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

Advisory Group Meeting #2

Summary

April 18, 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 at Northridge (CSUN), Loraine Lundquist
2. Center for Energy Efficiency and Renewable Technologies (CEERT), V. John White
3. City Attorney, Bill Kysella
4. Climate Emergency Management Office (CEMO), Gordon Haines
5. Climate Resolve, Jonathan Parfrey
6. Community Build, Robert Sausedo
7. DWP Advocacy Committee, Jack Humphreville
8. DWP MOU Oversight Committee, Tony Wilkinson
9. Esperanza Community Housing, Nancy Ibrahim
10. Food and Water Watch, Andrea Vega
11. IBEW Local #18, Martin Marrufo
12. LA Cleantech Incubator, Mayte Sanchez
13. Los Angeles Alliance for a New Economy (LAANE), Lauren Ahkiam
14. Los Angeles Business Council (LABC), David Fink
15. Los Angeles City Planning Department (LACP), Gabriela Juarez
16. Los Angeles Unified School District (LAUSD), Sylvia Wallis
17. Metropolitan Transportation Agency (METRO), Cris Liban
18. Metropolitan Transportation Agency (METRO), Kara Vega
19. Neighborhood Council Sustainability Alliance, Ravi Sankaran
20. Neighborhood Council Sustainability Alliance, Dan Kegel
21. Pacific Asian Consortium in Employment (PACE), Celia Andrade
22. Pacific Asian Consortium in Employment (PACE), Susan Apeles
23. Pacoima Beautiful, Miguel Miguel
24. Port of Los Angeles (POLA), Dac Hoang
25. Rate Payer Advocate, Camden Collins
26. Rate Payer Advocate, Fred Pickel
27. RePower, Roselyn Tovar
28. RePower, Olivia Walker

29. Sierra Club, Julia Dowell
30. Sierra Club, Teresa Cheng
31. South Los Angeles Transit Empowerment Zone (SLATE-Z), Ruth McCormack
32. Strategic Concepts in Organizing and Policy Education (SCOPE), Tiffany Wong
33. University of California, Los Angeles (UCLA), Bonny Bentzin
34. University of Southern California (USC), Zelinda Welch
35. USC Equity Research Center, Vanessa Carter
36. Valley Industry Commerce Association (VICA), Stuart Waldman
37. Water and Power Associates, Bill Barlak
38. Water and Power Associates, Bill Engels
39. Water and Power Associates, Ken Silver

Observers

UCLA, Stephanie Pincetl
UCLA, Samantha Smithies

LADWP Staff

Alexandra Briseno
Arash Saidi
Armen Saiyan
Babak Yazdanpanah
Brendan Watson
Caleb Dennis-Kiyasu
Ceja Fredy
David Castro
Dawn Cotterell
Dhruv Prajapati
Elena Stern
Faranak Sarbaz
Greg Reed
Isai Navar
Isiah Smith
James Barner
Janelva Williams
Jay Lim
Jesse Vismonte
Jesus Enriquez
Jimmy Lin
John Gregory
Jonathon Flores
Julianna Colwell
Kerry McCorkle
Kim Cheung
Lisa Yin
Luis Martinez
Lupton Wilkinson
Mukund Nair
Nadine Dimetry
Nermina Rucic O'Neill
Nirvesh Sikand
Omar Elayyan
Patricia Macatugal
Robert Hodel
Samaneh (Sam) Nickouei
Shanell Green
Stephanie Spicer
Stephen Ruiz
Tehreem Raza
Vanessa Gonzalez
Vanessa Mahlkenecht
Yamen Nanne

SLTRP Consultants

Rachel Scheinberg, University of California, Los Angeles (UCLA)

Brandon Mauch, Ascend Analytics
Hardi Sura, Ascend Analytics
Brisa Aviles, Kearns & West
Christian Mendez, Kearns & West
Jasmine King, Kearns & West
Joan Isaacson, Kearns & West
John Bowie, Kearns & West
Juan Cabrera, Kearns& West
Karen Lafferty, Kearns & West
Robin Gilliam, Kearns & West

Welcome and Agenda Overview

Joan Isaacson, facilitator from Kearns & West, welcomed everyone to the second Advisory Group meeting for the 2024 Strategic Long-Term Resource Plan (SLTRP) for power. She reviewed the meeting agenda, explaining that the focus would be on beginning discussions about the scenarios, assumptions, and modeling inputs for the 2024 SLTRP. She then reminded participants about the Advisory Group's role, its member organizations, and meeting schedule for 2024.

Review of SLTRP Advisory Group Feedback (Meeting #1)

Jay Lim, LADWP Manager of Resource Planning, gave a recap of input received during the first Advisory Group meeting. Lim started by sharing results and open comments from the Mentimeter survey, noting the caveat that not all Advisory Group members had participated (see slides 9-18). Lim also shared feedback received about the meeting itself in the Mentimeter survey.

Lim then presented 10 major themes from the questions and comments submitted on index cards by Advisory Group members during the first meeting (see slides 19-20). In response to questions, he highlighted a rolling Request for Proposals (RFP) for resources, 36 ongoing transmission projects, collaboration with the water system, considerations for hiring, and applications for grant funding.

Question: Did many people think the first meeting was too long and not organized?
Response: We wanted to be responsive to all feedback. The first meeting was heavy on presentation, but as we get into the SLTRP we will have more breakout sessions.

Overview of 2024 SLTRP Assumptions

Lim began the overview of assumptions for the 2024 SLTRP by reviewing the SB 100 report and modeling scenarios. He explained that the City of Los Angeles has more aspirational goals for carbon reduction than the minimums mandated by the state and established in SB 100.

Lim defined assumptions as the critical inputs to a model (see slide 22). He explained how scenarios are broad strategic plans whereas sensitivities isolate a single assumption (e.g., bookends for high and low commodity prices). He described model scenarios as a way to gain insights into future outcomes, tradeoffs, and metrics to make data-driven decisions. Lim further explained that the computer modeling examines scenarios on an hourly basis and generates a scorecard with metrics that are then reviewed by executive management to recommend a case (see slide 24). Next, Lim reviewed the 2025 SB 100 Joint Agency Report with the base case and additional scenarios (see slide 25).

Robert Hodel, LADWP Manager of Integrated Resource Planning, presented the 2024 SLTRP assumptions package (see slides 28-49). He first reviewed assumptions for energy, including load forecast, behind-the-meter resources, and the resource portfolio (see slide 28). Next, he described financial assumptions for capital and compliance costs, such as for greenhouse gas (GHG) allowances. Hodel described how capacity expansion modeling allows LADWP to determine the optimal way to meet power needs while minimizing costs and then outlined forecasts for retail electricity sales.

Hodel next presented assumptions for total existing and pending capacity (see slide 32), highlighting that after 2025 the LADWP resource portfolio doesn't include coal generation and explaining the potential for pumped-storage projects. He also described assumptions for both local rooftop solar and utility-built solar (UBS) that can be accessed by people who cannot build their own rooftop solar (e.g., apartment dwellers). Hodel shared the generation forecasts for Hoover Dam and the Intermountain Power Project, which will use green hydrogen.

In the next section, Hodel shared assumptions for energy efficiency and building electrification – which both lower and increase demand – demand response, and transportation electrification. He then illustrated costs for the Power System Reliability Program (PSRP) revamp, explaining how aging infrastructure needs to be replaced, although he noted that these figures do not affect how the model runs.

Hodel continued by sharing price forecasts for renewable energy and storage from the National Renewable Energy Laboratory (NREL). He also shared price forecasts for natural gas, noting that although the projections on the slide extend into the 2040s, it does not indicate that LADWP will use it as a resource. He described the assumptions for GHG

allowances and green hydrogen, acknowledging that currently no market for green hydrogen exists and so projections from Bloomberg will need to be updated. He concluded by highlighting three grant categories under the Inflation Reduction Act (see slide 50), explaining that although this funding does not affect how the model runs it shows up as a cost reduction when LADWP forecasts rates.

Question and Answer

Question: When will we hear more about solar program coordination/planning with municipal/public buildings?
Response: We get that information from the LADWP Solar Team. In the SLTRP, our focus is high level.

Question: Why is utility-built-solar intended to "benefit" people who cannot install rooftop solar? It would be cheaper to subsidize bills.

Response: The assumptions account for costs of utility-built solar and are included in the whole system cost, which is then fed into the rates analysis. LA100 Equity Strategies is looking at this in more detail.

Question: Are accessory dwelling unit (ADU) installations included in the assumptions?

Response: Yes, load forecast and load growth from ADUs are considered.

Question: Is the Power System Reliability Program a priority? What is the timeline?

Response: It is a priority, given that future electrification will put pressure on the distribution system. In 2014, we expanded the program to include generation, transmission, and distribution, and we have secured a 5-year rate action plan. It is decreasing outages.

Question: Historically, prices of renewable energy resources have fallen, especially batteries. Why are your projections for renewable energy and storage to stay steady or even increase?

Response: These forecasts come from NREL and include inflation. They are nominal prices, which have increased since the pandemic due to supply chain issues.

Question: How can LADWP calculate costs for green hydrogen production, including required energy use, water use, and storage instead of using Bloomberg costs?

Response: Self-produced hydrogen is complicated in the model, and the projections are variable. Data is limited, but we mitigate uncertainties by running different sensitivities and assumptions, which will be updated when more data is available.

Question: What is the source for the forecast projections that don't come from NREL?

Response: LADWP has different teams that provide data and projections, including retail sales, buildout of solar, and GHG allowances. LADWP is also looking at cap and trade projections.

Question: Is it possible to get forecasts from experts other than NREL?

Response: Forecasts are gathered from different sources including Bloomberg, Hitachi, Platt, and others.

Question: Has LADWP examined partnering with the California Independent System Operator (CAISO) and/or Southern California Edison (SCE) on joint ownership of high-capacity transmission to import clean power into the LA basin?

Response: Such partnerships exist. For example, we have a high voltage DC line from the Northwest for wind resources and hydropower, which is jointly owned and operated with SCE. We are also following a strategic transmission plan on corridors in partnership with CAISO.

Additional Comments and Questions Entered in Meeting Chat

The following comments and questions were entered into Zoom's Chat function and could not be addressed by the project team due to time limitations.

- In the financial assumptions, do the prices include capital costs or just operating costs?
- Where are the offshore wind plants that are used in the assumptions, and do we have the possibility of offshore wind here in LA?
- When are the "must run requirements" (using green hydrogen) going to be enforced?
- Has LADWP considered selling surplus green hydrogen it produces for its power generation uses, to the refineries, on an available basis?
- What is the source that details the modest increase of gas prices? I'm surprised given the upward trend that is expected with increased electrification.
- I am absolutely interested in the "must run" requirements for IPP [Intermountain Power Project], and how it can be reduced by adding batteries to nearby solar plants, like the one a mile or two away.

SLTRP Advisory Group Breakout Sessions

In preparation for discussion in breakout sessions, Lim shared considerations for the 2024 SLTRP assumptions package (see slide 52). He first reviewed the three guiding principles, caveats and challenges and the SLTRP modeling process, describing how LADWP wants to model multiple scenarios to arrive at a data-driven decision. He also pointed to feasibility considerations and the iterative nature of the SLTRP.

Lim explained that the discussion focus for today would be the scenarios and then presented the SB 100 reference case and Case #1 as bookends with SB 100 representing the minimum case. He said these cases are the starting point for discussion and that the project team would like input on other scenarios and will propose an updated scenario matrix at the next meeting.

Comment: Scenarios are conflating decisions with uncertainties or combining actions with potential future worlds. Uncertainties must be separated out test resilience.

Response: To clarify, do you want to see more in the scenarios that addresses risk?

Comment: Think about a matrix with the action plans across the top, which are the cases, and then uncertainties, such as a rapid innovation cycle in multiple sectors. Other scenarios should have a different mix of uncertainties such as rapid global warning with static innovation.

Isaacson outlined the process for the breakout sessions, emphasizing that the project team wants to hear from all Advisory Group members. Isaacson then previewed the overarching question and three questions for discussion in the breakout groups:

> How can this year's 2024 SLTRP build on the 2022 SLTRP to balance LADWP's Guiding Principles and minimize risk?

1. What is your organization's #1 discussion topic around energy?
2. What are some ways LADWP could leverage lessons learned from the 2022 SLTRP process?
3. What would you like to see out of this year's SLTRP scenarios?
4. What additional scenarios would be important to your organization, besides the SB 100 and 100% carbon free by 2035 bookends?

Breakout Session Discussions

A facilitator and notetaker from the project team staffed each of the four breakout groups. Notetakers captured detailed responses to each of the discussion questions and

any comments shared in the meeting chat. Those responses are compiled and summarized below.

What is your organization's #1 discussion topic around energy?

Advisory Group members shared diverse responses to this question. Many members cited concerns around grid resilience, increased load due to building and transportation electrification, and costs. Some members talked about costs in terms of the need for infrastructure upgrades, whereas others emphasized affordability for vulnerable residents and the importance of a just transition to clean energy. Extreme heat and lack of access to air conditioning were mentioned by several Advisory Group members as were concerns about the use of hydrogen.

Additional topics raised by multiple Advisory Group members included: community development and housing, planning for increased demand during the Olympics and World Cup, considerations for workforce development, reduction of air pollution, and their own organization's decarbonization goals. Other topics included LADWP worker safety, the drop-off in adoption of rooftop solar, the need for independent public analysis, and protecting water resources.

What are some ways LADWP could leverage lessons learned from the 2022 SLTRP process?

When asked how to leverage lessons learned, some members acknowledged that they had not participated in the 2022 SLTRP process. Those who did participate offered suggestions on a range of topics. Several suggested considerations for costs, such as accounting for costs of inaction, exploring rate restructuring, factoring in price volatility, and using an inflation rate beyond 2-3% per year.

Some Advisory Group members encouraged placing equity "front and center" and suggested engagement with low-income communities. Other comments focused on using models with climate-based patterns and extreme weather, considering transmission risks, and including non-energy benefits. One member suggested elevating health and wellness to the same level as financial and equity considerations.

What would you like to see out of this year's SLTRP scenarios?

While not all breakout groups discussed this question due to time, Advisory Group members did share what they would like to see in the 2024 SLTRP scenarios. Ideas included scenarios without hydrogen and/or that consider different options; scenarios with high levels of distributed energy resources, demand response, and energy efficiency; scenarios with long-duration energy storage; and scenarios that factor in effects of extreme heat and wildfires.

Other suggestions were to plan for specific geographies within Los Angeles, evaluate health impacts, calculate a total energy bill inclusive of natural gas and gasoline, and fully commit to the goal of 100% clean energy by 2035. A few comments addressed using realistic assumptions and being able to achieve 100% clean energy while maintaining reliability.

What additional scenarios would be important to your organization, besides the SB 100 and 100% carbon free by 2035 bookends?

Advisory Group members offered ideas for additional scenarios, although due to time not all groups discussed this question. Suggestions included scenarios without combustion and that consider advances in long-duration energy storage, and scenarios that factor in climate change impacts, low growth of retail electricity sales, and micro-analysis of low-income communities. Related ideas were for testing of variables independently to assess impacts, offering different levels of customer incentives, addressing caps on solar installations, and communicating to the public about the firm power requirement.

During the meeting, facilitators reported back on a sampling of high-level discussion topics from the breakout sessions, as presented below.

Breakout Group One

- Incorporate a comprehensive view of climate change into the model.
- Communicate in understandable terms the transition to clean energy and the equity component.
- Build into the model an assessment of unintended consequences.

Breakout Group Two

- Focus on equity, costs, and affordability.
- Consider the impact of costs to low-income communities.
- Examine vulnerabilities and scenarios addressing uncertainties.

Breakout Group Three

- Ensure inputs to the model are realistic and that assumptions can be toggled.
- Focus on grid resilience and safety.
- Consider affordability and infrastructure costs.

Breakout Group Four

- Focus on housing and protecting customers during times of high demand.
- Address community stabilization, resiliency, and impacts to low-income communities.
- Address scenarios that do not include hydrogen.
- Address transparency.

Update on Scattergood Modernization Project and City Council Motion

Caleb Dennis-Kiyasu, LADWP Manager of Resource Planning and System Resiliency, presented an overview of the Scattergood Hydrogen-Ready Modernization Project and the related City Council motion. He explained how the project is based on findings from the LA100 Study which indicate the need for in-basin firm capacity to maintain reliability. He noted that Scattergood is an important generation resource given transmission constraints (see slide 63). Next, he described how the modernization project would replace Units 1 and 2 at Scattergood with a system that can use green hydrogen, highlighting its capacity factor of about 10%, elimination of once-through cooling from ocean water, and potential for use of green hydrogen for energy storage.

Dennis-Kiyasu presented the City Council motion from February 2023 and its directives in seven core categories (see slide 66). He then explained how the project will go through regulatory and permitting processes and be reviewed by the South Coast Air Quality Management District and the Environmental Protection Agency. He described how best practices will prevent hydrogen leakage and that the project will only use green hydrogen. For green hydrogen, LADWP will be an off-taker from local production and will not use potable water to generate it. He wrapped up by noting the studies identified in the City Council motion are anticipated to be conducted by NREL, with community engagement opportunities, and that NREL's contract should be finalized during the second quarter of 2024.

Question and Answer

Question: Where will the water source be?
Response: Hydrogen infrastructure is being developed by external entities and we are monitoring how that develops. All projects will have their own environmental process and reviews.

Comment: This project involves renewable energy that is blended with natural gas, which is counterproductive for a "clean energy" solution.
Response: The goal is to develop a system ready to run higher blends of green hydrogen with the intent to build out units before reaching the 100% renewables target.

Question: It seems the alternatives will only be included in the California Environmental Quality Act (CEQA) process. Will this SLTRP Advisory Group see these alternatives before then? What alternatives will be considered prior to the CEQA process?
Response: We have been working with the environmental team and we review documents before they are sent out. In the 2022 SLTRP we evaluated hydrogen fuel cells and have some results. Nothing has yet been solidified this year and we are looking for feedback from the Advisory Group.

Question: Given the in-service date is the end of 2029, when will the final design plan for the modernization project be issued?
Response: It will be a longer timeline. The actual design would be finalized after the RFP process, which is coming in December 2026, and when there is an accepted proposal.

Question: How will the expected use of Scattergood evolve as we add more solar and wind? Is there a date when combustion is no longer needed to handle evening peaks?
Response: Scattergood will have a low-capacity factor as we utilize more solar and wind. We anticipate using combustion when there are outages (e.g., transmission, wildfire). Also, West Los Angeles is a transmission cul-de-sac.

Question: Is the Scattergood project a model for the other three in-basin sites?
Response: At this stage, we are still evaluating developing technologies (e.g., fuel cells) and considerations for retrofits in consideration of reliability.

Question: Is the contract with NREL to evaluate technology developments and alternatives to in-basin hydrogen combustion?
Response: Yes, NREL will study alternatives.

Wrap Up and Next Meeting

Isaacson wrapped up by showing the Advisory Group "meeting map" (see slide 71) and reminding that the May 16, 2024, meeting would take place in person at the same location as the first meeting. She also shared the project email address PowerSLTRP@ladwp.com and concluded by thanking the Advisory Group members for their participation and engagement.