

LADWP 2024 Power Strategic Long-Term Resource Plan (SLTRP)

Advisory Group Meeting #4

Summary **Draft**

June 27, 2024, Time 9:30 a.m. – 12:00 p.m.

Virtual Meeting

Prepared by Kearns & West

Meeting Attendance

Advisory Group Members

1. California State University, Northridge (CSUN), Loraine Lundquist
2. Center for Energy Efficiency and Renewable Technologies (CEERT), V. John White
3. City Attorney, Bill Kysella
4. City of Los Angeles, Climate Emergency Mobilization Office, Gordon Haines
5. City Planning Department, Gabriela Juarez
6. Climate Resolve, Jonathan Parfrey
7. Communities for a Better Environment (CBE/AIRE Coalition), Roselyn Tovar
8. Community Build, Robert Sausedo
9. DWP Advocacy Committee, Jack Humphreville
10. DWP MOU Oversight Committee, Tony Wilkinson
11. Food and Water Watch, Andrea Vega
12. Los Angeles Alliance for a New Economy (LAANE), Angela Bai
13. LAANE, Lauren Ahkiam
14. LAANE, Diana Umana
15. Los Angeles Business Council (LABC), David Fink
16. Los Angeles Cleantech Incubator (LACI), Mayte Sanchez
17. Los Angeles Unified School District (LAUSD), Sylvia Wallis
18. Los Angeles World Airports, Carter Atkins
19. Metropolitan Transportation Agency (Metro), Cris Liban
20. Metro, Kara Vega
21. Neighborhood Council Sustainability Alliance, Dan Kegel
22. Neighborhood Council Sustainability Alliance, Ravi Sankaran
23. Office of Public Accountability (Rate Payer Advocate), Fred Pickel
24. Pacific Asian Consortium in Employment (PACE), Celia V. Andrade
25. PACE, Susan Apeles
26. Pacoima Beautiful, Miguel Miguel
27. Sierra Club, Julia Dowell
28. Sierra Club, Katie Ramsey

29. SLATE-Z, Ruth McCormack
30. Southern California Gas Company, Vijai Atavane
31. Southern California Gas Company, Yuri Freedman
32. Southern California Public Power Authority (SCPPA), Randolph Krager
33. University of California, Los Angeles (UCLA), Bonny Bentzin
34. Valley Industry Commerce Association (VICA), Stuart Waldman
35. VICA, Victor Reyes
36. Water and Power Associates, Bill Barlak
37. Water and Power Associates, Bill Engels

Observers

UCLA, Eric Fournier
UCLA, Lauren Dunlap
UCLA, Samantha Smithies
UCLA, Sean Wilder
UCLA, Stephanie Pincetl
Sunrise Movement Los Angeles

LADWP Staff

Aaron Guthrey	Jesus Enriquez
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Caleb Dennis-Kiyasu	Lupton Wilkinson
David Castro	Matthew Gomez
David Jacot	Mukund Nair
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Isai Navar	Samaneh Nickouei
Isiah Smith	Stephanie Spicer
Jade Mora	Stephen Dunlavy
James Barner	Vanessa Mahlkecht
Janelva Williams	Yamen Nanne
Jay Lim	Yiu Pang
Jesse Vismonte	

SLTRP Consultants

Brandon Mauch, Ascend Analytics
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Juan Cabrera, Kearns & West
Karen Lafferty, Kearns & West
Robin Gilliam, Kearns & West

Welcome and Agenda Overview

Joan Isaacson, facilitator from Kearns & West, welcomed attendees and Advisory Group members to the fourth meeting of the Advisory Group for the 2024 Strategic Long-Term Resource Plan (SLTRP) for power. She reviewed the meeting agenda (see slide 2), highlighting the updates on LA100 Equity Strategies implementation, a presentation from Distribution Planning, a reporting back of Advisory Group Feedback from the third meeting, and a presentation on updated SLTRP scenarios and the sensitivity matrix. After noting that the meeting would include breakout sessions for discussion of the updated scenarios, Isaacson recapped the role of the Advisory Group and showed the SLTRP schedule, explaining that the next Advisory Group meeting will be in October once modeling is completed. In addition, she described the optional meetings in August, where the Distribution Planning Team will share information about updates to the Distribution Plan and hear feedback from Advisory Group members.

LA100 Equity Strategies Implementation Updates

Greg Pierce, Co-Executive Director of the UCLA Luskin Center for Innovation, gave the Equity Strategies Implementation update. He described how a smaller team from UCLA will be supporting implementation planning over the next 20 months and gave an overview of potential areas of focus, including equity criteria, equity metrics, and community engagement and empowerment strategies (see slide 11). Pierce shared the current task, which is to develop a work plan for July 2024 through June 2025, and described potential near-term milestones for late 2024 and early 2025 (see slide 12). He concluded by noting that LADWP is committed to a long-term, iterative process.

Question and Answer

Comment: I'm in favor of an equity metric for the percent of income that goes to total household energy bills for all sources, including gasoline, given it's probably the metric disadvantaged Angelenos care most about.

Response: That will be part of the discussion.

Question: Will we discuss the June 18th report by the Office of Public Accountability/Ratepayer Advocate that indicated that the sustained escalation in Case 1-3 rates and bills is "not reasonable"?

Response: This has been noted. Later in this meeting we will look at updated scenarios that try to address that in the 2024 SLTRP.

Comment: LADWP has done a good job in the past of handling cost changes. They can evolve strategies as new technologies come forward and did well in reducing the initial cost for the Intermountain Power Plant transition from coal.

Additional Comments and Questions Entered in Meeting Chat

Isaacson noted that additional comments and questions entered into Zoom's chat function during this agenda item would be captured and addressed by the LADWP team. The following comments and questions could not be addressed verbally during the meeting by the project team due to time limitations. Comments and questions have been lightly edited for clarity and consistency.

- Part of this effort will be to keep the cost of electric power (as a substitute for fossil fuel) in transportation at a reasonably low level to encourage EV (electric vehicle) use and maximize greenhouse gas (GHG) reduction for the city overall.
 - Response: Rachel Sheinberg at UCLA is also leading the development of an energy burden bill estimator tool which will be discussed in the context of both the SLTRP and Equity Strategies Advisory Committee.
- For the Office of Public Accountability report go to <http://opa.lacity.gov> and find it at the top of the report list.
- The benefit of annual SLTRP discussions is that discussions can evolve based on new technologies and different insights.

Distribution System Planning Advisory Group Meetings

Yamen Nanne, Manager of Distribution System Planning and Management at LADWP, began with a brief introduction of the Distribution System Assessment Stakeholder Outreach team and provided an explanation of how distribution modeling has become more complex due to distributed power resources, rising temperatures, and other factors. He continued by describing LADWP's efforts in conducting advanced modeling

and added that diverse perspectives are needed to highlight opportunities and issues and to understand the needs and priorities of stakeholders.

Nanne then introduced Haik Movsesian, Supervisor of Distribution System Planning at LADWP. Movsesian began with an introduction of the distribution system, providing an illustration of how power and energy travels from the point of generation to consumption by customers (see slides 15-17). He explained power distribution via substations, power lines, and transformers, noting that the transformers will need to be closely monitored to study load capacity and need. He continued by introducing the work of the Power System Planning Team, describing its role in studying and modeling different energy use cases (see slide 19). He then showed a map illustrating the available power capacity through the LADWP service area. Movsesian concluded by sharing the objectives of the optional Distribution System Planning Advisory Group meetings and the upcoming meeting schedule (see slide 20).

Question and Answer

Question: Will the SLTRP account for upgrading costs in the distribution system?

Response: Yes, there is a feedback loop into the Power System Reliability Program to reflect an accurate cost of the upgrades.

Question: I recall hearing proposals for building larger distribution centers and storage. It's good to hear storage resiliency would be there, but I'm concerned that some are in residential areas, and I have concerns about lithium-ion battery fires.

Response: The first Advisory Group meeting on distribution planning will provide information on the system assessment. The second meeting will provide spatial analysis and describe shortfalls and won't get into specific upgrade plans yet. Each solution requires a lot of engineering and can be simple like replacing a line or can involve a new substation which goes through the environmental review process.

Question: As LADWP identifies shortfalls and best solutions, are you doing the analysis of how quickly things can come online given electrification and load increases?

Response: On forecasting, we know the existing system and shortfalls and the future loads in various years. Each solution has a timeline; some more certain and others more ambiguous.

Question: Does the forecast consider climate policy and electrification goals?

Response: Yes, and at the next meeting we will discuss the inputs and forecasts (e.g., EVs) and how those are determined. We look at solar resources and energy efficiency that reduce usage as well.

Question: For hotspots in the distribution system, on the Equity Strategies side we are concerned about priority and buildout. Will there be discussion of how priorities will be

established in the Distribution System Planning and how to incorporate LA100 Equity Strategies?

Response: The next step for LADWP is to identify concrete steps on how to take action on some of the recommendations. When we have actions items for the distribution system, we can discuss it.

Question: Will the distribution system planning include business aspects, labor force, and appropriate metrics for this area?

Response: The need for staffing is addressed in the Integrated Human Resource Plan, but we do want to hear what the Advisory Group cares about.

Comment: When Power System Reliability Program investment was included in the last rate review, the need to place 5,000 poles a year was used as a proxy goal. LADWP has struggled to maintain a pace of 3,000 poles per year. Linemen are leaving and it's hard to build a workforce since training takes four years.

Comment: Holding off on this conversation about labor is a mistake. LADWP is understaffed. The Port of Long Beach is planning to triple its capacity for high-skilled workers. Also, we are talking about distribution, but LADWP needs to evaluate onsite solar programs and the amount of infrastructure needed. UCLA has had to wait for interconnection and that delays the ability for resources to support the grid.

Comment: LADWP needs to ramp up planning for staffing. There needs to be an industry-level effort for training.

Issacson thanked everyone and noted that the Advisory Group members' comments and questions are helping shape the agenda for these discussions.

Additional Comments and Questions Entered in Meeting Chat

- Setbacks for storage are going to be important for safety. LFP batteries (lithium-ion batteries, where iron replaces cobalt and nickel) are much safer than older lithium batteries, but of course they too can catch fire. Reassuring neighbors is going to be important. LADWP might need to buy up the lots surrounding an existing station to get enough setback.
 - **Response:** We will consider opportunities to collocate energy storage within new substations that may need to be built. However, there is limited space that we are able to get within City limits. Ultimately, we have found that energy storage makes more sense along the distribution circuits closer to the customer load centers where it can help mitigate overloads and save customers on their demand charges.
- I'm excited for how solar and storage will be able to help supplement transmission buildout and appreciate the thorough investigation.

- I'm looking forward to requiring new warehouses to include full rooftop solar and storage.
- Is LADWP taking into account the amount of time needed for training the required workforce? LADWP is already giving 1-2-year lead times for transformers, switches, and interconnections for solar.
- Will demand response be integrated into this analysis as well?
- My information on the newer type of larger distribution stations came from a distribution planning report to the NC-MOU meeting (8:30 am, 1st Saturdays). The DWP purchase of a church and school property in the Panorama City/South Arleta area for a new distribution facility raised a question about the fire danger if that one location was to have lots of storage, since it's surrounded by single family homes. The area in question is north of Roscoe and south of Osborne, between Woodman Ave and the Hollywood Freeway. Again, this is not a specific concern about a local issue. It might be an example of fire concerns with large storage additions to distribution stations.
- Other utilities are poaching our linemen. Does that mean we need to raise their salary?
- Our organization appreciates this distribution system assessment and consider it an important part of transitioning to a clean grid. Sierra Club hopes this will incorporate plans for building and vehicle electrification and distributed storage to meet our clean energy needs. we look forward to the next meeting.
- We a getting negative (i.e., fire danger) information regarding storage additions. How can we convey the switch to future electrification to the community?
- Would an example of collocation be near EV charging hubs or EV bus yards?
 - Yes, collocating energy storage with EV charging yards is very practical in reducing stress on the distribution system.
- I'm all for collocating storage with distribution. My concern was with how much. Maybe more, smaller distributed sources with storage would be better than fewer, big storage systems near residences.
- Having fewer sites (and farther away from residences) is better in the early days; need to demonstrate a track record.
 - Response: Safety is paramount and always at the forefront of any battery project. There are fire safety standards and close collaboration with fire departments to date. We expect larger projects to go through CEQA.
- A huge thank you for allowing chat to be saved.

Review of SLTRP Advisory Group Feedback (Meeting #3)

David Castro, Supervisor of LA100 Policy Implementation at LADWP, led a Mentimeter exercise to provide a recap of the modeling information shared in previous meetings (see Appendix). Jay Lim, LADWP Manager of Resource Planning, provided answers and explanations for the Mentimeter questions before sharing a recap of input received during the third Advisory Group meeting.

Lim gave an overview of recurring themes regarding draft scenarios, sensitivities and modeling inputs (see slide 25), explaining how LADWP used feedback from Advisory Group members to refine and evaluate previous scenarios. He provided an overview of the feedback received and detailed the steps LADWP is taking to address these recommendations (see slide 26).

Additional Comments and Questions Entered in Meeting Chat

The following comments and questions include exchanges related to the Intermountain Power Plant among a limited number of Advisory Group members.

- I would like to see modeling of lower must-run requirements at Intermountain Power Plant. Making hydrogen on a sunny day and then immediately burning it to generate electricity is rather galling.
- I didn't think Intermountain would immediately burn the hydrogen it generates. I thought it would store it underground in nearby salt domes and then use it when needed (for example, night or cloudy weather). Essentially the stored hydrogen would be "energy storage."
- The "must run" requirements require Intermountain to run at 50% capacity half the year, even during the daytime, regardless of whether there is enough solar without running the plant. Those requirements come from the amount of power needed to keep the HVDC line (and maybe the in-basin grid) stable. LADWP needs to figure out how to keep the HVDC line stable without immediately burning hydrogen it just generated on very sunny days.
- Can battery storage alone handle nameplate demand?
- Battery storage would let Intermountain power down when solar and wind is forecast to meet needs and spin up if those forecasts are wrong.
- A must run requirement of 50% for half the year is a high level, but why is it not always required, if the purpose is to stabilize the DC line? Restabilizing the basin is only required if LADWP adopts the absolutist demand that there be no combustion capacity allowed in-basin.
- The other half of the year, the must run requirements say Intermountain has to run at 25% capacity.
- I'd like to see this scenario modeled.

- Can you explain why you are considering an extra 18% loss on top of 12% line losses. I heard you say this is losses from storage and curtailment. I am not familiar with any estimation of losses that are this high. I also don't think that curtailed energy should be included in energy procurement.
 - Response: The losses are the difference between the net energy for load and the sales to ultimate customers. Our model is forecasting an increase in losses by 2035 due to additional energy storage losses and curtailments.
- Can you say more about what that means in terms of why there would be energy storage losses and curtailments?

Updated 2024 SLTRP Scenario and Sensitivity Matrix

Lim presented an overview of the updated 2024 SLTRP scenario and sensitivity matrix. He began by explaining the difference between sales and generation and emphasizing that accounting for the production and sale of clean energy is not the same. He illustrated how approximately 12% of energy is lost from the point of generation to electricity sales (see slides 28-29). He continued with presenting seven core themes from the Advisory Group's feedback and discussion around addressing equity in the SLTRP scenarios, which included questions regarding 130% of retail sales in order to achieve the goal of 100% carbon free by 2035 (see slide 30).

Lim presented the original 2024 SLTRP scenarios, highlighting the addition of two new cases and the removal of the SB100 Carbon Free case (see slide 31). He explained that the Local Policy A, B, and C are illustrated on the same timeline. Local Policy B is a new scenario with no in-basin combustion, and Local Policy C has the same goal, but allows existing gas assets to provide backup. He continued with a detailed explanation of the updated 2024 scenarios, highlighting that the changes made were based on feedback from SLTRP Advisory Group feedback (see slide 32) and showed a new graph illustrating the updated 2024 SLTRP scenarios.

Lim gave a brief description of the possible price sensitivities, stating that there would be no changes. He concluded with an overview of six "what if" factors that are applied to Local Policy A and one implementation risk that will be considered in the SB100 Carbon Free scenario (see slides 33-35).

Question and Answer

Question: Why does Local Policy C include a gas option?

Response: Local Policy C will use gas as backup and only in extreme conditions.

Additional Comments and Questions Entered in Meeting Chat

- I am loving Local Policy C here because it gets us awful close to 100% carbon free by 2035, I suspect, at a significantly lower cost.
- The poor people of LA will rather like Policy D. It's much cleaner than SB 100 but gives time for technology costs to come down.
- I suspect the storage would have to be paired with solar. Fortunately, there seems to be room for a significant amount of solar right next to both ends of the HVDC line.
- We understand that SB 100 includes a specific reference to "retail sales" but the City ordinance doesn't include that language. The City Ordinance requires 100% carbon free energy by 2035. It seems like the scenario that only reaches 100% of retail sales doesn't comply with the City ordinance. Can you explain why LADWP is looking at scenarios that don't comply with the City ordinance?
- Local Policy C is very responsive to the fear of absolutists forcing us to 100% even though getting above 95% is likely to be very expensive. It's a lot like the SB 100 approach but updated for modern times.
- I thought part of the argument for under-building the Intermountain Power Plant replacement was that we needed the line capacity to handle solar and maybe some wind from the area. If solar is "shaped" by the provider's batteries that would lessen the need for always on the Intermountain Power Plant generation
- Has LADWP looked at other technologies for long duration energy storage, other than batteries and hydrogen?
- I was assuming that, even with Local Policy C, any new generation would be hydrogen-capable.

SLTRP Advisory Group Breakout Sessions

Isaacson outlined the process for the breakout sessions, emphasizing that the project team wants to hear from primary Advisory Group members. Isaacson previewed the updated draft 2024 SLTRP scenario and sensitivity matrix and the three questions to be discussed in the breakout groups.

1. What do you view as strengths of the updated scenario and sensitivity matrices?
2. Does the updated scenario matrix align with your organization's priorities and interests, and if not, why?
3. Does the updated what-if sensitivity matrix align with your organization's priorities and interests, and if not, why?

Breakout Session Discussions

A facilitator and notetaker from the project team staffed each of the four breakout groups. Notetakers in each breakout session captured detailed responses to each discussion question. Due to time limitations, not all breakout groups discussed all three questions. Those responses are compiled and summarized below.

What do you view as strengths of the updated scenario and sensitivity matrices?

When asked about the strengths of the updated scenarios and sensitivity matrices, some Advisory Group members expressed gratitude for LADWP further examining new cases and including new scenarios; however, many members expressed concerns with Local Policy C and the use of natural gas as backup. A few members shared that Local Policy C is less trustworthy given the historical precedent of policies not being honored and that they considered it to be a setback. Multiple members questioned the accuracy of the carbon free percentage being implied by Local Policy C and expressed curiosity about how the gas backup will be modeled. One member considered Local Policy C to be pragmatic and a reasonable alternative to make the transition fast and affordable.

Additional discussions about the updated scenarios and sensitivities centered around hydrogen combustion and health impacts, the importance of balancing costs, and appreciation for including energy burden in the analysis. One Advisory Group member noted that previous scenarios and sensitivities did not match the goals outlined by the City ordinance. Another member expressed the need to focus on higher prices to increase conservation efforts and take into account technological uncertainties, advancements, and costs.

Does the updated scenario matrix align with your organization's priorities and interests, and if not, why?

In discussing the updated scenario matrix, Advisory Group members expressed their appreciation for incorporating various potential solutions to align with the perspectives, priorities, and interests of organizations. Many members shared the importance of thoroughly assessing LADWP's current infrastructure and its capacity to withstand the implementation of this plan and process. Some members expressed interest in understanding the calculations behind the energy losses being presented, noting the 30% energy loss is high. Multiple members suggested further analysis of the non-combustion scenario, possibly modeling for the hydrogen market at different capacities.

Other topics raised by Advisory Group members included the need to understand the changes in the scenarios, specifically the reasoning behind Local Policy A, B, and C. Multiple members expressed appreciation for including the climate impacts in the analysis but suggested looking into pollution impacts and the major sources of pollution.

One member noted that the scenarios being considered are not possible within the next 10 years and emphasized that LADWP needs to allow for on-site production and use of energy. Other topics discussed by Advisory Group members were concerns about the distribution and operation of programs, equity issues, and the cost of power and impacts to transportation.

Does the updated what-if sensitivity matrix align with your organization's priorities and interests, and if not, why?

When asked about the updated what-if sensitivity matrix, Advisory Group members expressed the need for reliability issues in LADWP systems to be balanced between local capacity requirements and transmission expansion. Some members shared their appreciation for the inclusion of hydrogen supply sensitivities but hoped to see more sensitivity analyses on LADWP sales. Multiple Advisory Group members emphasized the need to analyze the cost considerations associated with the various local policy options, noting that it is crucial to match decisions with their financial implications.

Additional feedback centered around concerns with no in-basin combustion, the risks of not having adequate reserve generation in-basin, and concerns over transmission line losses. One member proposed accelerating the development of behind-the-meter solar and storage to help achieve the 100% clean energy, suggesting the use of external funding for that type of development.

Additional Comments and Questions Entered in Meeting Chat

- How are we tracking carbon and what does the infrastructure need to look like to consider utilizing it in scale?
- I want to reiterate an interest in better understanding the "130%" assumption and why there would be energy storage losses and curtailments, perhaps at a future meeting?
- We haven't included the impact of imported carbon free energy and the impact it has on the fuel mix and potential reduced carbon in the areas where it's generated, and I want to flag that none of the scenarios are possible by 2035.
- I am really looking forward to one more transmission line into the basin.
- Where is LADWP planning to purchase hydrogen from? Given that LADWP is not planning to use pipelines for hydrogen, how does SoCalGas's Angeles Link factor into this since Angeles Link will be pipelines?
- The planning horizon for projects of this scale are along the lines of 5 years. That doesn't include the timeline for real estate acquisitions, material procurement, workforce training, etc. We can't get this done by 2035.

Wrap Up and Next Meeting

Isaacson wrapped up the meeting by sharing the SLTRP meeting map with the next Advisory Group meeting scheduled for October and the optional Distribution System Planning meeting in August (see slide 40). Isaacson shared the project email address PowerSLTRP@ladwp.com and concluded by thanking the Advisory Group members for their participation and engagement.



Appendix
Mentimeter Results