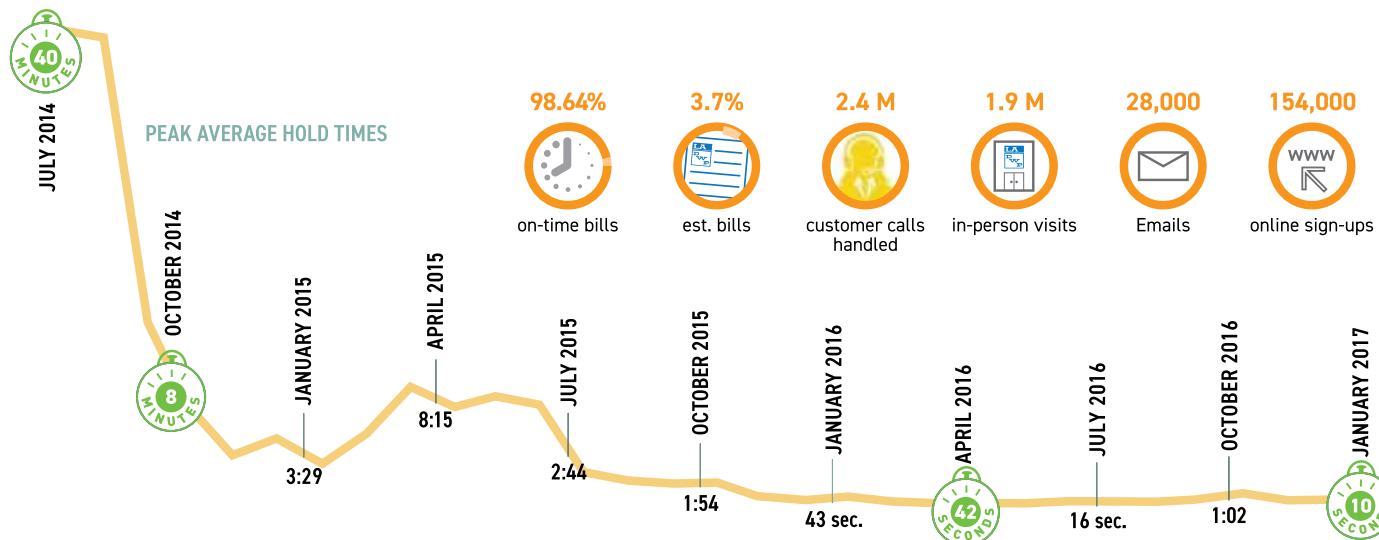
- CCC loaned up to 40 CSRs to the Service Centers to support increased traffic during billing resolution.
- CCC loaned up to 25 CSRs to temporarily join the Settlement Operations Team.
- CCC loaned up to 15 CSRs to assist field operations with increased call volumes as a result of billing resolution activities.

Specialized Teams

The CCC houses several specialized groups that support specific customer segments and/or contact channels. These representatives receive additional training in order to increase their knowledge base or proficiency in these areas. Customer Service has a Solar/EV group consisting of approximately 15 representatives that support solar and electric vehicle customers. The eTeam, also staffed with about 15 representatives, supports customers who transact business with us via email.

- On average, CSRs supported 277 customers with EV issues, such as rebates and billing, per month.
- CSRs supported an average of 1,060 solar customers per month.
- E-Team CSRs responded to an average of 54 general emails and 54 solar emails per month.

Customer Service Dashboard - 2016





Corporate Performance

LADWP established the Corporate Performance Office within the Financial Services Organization in April 2014 to improve LADWP's level of accountability, transparency, and ultimately its operating, financial, and customer service performance. The Corporate Performance Office conducts data driven analysis and reports on key performance indicators (KPIs), benchmarking, and other special studies.

Recent Accomplishment

Rates Metrics

In accordance with the Water and Electric Rate Ordinances, which went into effect April 15, 2016, and in conjunction with the RPA, LADWP developed 49 rates metrics aimed at fostering transparency and accountability across LADWP's major programs, initiatives, and budgets. The performance results for these rates metrics are reported to the RPA on a quarterly basis and to the Board of Water and Power Commissioners on a semi-annual basis beginning in January 2017.

Recent Accomplishment

Equity Metrics

On December 6, 2017, the Board, along with key stakeholders, worked with LADWP in the creation of LADWP's Equity Metrics Data Initiative (EMDI). The EMDI provides additional transparency of LADWP's programs, services, and resources from a demographic and geographic point of view. The equity metrics fall within the following four categories: water and power infrastructure investment; customer incentive programs/services; procurement; and employment. They are reported to the RPA on a quarterly basis and to the Board on a semi-annual basis.

Recent Accomplishment

Benchmarking

At the request of Mayor Garcetti, the City Council and the RPA, the Corporate Performance Office initiated a three-phase, comprehensive benchmarking study of LADWP. Conducted by third-party consultants, Phase I was completed in 2015 and focused on LADWP's operating and capital expenditures. The report showed that LADWP compares favorably to peer utilities in several significant areas, such as rates, water and power reliability, and operation and maintenance costs per customer.

As part of the Phase II effort, a joint study by the RPA and LADWP was presented to the Board on January 3, 2017. The study found that LADWP's total compensation (cash compensation, retirement, health, and other benefits) falls

near the median compared to both investor-owned and publicly owned peer utilities nationwide. LADWP and the RPA are now planning to jointly conduct the next phase of benchmarking, which will evaluate LADWP's Water, Power, and Joint Division costs on a per unit basis.

Industrial, Economic, and Administrative (IEA) Survey

The Los Angeles City Charter requires that the Controller, Mayor and City Council facilitate an Industrial, Economic, and Administrative (IEA) Survey of the LADWP every five years to determine if the Department is "operating in the most efficient and economical manner possible." The 2015 IEA Survey acknowledged much of the progress that the Department has made, its successes, and future plans, and offered detailed recommendations for consideration and action. In May 2017, LADWP provided the Controller with a status report on responses to all the recommendations of the 2015 IEA Survey. LADWP's status report, which was coordinated by the Corporate Performance Office, includes an action plan, schedule, status of actions taken, achievements and milestones, challenges and major issues associated with each IEA survey recommendation. Under the direction of the General Manager, the Corporate Performance Office will continue overseeing the organizational progress towards implementing the IEA recommendations over the next four years.

DWPSTAT

DWPSTAT is a management accountability and problem-solving tool to assist in improving operational efficiencies across the entire organization. The Corporate Performance Office, working with various organizations within LADWP, has developed over 52 corporate-level KPIs and reporting dashboards which cover key LADWP operations and initiatives.



Community Outreach and Awareness

Community outreach and awareness are vital to LADWP's ability to "Put Customers First," and achieve the goals of the Strategic Plan. Through the Communications, Marketing and Community Affairs Division, LADWP strives to effectively engage our communities to raise awareness, instill trust and increase participation of customers and stakeholders in our programs and activities.

Recent Accomplishment

Community Meetings

LADWP hosted or attended 108 community meetings in 2016 and 66 through June 2017, in addition to co-hosting meetings with Neighborhood Councils, elected officials and other agencies. LADWP's outreach meetings seek to gain input and educate the community about plans, programs, and construction projects or other issues that potentially impact their neighborhoods.

In 2016 and 2017, the Community Affairs staff conducted outreach for more than 30 construction projects and continually takes on more project outreach as infrastructure investments continue to grow. Construction-related outreach includes organizing and publicizing community meetings; developing informational materials, such as fact sheets and web content; issuing public notices and publishing advertisements; coordinating briefings with officials, local community groups and individual customers; site visits; and handling community inquiries.



Events and Exhibits Program

Community Affairs also ensures that LADWP has a presence at hundreds of community events as well as larger regional events, such as the LA Auto Show, each year. The Department's exhibits program fulfills community requests for informational tables, displays and exhibits on LADWP programs. Among the more popular exhibits are LADWP's Mobile Solar Exhibit and Mobile Water Station.

Other exhibits offer information on water and energy conservation, renewable energy resources, electric vehicles, children's electrical safety, and general information. In addition to the LA Auto Show, major events in the past year included Earth Day at Grand Park, and

Nature Fest and Summer Nights at the Natural History Museum. In 2017, LADWP expects to have a presence at more than 350 community meetings and events, averaging about one per day for the year. LADWP also offers educational exhibits and displays at the LA Aqueduct Filtration Plant and the La Kretz Innovation Campus.



Speakers Bureau

The Speakers Bureau is comprised of approximately 30 employees, representing various job functions and responsibilities throughout the Department. They receive training as LADWP ambassadors in the community to provide presentations and staff resource tables and exhibits at community events. Community Affairs organizes and conducts an initial two-day orientation session to provide members an overview of the key policies and issues throughout the Department. Members receive ongoing training to its members through hot topic briefings to present timely information on a variety of water and power related subjects.

Recent Accomplishment

Neighborhood Council Outreach

Since April 2005, LADWP and certified City of Los Angeles Neighborhood Councils (NC) have participated in an MOU to enhance effective two-way communications, transparency, and promote information sharing, mutual notice, and education. In 2017, LADWP and the NC MOU Oversight Committee agreed to renew the agreement for an additional five years—through 2022—without any changes. LADWP has committed to working with the NCs to provide information on Department projects and significant actions, such as the budget, rates, and major policy changes. LADWP also seeks to educate NCs about water and power programs, projects and services. As part of this effort, LADWP has dedicated NC liaisons who regularly attend meetings of the NC Regional Alliances, and facilitate briefings with executive management on key issues, such as rates, the Power IRP and the Customer Bill of Rights.

➔ Go to www.ladwp.com/community to learn more.

