2025 LA100 Plan - Formerly Power Strategic Long-Term Resource Plan (SLTRP)

Advisory Group Meeting #7

Summary Draft

March 20, 2025, Time 9:00 a.m. – 12:00 p.m.
Virtual Meeting

Prepared by Kearns & West

Meeting Attendance

Advisory Group Members

1. California State University, Northridge (CSUN), Austin Eriksson
2. California State University, Northridge (CSUN), Loraine Lundquist
3. Center for Energy Efficiency and Renewable Technologies (CEERT), V. John White
4. Chief Administrative Officer, Darnell Gray
5. Chief Legislative Office (CLA), Christopher Fields
6. Chief Legislative Officer (CLA), Blayne Sutton-Willis
7. City Attorney, Nirvesh Sikand
8. City Attorney, William Kysella
9. City of Los Angeles, Marta Segura
10. City of Los Angeles, Michael Samulon
11. Climate Resolve, Jonathan Parfrey
12. Community Build, Robert Sausedo
13. Council District 15, Anissa Raja
14. Council District 3, Jeff Jacobberger
15. DWP Advocacy Committee, Jack Humphreville
16. DWP MOU Oversight Committee, Tony Wilkinson
17. Los Angeles Alliance for a New Economy (LAANE), Diana Umana
18. Los Angeles Alliance for a New Economy (LAANE), Lauren Akhiam
19. Los Angeles Business Council (LABC), David Fink
20. Los Angeles Business Council (LABC), Mary Leslie
21. Los Angeles City Planning Department (LACP), Gabriela Juarez
22. Los Angeles Cleantech Incubator (LACI), Steven King
23. Los Angeles Unified School District (LAUSD), Sylvia Wallis
24. Los Angeles World Airport (LAWA), Carter Atkins
25. Metropolitan Transportation Agency (Metro), Uduak-Joe Ntuk
26. Move LA, Eli Lipmen
27. Natural Resources Defense Council (NRDC), Beth Hammon

28. Neighborhood Council Sustainability Alliance, Dan Kegel
29. Neighborhood Council Sustainability Alliance, Ravi Sankaran
30. Office of Public Accountability (Ratepayer Advocate), Fred Pickel
31. Pacific Asian Consortium in Employment (PACE), Leslie Diaz
32. Pacific Asian Consortium in Employment (PACE), Susana Apeles
33. Pacoima Beautiful, Miguel Miguel
34. Port of Los Angeles (POLA), Dac Hoang
35. RePower/AIRE, Roselyn Tovar
36. Sierra Club, Julia Dowell
37. Sierra Club, Katie Ramsey
38. Southern California Gas Company, Paul Lin
39. Southern California Gas Company, VJ Atavane
40. Southern California Gas Company, Yuri Freedman
41. University of California, Los Angeles (UCLA), Bonny Bentzin
42. University of Southern California (USC), Zelinda Welch
43. Valley Industry Commerce Association (VICA), Stuart Waldman
44. Valley Industry Commerce Association (VICA), Victor Reyes
45. Water and Power Associates, Bill Engels
46. Water and Power Associates, Kenneth Silver
47. Water and Power Associates, William Barlak

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LA100 Plan Consultants

Brandon Mauch, Ascend Analytics
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Other Consultants and Researchers

Paul Denholm, National Renewable Energy Laboratory (NREL)
Scott Haase, National Renewable Energy Laboratory (NREL)
Sonja Berdahl, National Renewable Energy Laboratory (NREL)
Lauren Dunlap, UCLA
Rachel Sheinberg, UCLA
Samantha Smithies, UCLA
Stephanie Pincetl, UCLA

Welcome and Agenda Overview

Joan Isaacson, facilitator from Kearns & West, welcomed Advisory Group members to the seventh Advisory Group meeting for the City of Los Angeles Department of Water and Power (LADWP) LA100 Plan. She provided an overview of the agenda and recapped the role of the Advisory Group, emphasizing that members' input helps shape the LA100 Plan, including the intensive research and modeling that has been underway. Isaacson reviewed the guidelines for a productive discussion, reminding Advisory Group members that only one representative of each member of each organization are to participate in the meeting discussions to maintain a balance of perspectives.

Isaacson then introduced Jay Lim, LADWP Manager of Resource Planning, who provided an overview of the updated LA100 Plan schedule. Lim shared that the need for staff resources to address the response effort for the Los Angeles 2025 fire affected the project team's progress on the LA100 Plan. Lim highlighted that the Financial Services Organization is still completing the rate analysis, and results for rate impacts will be presented at the next Advisory Group meeting in May. In addition, he announced that the project team has completed the modeling and is developing the LA100 Plan report with the goal of having a draft by June and a finalized report by mid-year. He concluded by sharing that community meetings will be held in June after all information has been presented to the Advisory Group (see slide 7).

LA100 Plan Progress

Nermina Rucic-O'Neill, Director of Power System Planning at LADWP, began by thanking Advisory Group members for their time and attendance. She echoed comments about the impacts of the Los Angeles 2025 fires on LADWP resources and assured that the LA100 Plan work will continue as scheduled.

Rucic-O'Neill gave an overview of LA100 Plan progress and investments to date (see slide 8), describing the latest investments in renewables and the achievement of transmission projects. She expressed that decarbonization and accomplishing the LA100 Plan renewable energy goal will require energy storage and efficiency, in addition to major investments to the transmission system.

Rucic-O'Neill continued with updates on dispatchable generation, highlighting the divesture from coal and transition to renewable clean fuel at the Intermountain Power Project (IPP), with complete commissioning in mid-2025. She stated that the transition will require dispatchable energy for reliability and resiliency, making the Scattergood Modernization Project and investments in local solar, demand response, electrification, and distribution systems important in meeting the target of 100% clean energy by 2035.

Next, Rucic-O'Neill described the importance of in-basin dispatchable generation for reliability and to avoid load shedding during stressed conditions such as heat waves, atmospheric rivers, and wildfires (see slide 9). As an example, she explained how LADWP's in-basin generation provided more than 60% of demand during the 2024 heat storm and played a critical role in supporting the power grid during the Los Angeles 2025 fires. She concluded by reiterating the importance of in-basin dispatchable resources for the continued transition to renewable resources, such as the planned Scattergood Modernization Project.

Comments and Questions Entered in Meeting Chat

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

- Are the new facilities owned by LADWP?
- Eland was a big deal. Is there a graph of in-basin peaker-plant capacity factor over time? They fell amazingly in the last year in CAISO (California Independent System Operator); see stunning graph at https://www.rtoinsider.com/92778-could-batteries-displace-natural-gas-caiso-transition/
- During the 2025 windstorm/wildfires, how many hours did Scattergood have to run to make up for lost transmission?
- Thank you for the https://www.ladwp.com/who-we-are/power-system/renewable-energy/clean-energy-monitor
- Is there an update on the oil/gas pipeline conversion to transmission line project?

LA100 Plan Results – Risks and Modeled Sensitivities

Brandon Mauch, Director of Resource Planning Analytics at Ascend Analytics, provided an overview of the LA100 Plan preliminary results, including the risks and modeled sensitivities. He began with a recap of the modeling work conducted by the Integrated Resource Planning team, describing the two primary scenarios that were considered: 1) the LA100 Plan, mandated by the Los Angeles City Council to reach an 80% Renewables Portfolio Standard (RPS) by 2030 and 100% carbon-free by 2035, and 2) the SB100 Case, mandated by the State of California to reach 60% RPS by 2030 and 100% carbon-free for retail load by 2045.

Mauch continued with an overview of the two primary targets of the LA100 Plan, noting that from 2015 to 2024, LADWP acquired 1,921 megawatts (MW) of clean energy resources, which averages to 192 MW per year. Illustrating with a chart, he explained that over the next 10 years, the LA100 Plan calls for 6,792 MW of clean energy resources (see slide 14). He noted that the chart only references renewable energy sources such as solar, wind, and geothermal and does not include green hydrogen. Mauch emphasized that new renewable resources need to be built and provided a timeline on construction and operations for new projects, with development of new renewable projects currently taking up to three years.

Next, Mauch discussed the progress LADWP has made with carbon emission reductions, highlighting a 66% reduction from 2000 to 2023 (see slide 16). He explained the need for in-basin firm generation for reliability and that the use of in-basin generation was tested by simulating transmission outages such as those that occurred during the Los Angeles 2025 fires. Using graphs comparing normal conditions and transmission outages, Mauch showed that the modeling for transmission outages identified the need for firm in-basin generation (see slide 17). He continued with a detailed overview of the modeled sensitivities, explaining that the analysis investigates future uncertainties by adjusting the input assumptions. He then showed the 11 model variations that were analyzed in the LA100 Plan and highlighted that the sensitivities were developed from input received from the Advisory Group (see slide 20).

Mauch then presented the price sensitivity results, explaining the risk evaluated was high prices for renewables and storage with lower prices for fuel and greenhouse gas allowances (see slide 21). He continued with the low load and high load sensitivity results, explaining the risk evaluated was for effects on in-basin resources if load growth is lower than expected and the impacts of increased load growth on reliability (see slide 22- slide 23). Next, Mauch presented the low and high distributed energy resources sensitivity results, explaining the risk evaluated was for impacts to reliability and resource adoption (see slide 24 - slide 25).

Robert Hodel, LADWP Manager of Integrated Resource Planning, continued by presenting the results of modeled sensitivities. He began with an overview of the no in-basin combustion sensitivity, which evaluates technologies other than combustion turbines. He explained that the chosen alternative to hydrogen combustion for this sensitivity was fuel cell generation, a technology that is currently not available at scale (see slide 26). Then, he presented the no in-basin hydrogen supply sensitivity, which evaluates what happens if the market for hydrogen fuel does not exist (see slide 27). Next, he showed the results for limited hydrogen supply, which evaluates the impact if less hydrogen is available on the market than anticipated (see slide 28).

Hodel continued with an overview of the resource constrained sensitivity, which evaluates a market for renewables and storage that is undersupplied and with delayed hydrogen technology. He highlighted that a lack of the needed resources would lead to delays in achieving carbon-free energy, which would result in increased emissions (see slide 29). Then, he presented the climate change sensitivity results and the impacts on reliability, explaining how increased climate change would drive higher load and more forced outages (see slide 30). Next, Hodel illustrated a summary comparison of costs and carbon emissions for all sensitivities (see slides 32-36). He concluded by sharing key takeaways of the presented sensitivities, noting that on average, LADWP will need to procure 1,065 MW annually of renewables, storage, and hydrogen capacity between 2025 and 2035 (see slide 37).

Question and Answer

Question: If transmission distribution reliability is becoming a larger issue with climate change, what prospects will reduce the need to keep chasing the rate of generation given the volatile pricing of oil and gas?
Response: To ensure we built a robust system, LADWP tracks metrics, required load to meet demand, and the required energy to meet different situations. We analyze these sensitivities to ensure we have enough resources in our plan to meet contingencies.
Response: We do modeling for adequacy of generation resources. We can integrate changes in terms of hardening equipment materials, temperature rating, vegetation management, conductors, and sensors into careful planning for climate change and resiliency.

Question: What is the impact of artificial intelligence (AI) on demand (load growth)?
Response: The load forecasters can answer this. We are not expecting too many AI data centers in the city.

Question: Is the loss of load expectation (LOLE) metric of 0.1 days per year expected to become more stringent as reliability standards may evolve in the future?

Response: The LOLE numbers that we achieved in the analysis were much lower than 0.1, the more strenuous target. There has not been any discussion about relaxing the LOLE. In recent years it has moved from loss of load hours to LOLE. Our plans are robust in case of any changes.

Question: Why does the plan have no discussion of how LADWP is going to produce or acquire green hydrogen?
Response: LADWP has been involved since 2021 in planning for green hydrogen production. Green hydrogen needs to be produced from renewable energy for in-basin generation. In Los Angeles, the plan is to feed the energy to other providers. There is a plan on where and how hydrogen will be developed through investments and hubs in California.

Question: Given the supply chain problems around new transformers and transmission, has LADWP considered repowering existing solar plants to add storage and generation to make them more Eland-like, and thereby adding evening output faster and cheaper than a greenfield project could?
Response: Yes, we have considered this and will continue to evaluate this option.

Question: Since we are near maximum borrowing capacity, the capital costs will go directly to rates (vs buffering to extend over time). That will be $104.4 billion directly to rates. LADWP could average those costs over years to show the added costs (as compared to SB100). "Waiting for finance" to calculate the cost impact on customers is something of a cop-out.
Response: There are many other rate components than the ones we have shown here. It would be difficult and perhaps misleading to estimate rates based only on averaging the costs discussed today. LADWP will present the rates analysis at the next meeting, which is scheduled for May.

Question: Is use of natural gas purely an artifact of the cost model?
Response: This is because the cost of natural gas is much less than the cost of green hydrogen. In an economic dispatch model, this would cause gas to dispatch a bit more.

Question: If the model was given a choice of using hydrogen or not as required to keep the capacity factor down to 3%, would it choose hydrogen?
Response: All things being equal, the model chooses to build the most cost-effective resources. However, we also provide the model with various constraints, for example, telling the model we must achieve 100% carbon-free energy by 2035. In that case, the model would be forced to choose hydrogen.

Additional Comments and Questions Entered in Meeting Chat

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.

- When it comes to reliability and backup generation, the cost of fuel is a small factor.
- In terms of resiliency needs, have you talked with LA Metro? They have a need to keep the transit system running as a public service. Rail currently runs on electricity. During a disaster (wildfire, earthquake), they will need to be prioritized for power (after hospitals and other critical services).
- The whole "our power costs are so high that data centers will never locate here" mantra is incorrect, in my opinion. We are likely to get more regional data centers than we are thinking. Given poor short-term prospects for electric vehicles (EVs), these may be more impactful on load growth than retail EVs.
- It is good to see that capacity factor number for the no in-basin hydrogen sensitivity.
- But it doesn't make any sense; why should a fuel switch from hydrogen to natural gas cause an increase in in-basin combustion?
- The greater than $13 billion cost of in-basin hydrogen supply is frankly not a reasonable customer burden for a resource that only runs 10% of the time.
- I think the assumption is that a market will exist for hydrogen via pipeline.
- $18 billion is the average added costs for LA100 vs SB100. That is a reasonable policy discussion in which public input is needed to balance the enthusiasm of elected officials.
- In my honest opinion, the best way to look at making new in-basin turbines hydrogen compatible is as inexpensive futureproofing in case hydrogen costs come down. It really is a cheap step.
- I love the Levelized Cost of Carbon Reduction chart.

National Renewable Energy Laboratory – Scattergood Modernization Project Alternatives

Scott Haase, Director of Federal, State and Local Partnerships at the National Renewable Energy Laboratory (NREL), presented the key findings from NREL's Scattergood Modernization Project Alternatives Study. He began with a recap of the City Council's scope and directive which was to conduct a new or updated assessment of non-combustion alternatives to the Scattergood Modernization Project. He explained the analysis and findings in this study are solely related to the specific potential for the

alternatives to replace the retiring Scattergood once-through cooling (OTC) units by the end of 2029 and does not include any public health benefits as those will be analyzed during the California Environmental Quality Act process (see slide 40).

Haase provided an overview of the LA100 Plan findings, reiterating a continued need for dispatchable generation located in the LA basin that can operate for extended periods of time, provide system reliability, and offer resiliency against transmission failures. He explained the transmission challenges faced by LADWP (see slide 42) and that it may be difficult to deliver energy to all points within the basin without new transmission and in-basin generation at specific locations such as Scattergood.

Next, Paul Denholm, Senior Energy Analyst at NREL, presented the study's technical approach (see slide 44). He stated that the study confirms the LA100 findings that new in-basin capacity is needed to replace the retiring OTC units at Scattergood. In addition, he highlighted that without this new capacity there is a significantly increased risk of outages especially during periods of hot summer weather, and transmission outages due to wild. Next, Denholm reviewed the alternative options considered in the study, including transmission, energy storage, fuel cells, demand response, and combination options, and presented the findings for all five alternatives (see slide 47-58). Denholm concluded by reiterating that there have been no fundamental changes in the LADWP power system that alter the conclusion that new dispatchable capacity is needed to replace the retiring OTC units (see slide 59).

Question & Answer

Question: What is the role of expanded transmission from north to south in reducing dependence on in-basin generation; for example, the proposed undersea high-voltage direct current (HVDC) cable from Diablo Canyon to Scattergood?
Response: Adding any transmission lines mitigates the risk for other transmission lines and increases resiliency. Transmission projects have to go through long permitting processes. More diverse transmission from different directions is beneficial for us.

Question: For the need of in-basin capacity, why the 10-hour timeframe requirement?
Response: That was a result for demand response, which shows a requirement of 10 hours to maintain reliability.

Comment: Fuel cells powered by natural gas have zero combustion emissions.
Response: The emission comes from reformers to make hydrogen from natural gas. Fuel cells cannot run on natural gas, only 100% pure hydrogen.

Question: Why did NREL not consider stacking the batteries if there are space constraints?

Response: There is additional risk with procuring parcels of land to meet construction deadlines. Regarding stacking, NREL did not look at that in detail. No other large-scale projects do double stacking.

Question: If the target for alternatives was 2035, would there be additional options?
Response: NREL did not model for 2035; the requirement was 2030. Due to State of California policy, Scattergood must shut down by 2029.

Question: Regarding Scattergood, couldn't LADWP ask the State Water Board to delay regulations on ocean water to achieve more robust greenhouse gas reductions?
Response: They are 80-year-old units exceeding their lifetime by three times. Extending reliance on them would be very risky.

Additional Comments and Questions Entered in Meeting Chat

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. The following comments include exchanges related to battery technology and legal requirements among a limited number of Advisory Group members.

- My own view of the transmission resiliency issue is the likely need for an alternate path inbound to avoid loss of out of basin resources because a fire takes out one of the existing input points. This is different from the original question, which I think may have been about underground input lines (which may be impractical).
- We do have a specific plan for producing hydrogen at IPP. The issue of in-basin is dependent upon what the market develops because we do not have the nearby storage available that we have at IPP.
- On in-basin energy storage, we have the recent example of the huge local pollution from the storage fire at Monterey Bay, where a perfectly good gas-fired power plant was replaced by lithium-ion batteries which caught fire, with terrible results on the adjacent urban area.
- Increasing battery density increases fire risk. Also, charging the batteries would require local generation, so we're back to transmission being the bottleneck. I think the question is, would adding one more transmission line by 2035 be cost effective and would it significantly reduce the expected running time for local generation?
    - The Moss Landing battery fire was at a facility with odd technology and is not what would be used in LA.

- Thank you for that information. I'm still leery of huge battery installations, vs a low-CO2 gas-fired plant that will only be used 10% of the time.
- True, battery safety is improving, and the first phase of Moss Landing made a bad decision in putting the batteries in an existing building.
- Increasing battery density does not necessarily increase battery fire risk. Fire risk is dependent on the type of technology (lithium-ion v. vanadium flow/ iron-air, etc.) and the construction of each battery technology itself.
- It can contribute: https://www.canarymedia.com/articles/energy-storage/moss-landing-fire-reveals-flaws-in-the-battery-industrys-early-designs says "In hindsight, it seems that the design choice packed too much battery fuel into one enclosed space, creating the conditions for an unstoppable, 100-foot tower of flames." But double stacking would probably not reduce fire safety anywhere near as much as jamming them into an enclosed building, as in Moss Landing's phase 1.
- Yes, it can but as I wrote before it does not necessarily increase fire risk. Technology matters. Your original comment claims increasing battery density equals increasing fire risk.
- Even with a low-risk battery technology, increasing density likely increases fire risk. But the total risk may still be low. Avoiding NMC (nickel, magnesium, cobalt batteries) and following best practices may keep risk low even with stacking. We don't know yet.
- I also think it's important to point out that newer battery technologies can be safer (and are getting safer). Hydrogen also has high combustion risk, especially transporting hydrogen across the basin.
- We could also come up with a long list of natural gas explosion accidents.
- It's worth looking at how to get those batteries charged without running in-basin combustion. The soonest the extra transmission could come online is probably 2035. When it does, the expected runtime of Scattergood should fall further. Would it allow zero expected runtime with batteries that can fit in the space near Scattergood?
- I think the space issue for batteries is linked to the minimum of a 10-hour production time. With 4-hour batteries that is three sets of batteries to reach the continuous production time needed.

- It seems unfair to dismiss transmission due to potential time constraints when developing a hydrogen pipeline has similar if not more constraints for development. A lot of the risks and uncertainties that are used to dismiss alternatives in this study would also apply to the proposed project itself – time

constraints, costs, nascent technology, etc. I think that it is important to recognize. If space were not an issue, would a combination of local generation paired with batteries and demand response likely work? If we could expand battery storage with stacking or longer duration technologies, could we achieve a battery storage and demand response combination?

- With respect to this perspective of 100% being the only end result, transmission or fuel cell or fast-start gas plant are all discussions of which [maybe unreasonable] expense we will choose for a resource that will only operate about 10% of the time.
- LA City Council set the mandate for 100% clean energy by 2035. It's not just a perspective; this is a legal requirement that LADWP has to meet and is actively working to achieve.
- The council motion said, "I therefore move that the Council instruct the Department of Water and Power to prepare a Strategic Long Term Resource Plan that achieves 100% carbon-free energy by 2035, in a way that is equitable and has minimal adverse impact on ratepayers." LADWP met that requirement already and continues to meet it, I think. See https://clkrep.lacity.org/onlinedocs/2021/21-0352_misc_03-31-21.pdf
- Primarily correct statement about the goal, although it is a political objective and a "legal requirement." The legal requirement is SB100. The political goal was a surprise announcement of 2035 not 2045 by Mayor Eric Garcetti on the day he announced the completion of the NREL study. The City Council jumped on that bandwagon.
- And even the City Council only mandated producing a plan to achieve that goal, not to achieve it, if I recall correctly.
- LADWP is a municipal utility that is subject to City directives and is bound by both state law and municipal ordinances. The 100% carbon-free energy by 2035 is a legally binding requirement, and LADWP is appropriately treating it that way.
- Can you point to the council file that created that mandate? Is it https://clkrep.lacity.org/onlinedocs/2021/21-0352_misc_03-31-21.pdf ?

- Has anyone heard of Sparkfund or the idea of distributed capacity procurement? Basically, it enables utilities to procure large amounts of distributed sources at the precise grid locations and times when they are needed through a typical RFP process. It's described in detail on this episode of Volts: https://www.volts.wtf/p/should-we-put-utilities-in-charge. It just seemed like it might apply well to the Scattergood replacement issue.

- The State Water Board regulations on ocean water are required for the state to comply with the Clean Water Act Section 316(b), which requires power plants and industrial facilities minimize adverse environmental impacts from cooling water intake structures.

Transmission System Planning Assessment

Jonathon Flores, Manager of Transmission Planning at LADWP, presented the 2024 long term transmission assessment. He began by describing the three main concepts of transmission planning: reliability, transfer capacity, and interconnection studies. He then described the challenges LADWP faces to maintain system reliability and resiliency, highlighting that the transmission system was designed to operate with local generation due to its geographical location. He also emphasized the opportunities to maintain in-basin resources to meet RPS goals.

Flores gave a detailed explanation of the system reliability assessment, an iterative plan designed to ensure reliability is maintained and an annual requirement of the North American Electric Reliability Corporation (see slide 65). Then, he presented the study assumptions in the assessment, highlighting how they relied on the 2023 Financial Services Organization aggregate load forecast, the updated SLTRP Case 1, and the 2023 distribution load forecast. He continued with the 2024 planning cycle information (see slides 68-72). Flores continued by illustrating the existing and new renewable energy resources through 2035 (see slides 73-74).

Next, Flores reviewed the study plan that guides the local transmission planning study for the LADWP bulk electric system and presented assessment results as well as the development recommendations (see slide 78). Flores provided a brief description of the transmission project development process, describing how the physical development of equipment is a multi-year process with different evaluations, project approvals, testing and commissioning steps (see slide 81). In addition, he emphasized the outage coordination challenges that arise during transmission project development, describing how many lines and generation resources are critical and cannot be taken out of service. Flore concluded with a snapshot of LADWP's existing and projected projects in development in the next few years (see slide 84).

Question & Answer

Question: Are the results of your study aligned with the results of the LA100 Plan?
Response: They are aligned as they use the same data, but the analysis is different. For example, we used the same generation part of the assessment but identified upgrades.

Question: Do your results assume new inverter-based resources will be "grid-forming" to provide synthetic inertial and short-circuit duty? Will existing inverter-based resources need to be retrofitted to become grid-forming?
Response: So far, our analysis has not identified inertia deficiencies, however as we develop and recommend transmission projects, we are considering newer technology such as voltage source converters and HVDC that can be used as grid-forming for specific areas.

Question: An earlier presentation cited three years for project development, but now you're talking about a 5-year delivery timeframe for equipment. These two projections don't line up.
Response: Development continues to be within the 3-year timeframe that was previously mentioned. The 3-year timeline from the initial presentation was specific to renewable energy power purchase agreements, as opposed to transmission projects.

Question: What is the forecast for purchasing energy from the Southern California Public Power Authority (SCPPA)?
Response: We don't directly buy power from SCPPA. It is a mechanism we use for procurements. They support our local municipalities and cooperate on projects.

Question: Historically SCPPA has aggregated on behalf of LADWP. Are there no plans to buy from them?
Response: There is an RFP on the SCPPA website for developers.

Additional Comments and Questions Entered in Meeting Chat

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.

- Much heavy-duty electrical equipment is manufactured in China. If you're tuned into the current geopolitical and tariff issue, there have been major changes in future prospects for availability of equipment.
- https://www.utilitydive.com/news/electric-transformer-shortage-nrel-niac/738947/ is a nice summary of the problem and possible solutions for transformers. There is some motion: https://www.plantservices.com/industry-news/news/55276083/hitachi-energy-invests-250m-to-expand-manufacturing-of-transformer-components.

- I have heard about a proposed HVDC 2,000 MW transmission project from Kern County to the LA basin, in an abandoned oil pipeline.
- There is always a problem with timelines. The NREL study assumed all distribution would be fully ready, but then the distribution study came in (separate from the NREL generation study) with a 30-year timeline. Now that SLTRP/LA100 has set out transmission needs, the transmission execution timeline has been created, and it includes supply constraints. All the while the politicians driving the "2035" target have failed to adjust their time goal.
- Given the delays in getting the city attorney to authorize procurement of new transmission, could SCPPA be a partner and a way to get started sooner?

Wrap Up and Next Meeting

Isaacson wrapped up the meeting by thanking Advisory Group members for their participation and presented the next steps in the meeting map, highlighting that the next Advisory Group meeting will take place in May 2025 (see slide 86).