**SPEAKER SUMMARY, APRIL 2024**

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**UPDATE ON POWER SYSTEM STRATEGIC VISION**

The Los Angeles Department of Water and Power’s (DWP) strategic vision for its Power System is focused on compliance with enacted public policies at both the state and local levels. California’s SB 100 mandates 60% renewable energy by 2030 and 100% clean energy by 2045. The City of Los Angeles has taken a more aggressive posture and is targeting 80% renewables by 2030 and 100% clean energy by 2035. Achievement of those targets will require significant upgrades to generation resources, the transmission system, and the distribution system.

RESOURCES PLAN

DWP’s current power resource portfolio includes: 1) Hydroelectric power – 1,761 MW; Renewables – 3,640 MW; Nuclear – 387 MW; and Thermal/Gas – 4,979 MW.

The total generation capacity of DWP’s current portfolio is 10,767 MW. To achieve the city’s goal, the thermal/gas component of the portfolio will have to be decarbonized. Currently (2022), renewable sources account for 35.6% of the portfolio. When hydroelectric and nuclear (Palo Verde Nuclear Power Station) are added, clean energy sources account for 51.6% of the portfolio.

By 2030, the renewable sources will have to grow to 80% of the portfolio, and assuming the hydroelectric and nuclear components remain proportional, clean energy sources will be 96.6% of the portfolio. Electrification of the transportation and buildings sectors will concurrently require substantial increases in power generation to accommodate the growing demand, and that may “dilute” the percentages given above depending on the specific mix of new generation sources brought online.

The current plan for the existing coastal thermal plants is to pursue green hydrogen-fueled turbines at Scattergood as a test case for the technology. DWP is working with developers to determine the feasibility of purchasing green hydrogen from the open market. Environmental documentation is nearing completion. Once done, DWP will seek final approval from the City Council, but will have to show that all alternatives have been pursued. The Sierra Club has been advocating hydrogen fuel cells instead of hydrogen combustion at Scattergood, so the feasibility, or lack thereof, of all alternatives will have to be clearly explained. DWP is receiving $150 million in grant funding from the federal government to develop hydrogen technology for power plants.



Wet cooling at Haynes Steam Plant is concurrently being developed to comply with requirements to eliminate once-through cooling using seawater. Such technology may be applied to other coastal plants if hydrogen proves to be a feasible fuel for turbine generation, which in some form is needed for reliability.

Since 1990, DWP has achieved significant reductions in CO2 emissions from owned and purchased power and is forecasting an 80% reduction by 2030 (see chart above). This will be a significant achievement, especially compared to the rest of California, which will not achieve its 40% reduction goal by 2030.

Achievement of the 100% clean energy goal by 2035 will require extensive improvements to the resource procurement process, especially with regard to the time required by the process as currently structured. DWP will work with resource developers to communicate needs in terms of types, quantities, and timelines. Feedback from those developers will be incorporated into the Strategic Long Term Resource Planning process to assure alignment with DWP’s processes. The DWP procurement process will be enhanced to streamline the acquisition of energy and needed services.

TRANSMISSION PLAN

The transmission system currently in place for the City of Los Angeles consists of more than 15,000 miles of power lines and cable bringing diverse sources of power to the city from generation sources located throughout the southwest and pacific northwest. Expansion to accommodate energy demand growth and new sources will be a significant challenge because many of the transmission corridors are constrained or limited in capacity. DWP is pursuing 34 projects for completion by 2030 to upgrade transmission capacity in existing rights-of-way and is considering new conductor materials to improve capacity with minimal new infrastructure. The transmission plan also calls for accommodating new geothermal sources which are important because of their ability to generate on-demand. All design work will be done in-house to DWP standards.

Three transmission expansion projects will be needed, two involving existing corridors from the Victorville area and from Utah (IPP corridor). The third is a new corridor to the east to bring in wind power from New Mexico and solar from Arizona and California. The third corridor will require careful planning and routing to avoid environmental-based objections that may delay the project.

DWP is seeking collaboration with other utilities for cost-sharing (and risk reduction) on some of these transmission projects. Additionally, DWP has applied for federal funding under the Department of Energy's Grid Resilience and Innovation Partnerships (GRIP) program.

DISTRIBUTION PLAN

Upgrading the distribution system is going to be a significant problem due to the exponential growth in demand anticipated from electric vehicles (EVs), data centers, new technologies, and building electrification. Load growth and customer demands for specific services will drive the evolution of the distribution system in the next few years. Furthermore, there currently exists a 200 GWH gap in battery capacity, which is critical to the successful conversion to renewable energy. A possible solution to the battery issue is the discovery of the world’s largest lithium reserve in Imperial Valley, CA, that will be developed to manufacture batteries for the entire nation’s battery needs.

The DWP distribution system consists of a 34.5KV system and a 4.8KV system. Most residential and small commercial customers are served from the 4.8KV system while larger customers such as the Port of LA, the Airport (LAX), hospitals, hotels, and EV charging hubs are supplied from the 34.5KV system. Because of the unprecedented load growth especially from EVs, the 34.5KV system will have to be expanded significantly. Then large customers will be shifted to the 34.5KV system to accommodate load growth from smaller customers on the 4.8KV system. Expansion of the 34.5KV system will also accommodate significant load growth at LAX and the Port of LA.

DWP’s business model for EV charging is to build EV Charging Hubs throughout the city, initially on city-owned property, then expanding to private parking lots (such as those owned by churches) as feasible. The goal is to assure easy access to such charging stations for all citizens of the city and to assure the affordability of charging especially in disadvantaged communities.