



Power Grid Infrastructure Improvements, Challenges, and Solutions

Agenda

- LA 100 Study
- Building Electrification and Decarbonization
- DER Programs and Future Opportunities
- Distribution and Transmission Infrastructure Needs and Investment
- Potential Challenges



The Los Angeles 100% Renewable Energy Study

LA City Council motions directed LADWP to evaluate:



What are the pathways and costs to achieve a 100% renewable electricity supply while electrifying key end uses and maintaining the current high degree of reliability?



What are the potential benefits to the environment and health?



How might local jobs and the economy change?



How can environmental justice communities benefit from and be part of the solution?

Across All Scenarios



Electrification
Efficiency
Flexible Load



Customer
Rooftop
Solar

Solar: + >5,700 MW
Wind: + >4,300 MW



Renewable
Energy

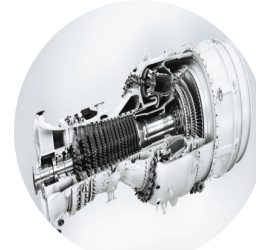


Storage

+ >2,600 MW



Distribution,
Transmission



Renewably
Fueled
Combustion
Turbines

+>2,600 MW
(in basin)

Much More

New

Natural gas

Today:
Daily



Biofuel/ hydrogen

Future:
Infrequently

Power System Goals

RENEWABLE
ENERGY



2030

LOCAL
SOLAR



2030

ENERGY
STORAGE



2030

GHG
EMISSIONS



2030

EV
CHARGERS



2025

Building Decarbonization and Electrification



Agreements & MOUs

In July, LADWP and two other City Departments will ink multi-decade agreements to ensure solar, energy storage, EV infrastructure are distributed throughout the grid along with accommodation of future decarbonized loads and electrification.

Project Identification/Funding

Through motions like CF 21-1039, ~\$30 M in funding will be disbursed across nine City-owned facilities to ensure DERs and decarbonization efforts are prioritized in the City



Challenges

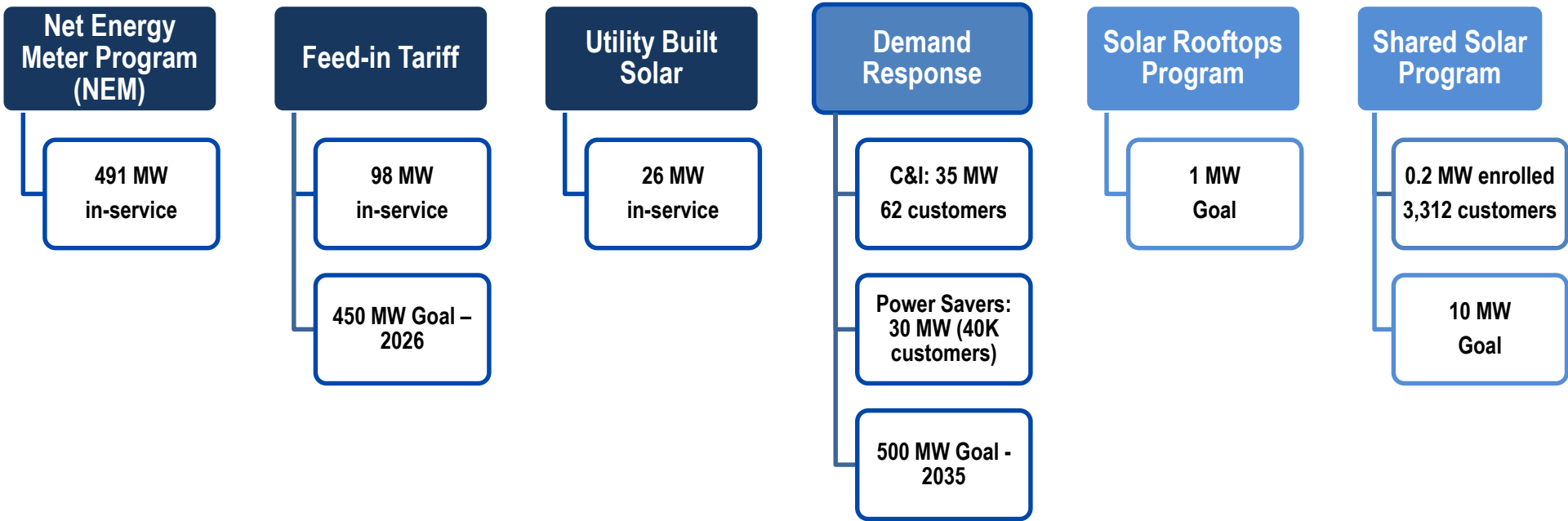
- Aging Infrastructure
- Supply chain issues
- Building retrofits
- Outdated building codes and construction/safety requirements

Solutions

- Work with BoE and other City Departments to determine electrification loads early on
- Begin creating template solutions across City-facilities utilizing off-the-shelf appliances and equipment



Distributed Energy Resources Programs



Distribution System Upgrades



Upgrade
4.8 kV Feeder



New
Distributing Stations



Expanded Implementation
Distribution Automation



Upgrade
34.5 kV Lines



New
Distribution Voltage
Conversion
→

Substation Upgrades

Receiving Station



4 Receiving Stations exceed firm capacity

7 New RS Racks required

Distribution Station



50+ Distributing Stations exceed firm capacity

Up to 10 New DSs required

Transmission Projects

Fortifying Transmission

Complete 10 transmission projects (over 100 miles) by 2030 to integrate more renewable energy, maintain reliability and improve resiliency.

10 Transmission



Accelerate Energy Storage

- Build over 1,000 MW of energy storage by 2030 in-basin and out-of-basin
- Large scale energy storage at or near all in-basin Generating Stations
- Expand energy storage by co-locating storage at all future utility scale solar projects
- Advertised Energy Storage Rolling Request for Proposals in 2022



DERs/Decarbonization/Electrification MOUs

- Current MOUs:
 - Department of Recreation and Parks
- Upcoming MOUs:
 - With two different City Departments slated for July 26th Announcement
- Future MOUs:
 - Each department has different policies and rules to accommodate their respective charter's and Board resolutions. Furthermore, no one City Department is the same nor should an MOU be one-sized fits all.
- Proposal:
 - Continue to engage in further MOUs to unlock other City facilities for mobilization of DER assets and decarbonization and electrification of city facilities



Potential Challenges

- The need for an unprecedented build-out of generation resources
- Unprecedented deployment of transmission infrastructure
- Potential for a rapid load growth due to POLA & LAX electrification, increased demand from Hyperion, building and transportation electrification
 - Replacement of aging infrastructure
 - Capacity buildout to support electrification
 - Distribution Modernization (Automation) necessary to incorporate high level of DER

The next 10 years is critical to LADWP's success in reaching 100% by 2035



**LADWP is
#HereForYou**



Thank You!

LA 100 Study Results

www.LA100Study.com

LA 100 Equity Strategies

www.ladwp.com/CleanEnergyFuture

Strategic Long-Term Resource Planning
(SLTRP)

www.ladwp.com/SLTRP

All Solar Programs:

www.ladwp.com/solar

Feed-in Tariff & Feed-in Tariff + Pilot:

www.ladwp.com/fit