

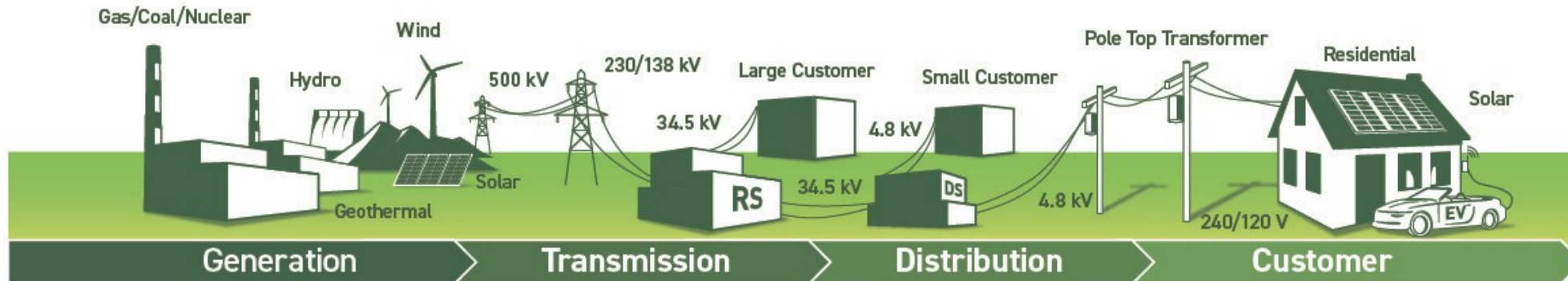


CUSTOMERS FIRST

POWER SYSTEM RESILIENCY UPDATE

STAKEHOLDER ADVISORY GROUP – 1/22/2020











- Generation – Thermal, Hydro, and Renewables
- 2 Large Solar Photovoltaic Plants and 1 Wind Plant
- Renewable Energy Targets: 55% by 2025, 80% by 2036, and 100% by 2045
- 124 mi – UG Transmission
- 3,636 mi - OH Transmission
- 7,148 miles OH Distribution
- 3,709 mi of UG Distribution
- 177 Substations

Green Meadows Overview



Green Meadows Technology Scope

DER/Technology Deployed		Capacity
Rooftop Solar (UBS)		30kW
Rooftop Solar (NEM)		50kW
Carport Solar		220kW
Energy Storage		250kW/1200kWh
L2 EV Chargers		2
DC Fast Chargers		3

Future Resiliency Related Projects

Project Name	Location	Solar Capacity	Storage Capacity	Commercial Operation	Cal EnviroScreen*
TBD	Pacoima (area)	100 - 400 kW (rooftop/carport)	150 kW– 1000 kWh	Dec - 2021	95-100%
TBD	Boyle Heights (area)	100 - 400 kW (rooftop/carport)	150 kW – 1000 kWh	Dec - 2022	95-100%
TBD	Wilmington (area)	100 - 400 kW (rooftop/carport)	150 kW– 1000 kWh	Dec - 2023	95-100%
Water Materials Test Lab	Downtown	175 kW (rooftop/carport)	120 kWh	Dec 2023	90-95%
Water Headworks Flow Station	Toluca Lake	19 kW (rooftop)	120 kWh	Dec 2023	60-65%

Substation Grid Hardening

FY 18-19 Replacement Targets	FY 18-19 Achievements
1 Receiving Station (RS) and 1 Switching Station (SS) transformer	2 RS and 2 SS transformers
18 Distributing Station (DS) transformers	34 DS transformers
28 Circuit Breakers (4.8-kV and 34.5-kV)	27 Circuit Breakers replaced Completed 212 Circuit Breaker life extension jobs

In Addition:

- Completed 22 feeder jobs
- Completed seven DS transformer bank life extensions
- Piloted Indoor Circuit Breakers at DS-5 to replace 67 year old technology



Distribution Grid Hardening



Distribution Assets:

- Poles
- Crossarms
- Underground Cables
- Transformers

LADWP's Wildfire Mitigation Plan

- Wildfire Mitigation Plan consistent with state law (SB 901)
- Higher level of collaboration
 - LAFD and other local fire agencies
 - Water and Power Systems
 - Mutual Assistance (Western Region Mutual Assistance and California Utilities Emergency Association)
- Ensure public safety by minimizing sources of ignition
 - Focus on safety, prevention, mitigation, response, and recovery
 - Diminish the contribution of transmission/ distribution systems
- Intentional focus to minimize wildfire risks
 - Improving processes, leveraging partnerships, hardening the power system, and exploring innovative technologies

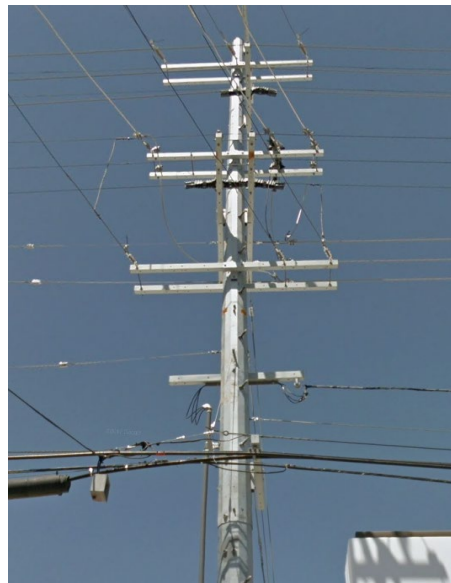
Resiliency Strategies

Upgraded Poles

Alternative Pole Materials



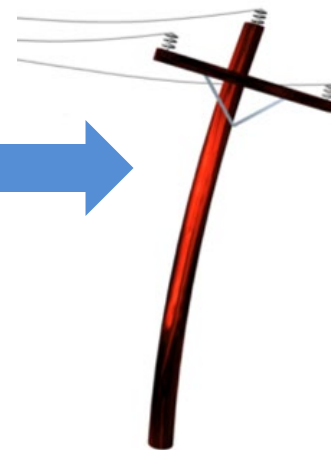
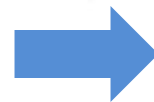
Wood Pole



Steel Pole

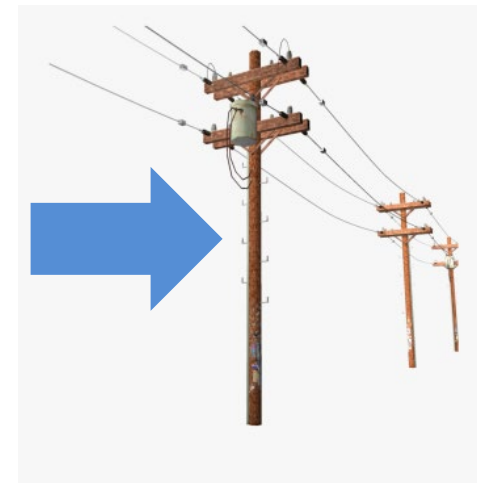
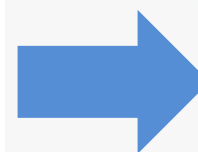
Increased Wind Loading

Wind
56 MPH



Standard Poles

Wind
80 MPH



High Fire Risk Areas

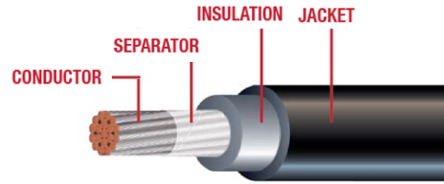
Resiliency Strategies

Upgraded Conductors

Covered Conductors



Bare Conductor

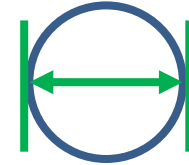


Covered Conductor

Increased Conductor Size



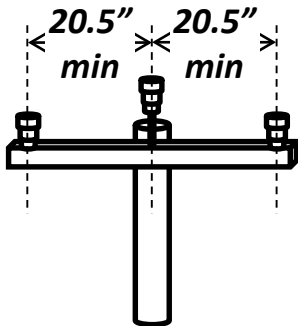
Standard



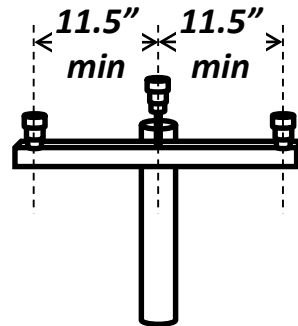
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High Fire Risk Areas

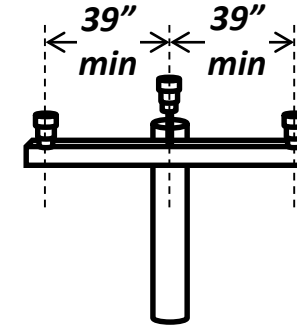
Increased Conductor Spacing



State Minimum



LADWP Standard



LADWP High Fire Risk Areas

Questions

