LA ZOO PROJECT BACKGROUND

Project Partners:

Department of Water and Power (LADWP) & Los Angeles Zoo

Proposed Project:

Photovoltaic (PV) Solar + Energy Storage + Electric Vehicle (EV) Chargers

Key Goals:

- Provide back-up power for the Los Angeles Zoo
- Expand EV charging infrastructure
- Strengthen power grid reliability
- Expand local solar capacity on City facilities

This will be the largest municipal solar installation in Los Angeles
LA ZOO NEM SCOPE

SOLAR PV
ROOFTOP: 370 kW

BATTERY ENERGY STORAGE SYSTEM
6MWH TOTAL, 3 LOCATIONS

ZOO ELECTRICAL IMPROVEMENTS
SUBMETERING PER BUILDING
UPGRADED ADMIN BUILDING SWITCHGEAR
OVERHEAD TO UNDERGROUND POWERLINE
1 EV CHARGER FOR ANIMAL HEALTH CENTER
EV CHARGERS AND INFRASTRUCTURE
UP TO 100 MAKE-READY EV CHARGING PORTS
UP TO 25 DC FAST CHARGERS

BATTERY ENERGY STORAGE SYSTEM
~2 MW, 8 MWh REPLACING THE FUEL CELL

SOLAR PV
CARPORT & SHADE CANOPY: 3.5 MW

LA ZOO GRID CONNECTED SCOPE
LA ZOO PROJECT BENEFITS

NEM 370KW SOLAR EST SAVINGS $120,000

NEM 6MWH BATTERY SAVINGS OF AT LEAST $100,000

NEM BATTERY PROVIDING BACKUP POWER

OFFSETTING FOSSIL FUELED GENERATION

PROVIDES EV CHARGING FOR CITY AND LA ZOO PATRONS

EQUIVALENT TO REMOVING 1,153 HOMES OR 466 CARS
LA ZOO PROJECT MAP

FUEL CELL REMOVAL AND INSTALL OF 2MW/8MWh STANDALONE BATTERY
3.5MW UBS SOLAR LOCATIONS (CARPORT AND SOLAR SHADE CANOPIES IN FRONT ENTRANCE)
360kW NEM SOLAR ROOFTOP/STORAGE INSTALLATION
UP TO 100 MAKE READY EV CHARGER INFRASTRUCTURE
UP TO 25 DC FAST CHARGERS AND INTERCONNECTION
ZOO OVERHEAD TO UNDERGROUND CONVERSION
LA ZOO PROJECT MAP

360KW NEM SOLAR ROOFTOP/STORAGE INSTALLATION
ZOO SWITCHGEAR REPLACEMENT
ZOO EV HEALTH CENTER
LA ZOO NEM SOLAR AND BATTERY

CHILDREN’S DISCOVERY CENTER

ADMIN BUILDING

LAIR AND CAROUSEL

ANIMAL HEALTH CENTER
LA ZOO OVERHEAD TO UNDERGROUND LINE CONVERSION

ZOO ELECTRIC LINE
LA ZOO EV CHARGER AT THE HEALTH CENTER
LA ZOO SWITCHGEAR AND SUBMETERS

EXISTING SWITCHGEAR TO BE REMOVED AND UPGRADED (CURRENT EQ SHOWN)

INSTALLING SUBMETERING AT KEY LA ZOO BUILDINGS

CONCEPTUAL
LA ZOO GRID CONNECTED SOLAR AND BATTERY RENDERINGS

100KW SOLAR SHADE CANOPY

2MW/8MWH ENERGY STORAGE

3.4MW CARPORT SOLAR
LA ZOO EV PROJECT RENDERINGS

ALL EV CHARGERS ARE LOCATED IN THE ZOO’S NORTH PARKING LOT

100 EV CHARGER INFRASTRUCTURE LOCATION

UP TO 25 DC FAST CHARGERS
## LA ZOO PROJECT COSTS

<table>
<thead>
<tr>
<th>PROJECT COMPONENT</th>
<th>TOTAL ($)</th>
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<tbody>
<tr>
<td><strong>LA ZOO</strong></td>
<td></td>
</tr>
<tr>
<td>360KW NEM SOLAR ROOFTOP (CDC, ADMIN BLDG, HEALTH CENTER, LAIR) PROJECT TOTALS</td>
<td>$2,950,000</td>
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<td>6MWH NEM ENERGY STORAGE (ADMIN, HEALTH CENTER, LAIR) PROJECT TOTALS</td>
<td>$4,102,000</td>
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<td>OH TO UG CONVERSION, SUBMETERING, SWITCHGEAR REPLACEMENT, EV CHARGER AT HEALTH STATION <em>PRELIMINARY COST ESTIMATE</em></td>
<td>$1,000,000</td>
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<td>LA ZOO NEM PROJECT TOTALS</td>
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<tr>
<td><strong>LADWP</strong></td>
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<tr>
<td>3.5MW GCS SOLAR CARPORT TOTALS</td>
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<td>ENERGY STORAGE 10 YEAR DURATION PROJECT TOTALS</td>
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<td>25 DCFC SEPARATELY METERED AND 100 MAKE-READY EV PROJECT TOTALS</td>
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<td>PROJECT MANAGEMENT AND CONTINGENCY (15%)</td>
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<td>LADWP PROJECT COST</td>
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<td><strong>TOTAL PROJECT COST</strong></td>
<td>$47,300,294</td>
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*Preliminary project cost, subject to change
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<tr>
<th>TASK NAME</th>
<th>APPROX. DURATION</th>
<th>PRELIMINARY CONSTRUCTION START</th>
<th>PRELIMINARY CONSTRUCTION FINISH</th>
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<tr>
<td>CARPORT ESTIMATED CONSTRUCTION</td>
<td>11 mons</td>
<td>8/2023</td>
<td>7/2024</td>
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<td>ROOFTOP ESTIMATED CONSTRUCTION</td>
<td>7 mons</td>
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<tr>
<td>EV ESTIMATED CONSTRUCTION</td>
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<td>4/2024</td>
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<td>FUEL CELL CONSTRUCTION REMOVAL</td>
<td>2 mons</td>
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<td>LADWP BESS ESTIMATED CONSTRUCTION</td>
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<td>9/2024</td>
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<td>LA ZOO NEM BESS ESTIMATED CONSTRUCTION</td>
<td>24 mons</td>
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<td>2/2026</td>
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<td>OH TO UG CONSTRUCTION</td>
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<td>SUBMETERING PER BUILDING TIMELINE CONSTRUCTION</td>
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<td>HEALTH CENTER EV CHARGER CONSTRUCTION</td>
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<td>SWITCHGEAR UPGRADE CONSTRUCTION</td>
<td>2 mons</td>
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*SCHEDULE TO BE CONFIRMED WITH LADWP CONSTRUCTION*
OTHER PROJECTS

BALBOA SPORTS CENTER

SCOPE

**NEM:** 50KW ROOFTOP SOLAR—$480,000

**RGS:**
- 2MW CARPORT SOLAR
- 3 DCFC
- 3MWH ENERGY STORAGE
OTHER PROJECTS

VALLEY PLAZA RECREATION CENTER

SCOPE
NEM: 50KW ROOFTOP SOLAR - $480,000
RGS: 200KW CARPORT SOLAR
DCFC CAPABLE
UP TO 3MWH ENERGY STORAGE