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19-SB-100 LADWP's Comments on the SB 100 Modeling Inputs and Assumptions Workshop

Additional submitted attachment is included below.

**BEFORE THE ENERGY COMMISSION
OF THE STATE OF CALIFORNIA**

In the matter of:)	Docket No. 19-SB-100
)	
SB 100 Joint Agency Report: Charting a)	SB 100 MODELING INPUTS
Path to a 100% Clean Energy Future)	AND ASSUMPTIONS
)	WORKSHOP
)	RE: SB 100 Joint-Agency Report
_____)	

**COMMENTS FROM THE LOS ANGELES DEPARTMENT OF WATER AND POWER (LADWP) TO THE
CALIFORNIA ENERGY COMMISSION’S (CEC’s), THE CALIFORNIA PUBLIC UTILITIES
COMMISSION’S (CPUC’s), THE CALIFORNIA AIR RESOURCES BOARDS’S (CARB’s) WORKSHOP
ON THE SENATE BILL 100 JOINT-AGENCY REPORT MODELING INPUTS AND ASSUMPTIONS**

By: Simon Zewdu
Director of Regulatory Compliance and
Specifications
Los Angeles Department of Water and Power
111 North Hope Street, Suite 819
Los Angeles, CA 90012
Telephone: (213) 367 - 2525

Dated: March 9, 2020

Email: Simon.Zewdu@ladwp.com

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OF THE STATE OF CALIFORNIA**

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The Los Angeles Department of Water and Power (LADWP) appreciates the opportunity to submit these written comments on the February 24, 2020 workshop to initiate the public process for the Senate Bill 100 (SB 100) Inputs and Assumptions Workshop.

The City of Los Angeles’ Green New Deal (2019 Sustainability pLAn) guides the city’s transition to an equitable and abundant economy powered by 100% renewable energy. Within this overall city vision, the Mayor’s 2019 Sustainability pLAn has four key principles (1) a commitment to the Paris Climate Agreement, (2) community level environmental justice and equity, (3) helping Angelenos transition to good paying green jobs, and (4) using the City’s human and financial capital to drive change.

In addition, at the request of Mayor Eric Garcetti and the Los Angeles City Council, in 2017 LADWP launched the LA100 Study (100% Renewable Energy Study) to determine what investments should be made to achieve a 100% renewable energy supply. This comprehensive study is being developed with input from the LA100 Advisory Group, comprised of technical experts, research universities, commercial / industrial customers, local government officials, and community interest groups, among other partners. The study results are expected in 2020, and LADWP hopes to further contribute to the draft Joint-Agency Report this year.

LADWP is a vertically-integrated publicly-owned electric utility of the City of Los Angeles, serving a population of over 4 million people within a 465 square mile service territory that

covers the City of Los Angeles and portions of the Owens Valley. The LADWP is the third largest electric utility in the state, one of five California balancing authorities, and the nation's largest municipal utility. LADWP's mission is to provide clean, reliable water and power in a safe, environmentally responsible, and cost-effective manner.

LADWP provides comments including the following key points:

I. Modeling Approach

Resource Adequacy— LADWP recommends incorporating more robust tools for the SB100 Joint Agency Report because reliability is a paramount consideration in addition to decarbonization and affordability. RESOLVE is a capacity expansion model primarily concerned with identifying a least-cost best fit resource portfolio based only on 37 representative days and does not incorporate weather variability of renewables to serve load. A production cost model that incorporates stochastics on an 8760 level is critical for determining overall resource adequacy sufficiency based on a 1-in-10 peak load.

Resource Adequacy is the first level of reliability assessment that needs to be sufficiently addressed before evaluating other reliability metrics. LADWP's experience with RESOLVE and RECAP is that the amount of energy storage built out by the model was about half that of other models used that evaluate resource needs stochastically. This becomes increasingly important as higher amounts of renewables are reached.

Internal Transmission Constraints—LADWP recommends analyzing the different Balancing Authorities independently and incorporating power flow analysis into the SB100 Joint Agency Report to evaluate reliability. Each Balancing Authority is unique in geography and internal transmission available for imports. RESOLVE a zonal model, does not consider internal transmission constraints unique to BA's that would limit the delivery of renewables from far away locations. Upgrades to in-basin transmission is currently being planned but historically have been delayed due to external factors. Internal studies have identified that significant amounts of energy storage would be required near the load center to provide local generation for reliability must run requirements and to replace the lost capacity of once-through cooling retirements.

Once-through Cooling Retirements—Since the SB100 Joint Agency Report is using 2019 Integrated Energy Policy Report data, it does not consider City of Los Angeles' February 2019 Mayoral commitment to abandon plans to repower once-through cooling (OTC) units; it assumes OTC units are repowered with newer, more efficient, gas units. LADWP recommends that the generation capacity expansion be adjusted to remove repowering

plans from CAISO in 2022 timeframe and LADWP in 2030 so that RESOLVE would build sufficient capacity for resource adequacy with pending OTC retirements. Replacing the firm capacity from OTC units is currently one of LADWP's top key initiatives through the Clean Grid LA Plan, expected to be complete by the end of 2020.

RESOLVE Model—LADWP has experience with RESOLVE modeling and recommends addressing the following recommendations:

- RESOLVE is only able to model a single constraint and there could be times when multiple, simultaneous constraints occur, and this should be factored in.
- PATHWAYS is a back-cast tool and may not be able to project the future and trend properly with rapidly evolving technology changes. The SB100 Joint Agency Report should consider innovation and emerging technologies and not be prescriptive to a particular pathway.

II. Assumptions

Existing and Planned Resources—RESOLVE does not incorporate costs for planned capacity of existing and planned resources because they do not affect the optimization. For example, LADWP has plans for Compressed Air Energy Storage (CAES) and repowering coal with smaller gas-fired units both at Intermountain Power Project (IPP) in Utah. Future planned resource changes over the next 5 to 10 years should be considered in the assumptions as it will drive future resource decisions.

RESOLVE is a Zonal Model—Modeling the State as one Balancing Authority assumes that there are no constraints between balancing authorities. As one example, LADWP is unique with its geography being situated by the coast. As a result, imports are primarily from the north and east regions and OTC units play a key role in providing local capacity and generation. Modeling California as one zone would oversimplify and minimize the power flow and resiliency challenges unique to each BA. It is recommended that RESOLVE model the Balancing Authorities independently to capture internal transmission constraints, especially as imported renewables increase over time.

Scenarios—LADWP supports the new mitigation scenarios of high electrification, high biofuels, and high hydrogen to aid in the decarbonization of California to meet SB100 goals. However, reliability and resiliency should be primary considerations along with the following:

- The High Electrification scenario should include a sensitivity with low energy efficiency to provide a bookend; otherwise, high electrification and high energy

efficiency collectively results in a moderate load case. The Pathways EV load may not be considering more aggressive transportation electrification goals established by the Governor and individual municipalities.

- Address resource supply and transportation for high biofuels and high hydrogen scenarios. Biofuel and hydrogen supply and infrastructure requirements and costs are key considerations for feasibility and implementation.
- Biofuel and hydrogen may be a potentially limited resource due to supply and demand, and competition with other economic sectors. Additionally, depending on how biofuels and hydrogen are sourced, the fuel production may have associated greenhouse gas emissions.
- Studies exploring 100% renewables show that allowing some gas generation to meet SB100 results in significantly reduced overbuild of renewable resources, additions, whereas no gas scenarios require significantly more renewables and storage buildouts due to the low effective capacity of these resources.

III. Reliability

LADWP appreciates that the SB100 Joint Agency Report is addressing reliability as a key pillar for SB100 implementation. In order to address reliability of each Balancing Authority however, the following considerations and recommendations are made:

- Model each Balancing Authority independently to capture their unique internal transmission constraints. An Operational Power Flow model is recommended.
- Incorporate recently announced retirements and update the 2019 IEPR to reflect the need for additional dependable capacity not considered in the study. This is evidenced by the Pathways model which shows that the energy storage build is very low in 2030.
- Effective Load Carrying Capability of resources needs to consider transmission constraints. For example, overbuild of solar could be curtailed if there is insufficient internal transmission to import these resources.
- Address the need for voltage support, especially as gas units are retired and replaced with energy limited storage resources.

IV. Resiliency

LADWP supports CEC's effort to consider resiliency of the grid as the energy supply transforms from local, dispatchable, fossil generation to more intermittent, remotely located, renewable resources. In the SB100 scenarios, maintaining resiliency of the

system is critical to be robust enough to withstand extreme events, such as wildfires. LADWP recommends the following considerations in the modeling to address resiliency:

- Address local distribution systems to ensure resiliency in the RESOLVE modeling.
- Consider land availability and fuel supply for transportation using biofuels and hydrogen in the modeling scenarios.
- Extreme events such as wildfires or earthquakes should be considered and addressed in the SB100 Joint Agency Report.

V. Resource Diversity and Flexibility

LADWP appreciates that the SB100 Joint Agency Report will address resource diversity and flexibility and is not prescriptive to technology. Having the flexibility to select resources based on cost and system needs is important for LADWP to maintain cost competitive rates. LADWP offers the following considerations in the abovementioned area:

- Internal transmission constraints unique to each Balancing Authority should be modeled. This will help maximize transmission access and increase resource diversity.
- Black and Veatch RPS Calculator v.6.3 identified that 353,000 MW of Utility Scale Solar PV is available in-state, which appears to be overstated and should be reevaluated to consider land that is not suitable for solar development.
- Similarly, 1,150 MW of biomass was identified in the RPS Calculator v.6.3; however, LADWP indicated that it does not have the transmission to bring the energy to serve load.

VI. Affordability

As a Publicly Owned Utility, LADWP has an obligation to provide affordable rates to its customers. Since resource decisions drive retail rates, LADWP recommends the following considerations related to cost containment:

- Generating units should be retired at the end of their lifecycle, or when it is economically viable to retire them to avoid stranded assets. These units could also serve as backup for reliability support with low runtime.
- In the biofuels scenario, biomass is cost prohibitive. LADWP does not have the transmission to import biomass and biomass procurement is currently for SB859 compliance only.

- Program cost and rate impact of OTC retirements should be considered in the overall cost of SB100 implementation. Utilities have limited borrowing capacity, and procurement of resources needs to be address holistically.

VII. Energy Equity

LADWP supports the CEC, CPUC, and CARB’s goal to utilize SB 100 to address equity. LADWP also recommends that in developing the SB 100 report, the Joint Agencies would consider locational benefits of distributed energy resources (DER), as targeted DERs at specific locations can defer distribution upgrades and support local transmission. This becomes a critical element to strategically deploy DER in specific locations as LADWP retires its once-through cooling units by the end of 2024 and 2029. LADWP also recommends incorporating workforce development in the SB100 Joint Agency Report.

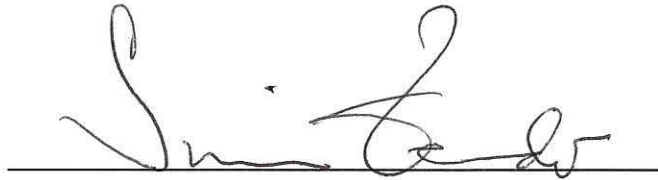
VIII. Stakeholder Input

LADWP appreciates the opportunity to provide comments during the stakeholder period. Since LADWP has a similar effort to the SB100 Joint Agency Report through the LA100 Study, LADWP recommends holding a workshop with CEC/CPUC/CARB to collaborate and share lessons learned. In addition, staff from CEC could also participate in the LA100 Study Advisory Group.

LADWP appreciates the opportunity to submit these comments. If you have any questions, please contact myself at (213) 367-2525, or Mr. Scott Hirashima at (213) 367-0852.

Dated: March 9, 2020

Respectfully Submitted,

A handwritten signature in black ink, appearing to read 'Simon Zewdu', is written over a solid horizontal line.

By: Simon Zewdu
Director of Regulatory Compliance and
Specifications
Los Angeles Department of Water and Power
111 North Hope Street, Suite 819
Los Angeles, CA 90012
Telephone: (213) 367-2525
Email: Simon.Zewdu@ladwp.com