



# Power System Reliability Program Fiscal Year 2023-2024 Update

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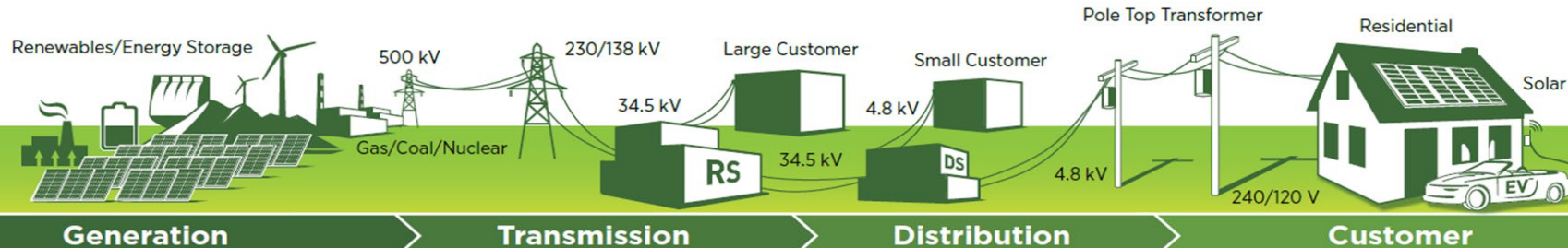
# Overview

## Background

- The Power Reliability Program (PRP) was established in 2007 with a focus on Distribution assets
- The PRP became the Power System Reliability Program (PSRP) in 2014 to include Generation, Transmission, and Substation assets

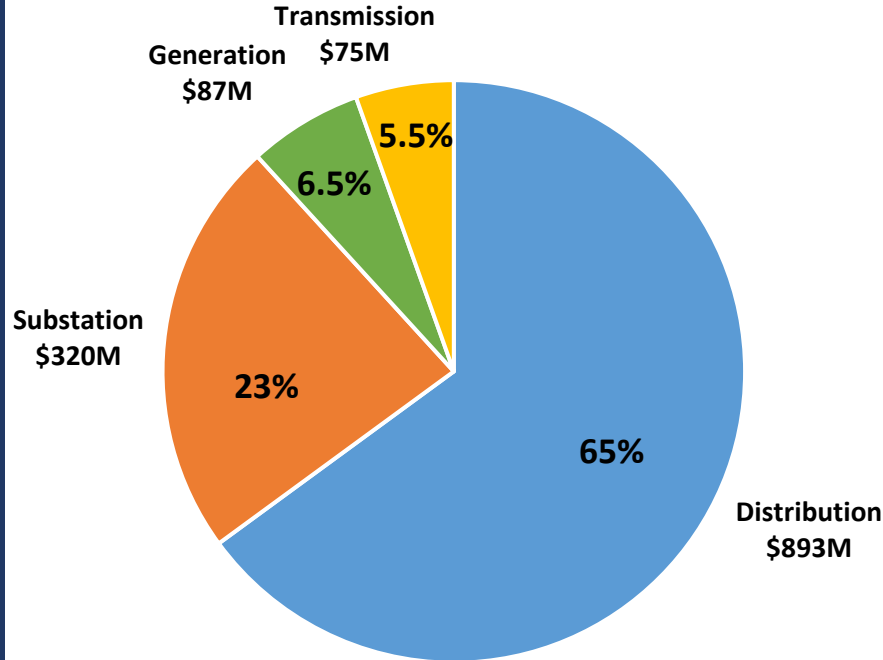
## Objective

- Evaluate power system current and future needs
- Establish and maintain reliability goals



# Budget and Facts

## FY 23-24 Actuals



## PSRP Facts

- Over 200 projects/programs:
  - Pole Replacement – \$153M
  - Cable Replacement - \$102M
  - Vegetation Management – \$69M

FY 23/24			
Program	Actual	Budget	Expenditure Variance
Capital	\$747M	\$838M	-11%
O&M	\$628M	\$605M	+4%
Total	\$1,375M	\$1,443M	-5%

**FY 24/25 Budget – \$1,584M**

# Key Assets

System	Asset	Targets	Actuals
Generation	Generator Transformers	2	0
	Major Generator Inspections	3	4
Transmission	(Identifying new KPIs)	-	-
Substation	Transformers	31	13
	Circuit Breakers	149	49
	Substation Automation Upgrades	12	0
Distribution	Poles	3,700	2,931
	Crossarms	12,600	10,947
	Cable (Miles) - Synthetic & Lead	60	60.4
	Transformers	1,255	1,305
	Substructures	24	24

■ - met or exceeded target



# How to Measure Reliability?

**SAIFI**



Total Number of Customers Experiencing a Sustained Interruption



Total Number of Customers Served

**SAIDI**



Total Customer Minutes of Sustained Interruption



Total Number of Customers Served

**CAIDI**



Total Customer Minutes of Sustained Interruption



Total Number of Customers Experiencing a Sustained Interruption

**Sustained Outage** – greater than 5 minutes

**MAIFI**



Total Number of Customers Experiencing a Momentary Interruption

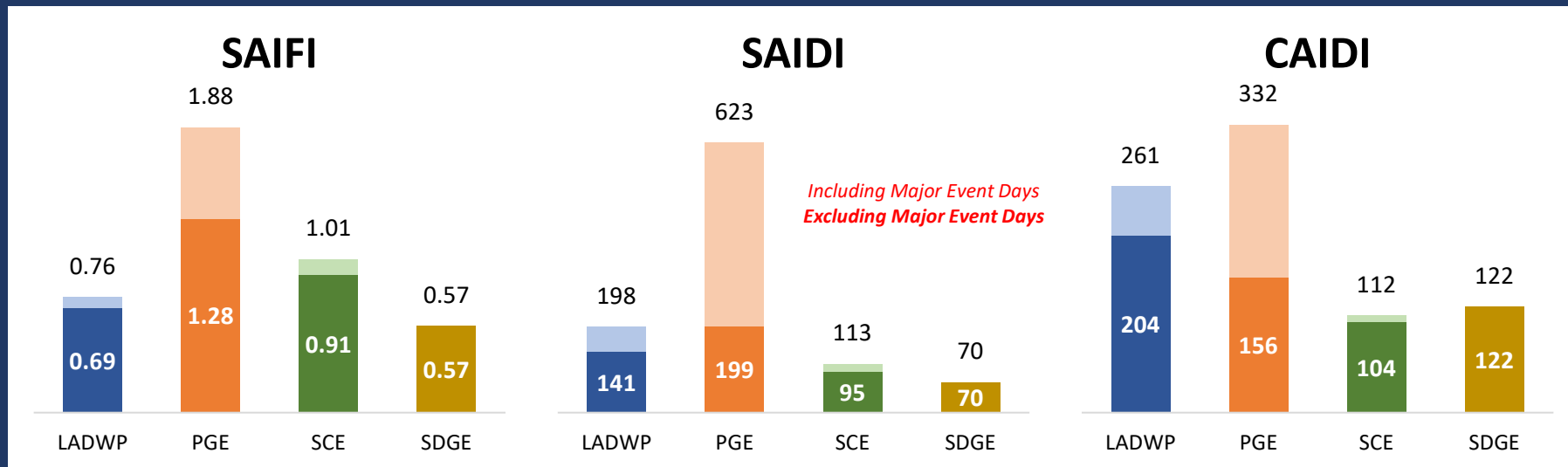


Total Number of Customers Served

**Momentary Outage** – less than or equal to 5 minutes

**Major Event Days (MEDs)** – Days with a daily SAIDI exceeding a statistical threshold based on the previous 5 years of data

# 2023 Reliability Metrics



## LADWP FY 24/25 Targets (excluding Major Event Days):

SAIFI: 0.72 outages/year or lower

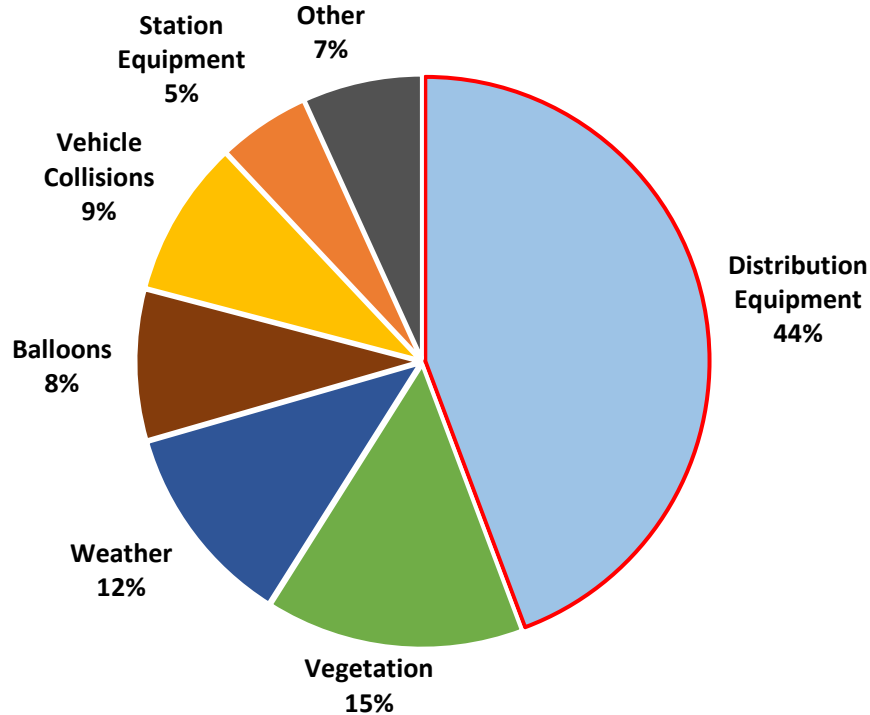
SAIDI: 115 minutes/year or lower

CAIDI: 160 minutes/outage or lower

# What Impacts LADWP Reliability Metrics?

## SAIDI Contributions

2021-2023 (excl. MEDs)



*Underground Cables and Splices*



*Transformers*



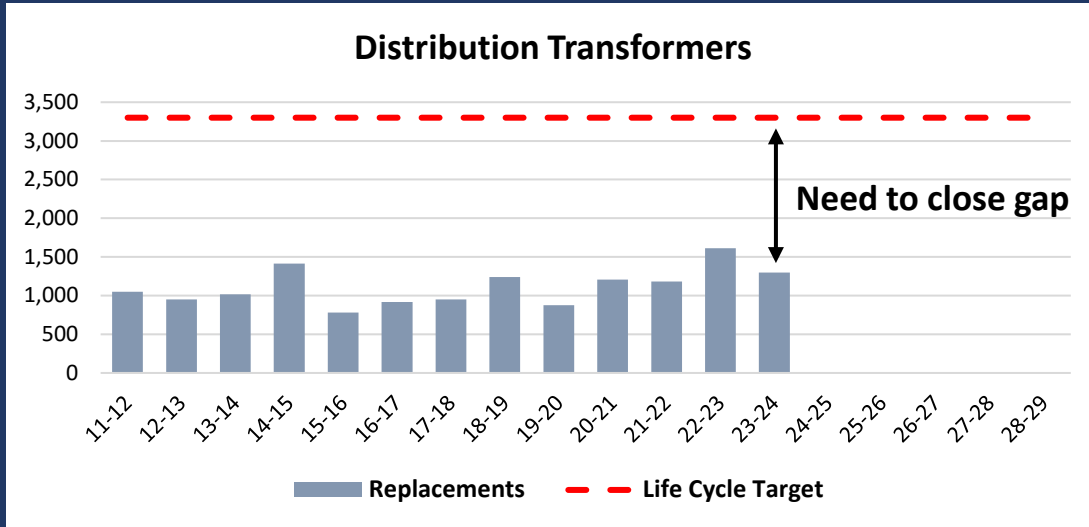
*Poles and Crossarms*



*Travel Time*

# Distribution Transformers

- Transformers in-service: **131,754**
- Average life expectancy: **40 years**
- **32%** of in-service distribution transformers are over their average life expectancy



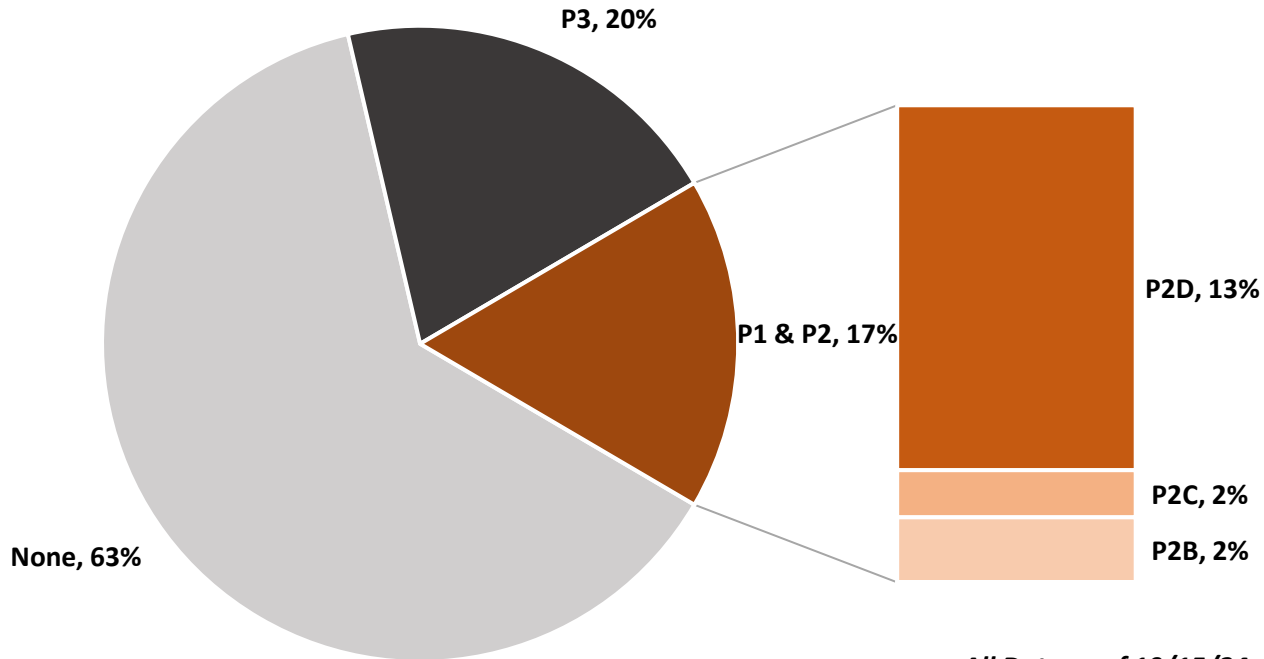
Plan to close the gap with:

- Additional resources
- Better data
- Prioritization



# Poles and Fix-It Tickets

## LADWP Distribution Utility Poles by Highest Priority Fix-It Ticket



*All Data as of 10/15/24*

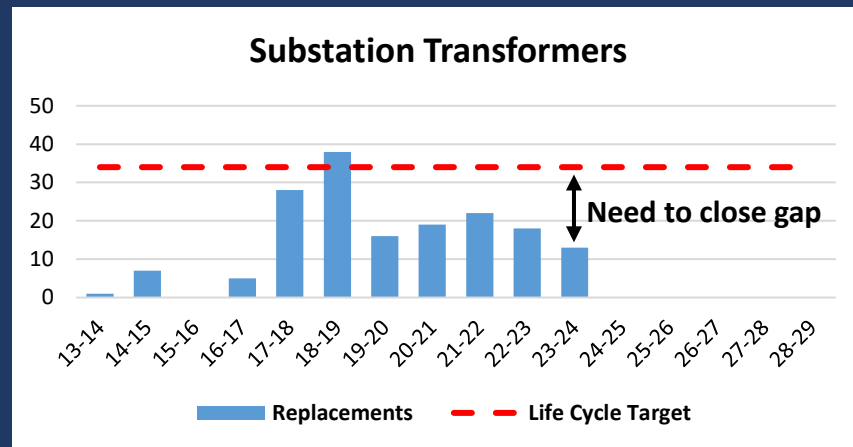
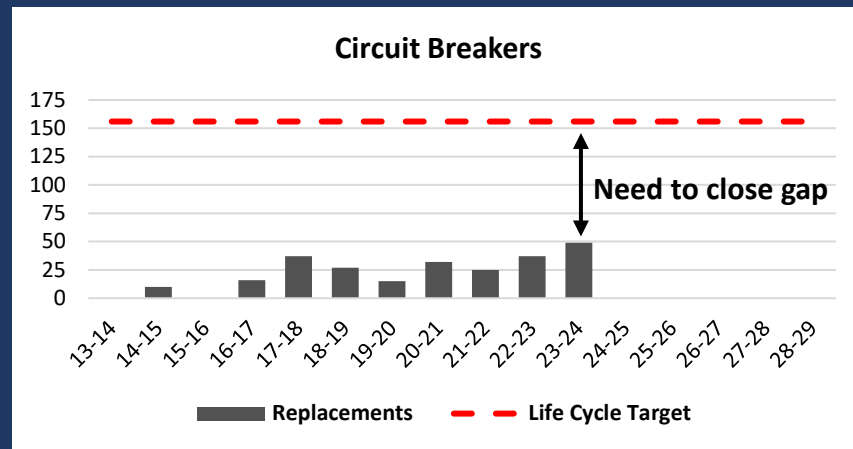
Distribution Utility Poles: **311K**

# Substation Equipment

Asset	Units	Avg. Life Expectancy (years)	> Avg. Life Expectancy
Circuit Breakers	5,626	36	60%
Transformers	1,027	30	61%



*Substation Transformer*



# Substation Improvements

In Progress: Circuit Breaker Life Extension

- Completed 924 life extensions since 2016

Long Term: Station Replacement



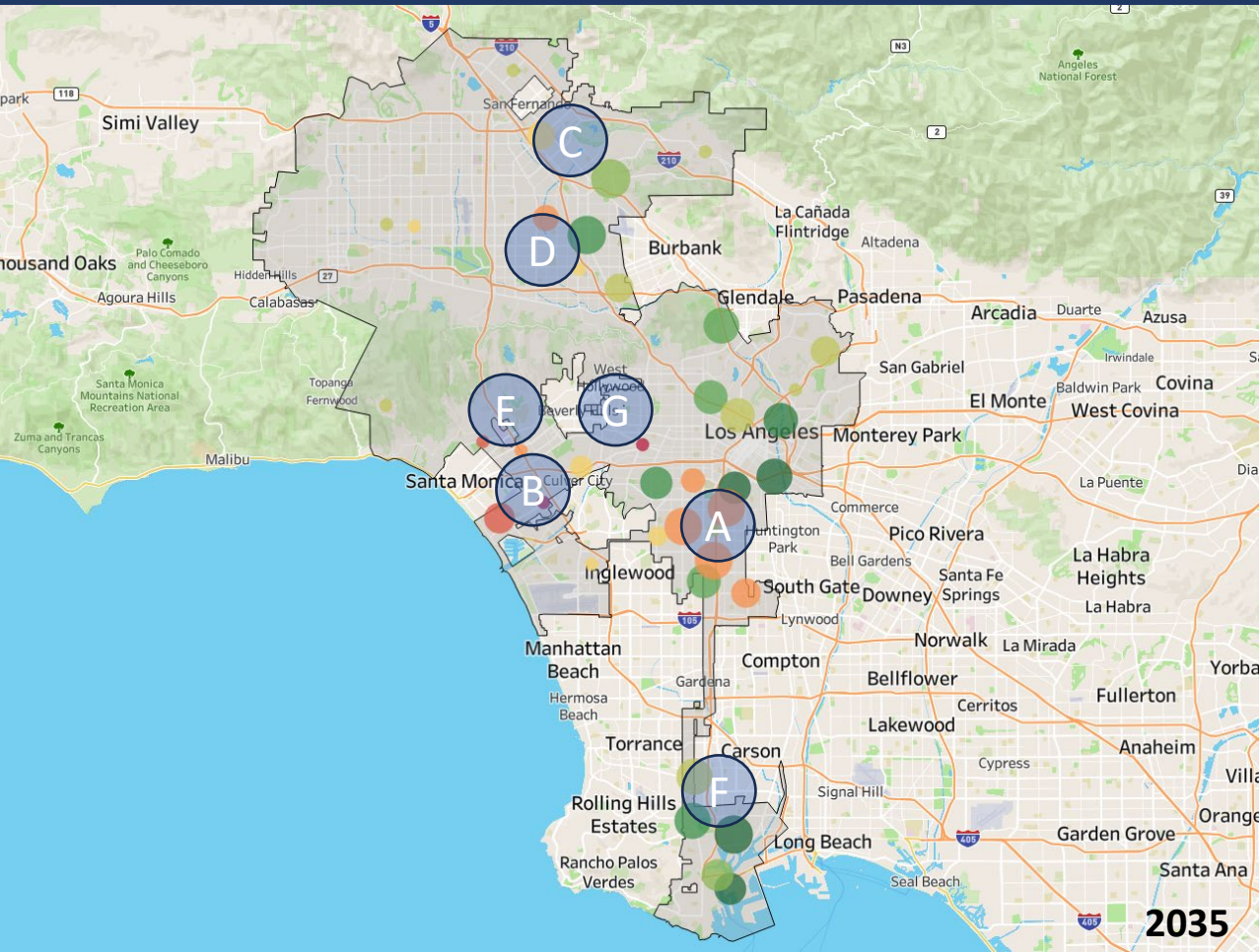
**Worst 10 DS Stations**

<u>Station Name</u>	<u>Area</u>	<u>Score</u>
DS102 ROSCOE	E Valley	31
DS100 VANOWEN	E Valley	34
DS051 ISLAND	South LA	35
DS032 WOODLAWN	South LA	35
DS045 WESTERN	South LA	36
DS041 FIGUEROA	South LA	37
DS106 230TH STREET	South LA	38
DS123 HARBOR CITY	South LA	39
DS005 MATEO	Metro	40
DS114 CRYSTAL SPRINGS	Metro	41



DS-102

# Need for New Distributing Stations



**Size = condition | bigger circle means good candidates for replacement**

**Color = yellow, orange, & red means in need of additional capacity.**

**OK**     **Needs Capacity**



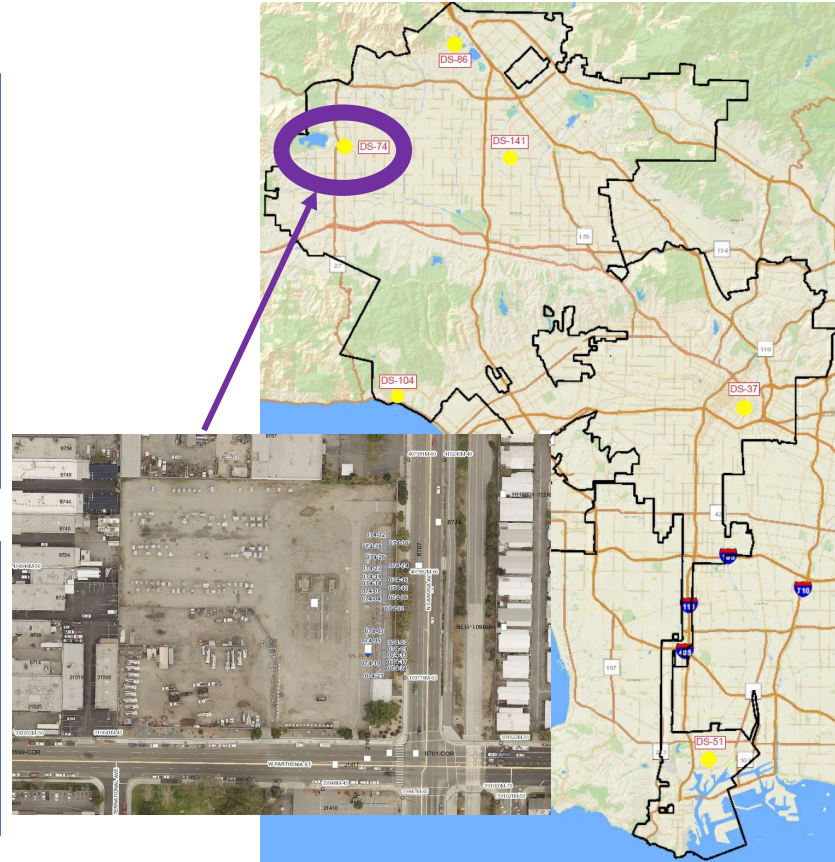
# Additional Distribution Voltage Pilot

## Scope

- Chatsworth Area (Distributing Station 74)
- Construct a fully automated 12.47-kV substation with two transformer banks and ten to 12 circuits
- Construct a modern 12.47-kV Distribution System (poles, cables, conduits, transformers, etc.)
- Cutover DS-74 customers to the new 12.47-kV system
- Keep DS-74 and existing 4.8-kV distribution system in operation until the complete cutover

## Why DS-74?

- Available vacant land and fringe service area
- Nearby construction reporting locations and training centers
- A mix of residential and commercial customers
- Redundant sub-transmission (34.5-kV) feeds from Northridge Receiving Stations (RS-J)



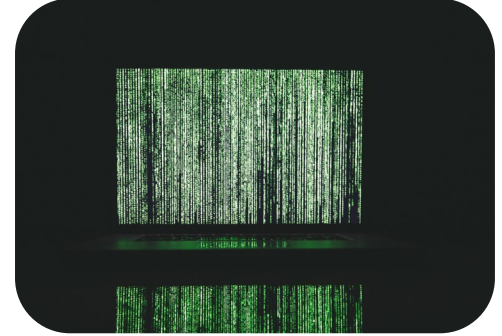
# Ongoing Enhancements



**Program Management**



**Human Resource Planning**



**Data**



**Benchmarking**



**Safety**



**Equity**

*Questions*