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**Comments on SB 100 Draft Report and December 4, 2020
Workshop**

Additional submitted attachment is included below.



December 18, 2020

California Energy Commission
Docket Unit, MS-4
Docket No. 19-SB-100
1516 Ninth Street
Sacramento, California 95814-5512

Via electronic submittal

Dear Docket Unit, Commissioners and Commission Staff:

Middle River Power, LLC (“MRP”) is pleased to submit these comments on the December 2020 *Draft 2021 SB 100 Joint Agency Report* (“Report”). Joint Agency (California Air Resource Board (“CARB”), California Energy Commission (“CEC”), and California Public Utilities Commission (“CPUC”)) staff presented the Report at a December 4, 2020 workshop.

Introduction

MRP owns approximately 2 GW of natural gas-fired generation operating within the bulk power system under the operational control of the California Independent System Operator Corporation (“CAISO”). MRP has developed and is currently deploying with the current owners two battery energy storage systems (“BESS”) totaling 110 MW and a 100 MW solar photovoltaic system at or connecting into the same interconnection facilities at MRP-owned generating plants. These projects, which are slated to come on-line in 2021, will help ease California’s current capacity challenges.

Comments

MRP commends the joint agencies for a thorough and illuminating set of analyses, which show that, in the future, California can move toward its decarbonization goals while maintaining system reliability and promoting affordability by retaining a significant amount of gas-fired generation (“GFG”) capability. The Report reaches conclusions similar to the conclusions reached by other analysis conducted by Energy and Environmental Economics in 2019.¹

The need for a reliable and affordable electric supply system is paramount to the well-being of millions of Californians, the economic success of the state as a whole, and California’s continued leadership on carbon reduction. Electrification remains a, if not *the*, key strategy for reducing carbon in other sectors; as the 2018 California Air Resource Board GHG Inventory shows, the electric sector has reduced annual emissions by 41.6 million metric tons from 2000 to 2018, so that the electric sector amounts to less than 15% of total state-wide GHG emissions in 2018.

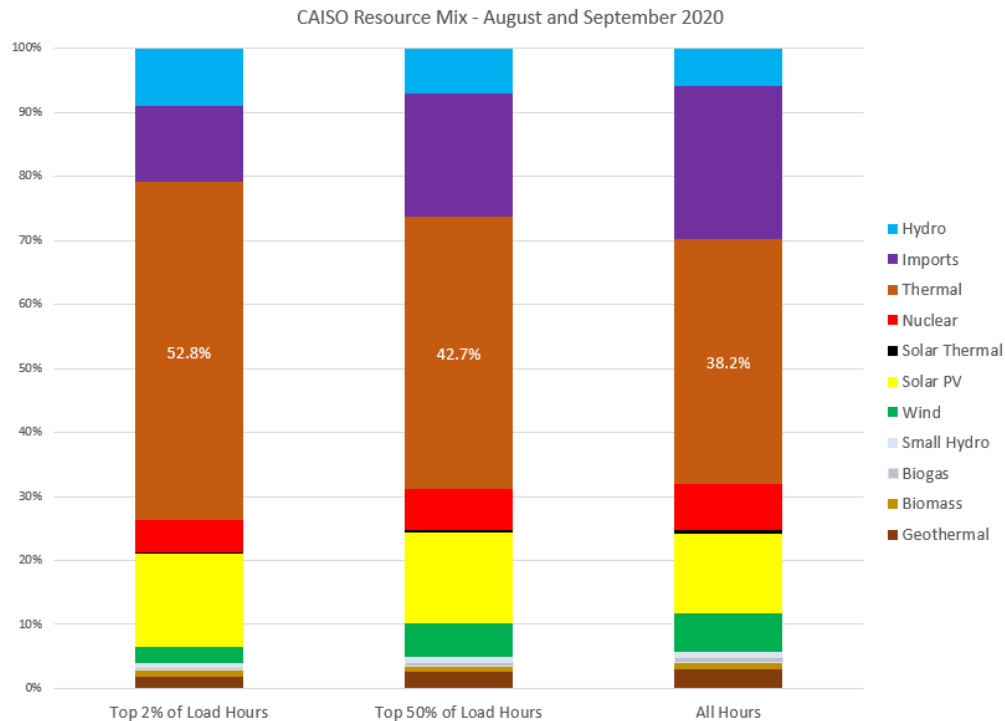
¹ See Energy and Environmental Economics June 2019 *Long-Run Resource Adequacy under Deep Decarbonization Pathways for California*, available at https://www.ethree.com/wp-content/uploads/2019/06/E3_Long_Run_Resource_Adequacy_CA_Deep-Decarbonization_Final.pdf.

Moreover, California has begun deploying promising advances in technology to further enhance the value of the gas fleet; the deployment of battery energy storage systems with existing gas-fired generation has the potential to substantially reduce emissions while preserving the very desirable operating characteristics, particularly full-time availability, dispatchability and duration, that the gas fleet currently provides.

Properly secured and utilized, the existing gas fleet is not a barrier to California’s decarbonization goals, but rather enables California to progress towards these decarbonization goals while simultaneously achieving the other co-equal goals of reliability and affordability.

The Analysis Continues to Point to an Ongoing Need for Thermal Generation

As California regrettably experienced in August 2020, moving forward with one aspect of the state’s three-pronged energy strategy (decarbonization, reliability and affordability) without simultaneously and equally respecting the other two aspects of that strategy can have undesired consequences. The rolling firm load shedding events on August 14 and 15 demonstrate, *inter alia*, that (1) adequacy challenges can arise in hours other than the peak demand hour, and (2) resources (such as imports) that had been taken for granted in the past cannot be taken for granted in either the present or the future, particularly when heat events are felt in adjacent markets at the same time.



Source: CAISO Daily Renewables Output Data, available at <http://www.caiso.com/market/Pages/ReportsBulletins/RenewablesReporting.aspx>

Figure 1- CAISO Resource Mix August and September 2020

Figure 1 compares the CAISO resource mix for three sets of hours across August and September 2020: (1) the two percent of hours in which demand was highest, (2) the half of hours in which demand was highest, and (3) all hours. Across all hours in these two months, renewable resources (geothermal, biomass, biogas, small hydro, wind, solar photovoltaic (“PV”) and solar thermal) provided approximately one-third of all energy, roughly consistent with SB 350’s target of providing one-third of end-use energy by 2020. Similarly, in the two percent of hours with the highest demand, these renewable resources provided over thirty percent of all energy. In the top two percent of demand hours across these months, however, thermal generation provided nearly fifty-three percent of energy to serve demand, even though thermal generation provided only thirty-eight percent of total energy across all hours in the months. This data illustrates the outsized role that thermal generation played in serving peak demand across the highest demand hours in 2020.

Figure 1 also demonstrates California’s declining ability to import power across the high demand hours as states in the rest of the western interconnection build out their own variable energy resource portfolios and retire their own coal-based generation.

While California continues to show leadership on climate issues, California must also be sober-minded about its ongoing need for thermal generation and its prospects for relying on firm imported power. As more and more renewable generation is added to the system, both inside and outside of California, thermal generation will operate less and less, but it remains a critical capacity resource, both for high demand hours as well as for hours with diminished renewable resource production.

Comments on Key Takeaways

The Report’s key takeaways are as follows:

- **SB 100 is achievable and there are multiple pathways to reach the 100 percent clean electricity target.**
 - **Increased resource diversity lowers overall costs**
 - **Gas capacity is retained for reliability needs but cost reductions and innovation in zero-carbon firm resources and storage may reduce gas capacity needs**
- **Sustained record setting build rates will be required to meet SB 100 in a high electrification future.**
- **Goals beyond SB 100 may be achievable but require additional analysis.**
- **Current SB 100 analysis is directional and further analysis is necessary.**

MRP agrees with the opening conclusion that SB 100 is achievable. MRP commends the Joint Agency staff for ensuring that the analysis supporting that conclusion does not lose sight of California’s energy policy principles (reliability and affordability).

As noted above, MRP strongly concurs with the key takeaway that “gas capacity is retained for reliability”. And while MRP does not dispute the conclusion that “innovation in zero-carbon

firm resources and storage may reduce gas capacity needs”, MRP observes that the “Zero Carbon Dispatchable and Baseload” scenario with high electrification demand retired no GFG capacity by 2035, less than 500 MW in 2040 and only one-quarter of the existing GFG capacity by 2045.

With regards to the finding that “increased resource diversity lowers overall costs”, MRP notes that the most expensive scenario studied was the “no combustion” scenario. This scenario had a \$74 billion total resource cost compared to the \$66 billion total resource cost in the “SB 100 Core” scenario.

Comments on Proposed Next Steps

MRP’s comments on the proposed next steps follow (**the Report’s proposed next steps are in bold**; MRP’s comments are in plain.)

- **Evaluate resource portfolios developed in this report for reliability in a multi-step process.**

MRP strongly concurs with this next step. System reliability (*e.g.*, load and resource balance) are but one aspect of reliability. Ideally each portfolio’s ability to ensure reliability over all aspects of reliability – in local area capacity pockets, meeting system (and, if necessary, locally-constrained) ramping requirements, and ensuring adequate reactive power support and frequency response - should be tested. Admittedly, the analysis in the Integrated Resource Planning process does not yet perform all these tests, so it is not reasonable to separately fault the SB 100 analysis for this shortcoming. But to the extent any analysis on which the state relies to guide planning and procurement does not account for all these critical reliability requirements, that analysis is incomplete and, by definition, unreliable.

- **Ensure reliability requirements are met for all hours of a year across a range of conditions.**

MRP strongly concurs with this. As California discovered in 2020, the most operationally difficult hours may not be just the hours of highest demand; they also include the hours of highest *net* demand. Going forward, the operationally difficult hours could be low renewable production hours and hours after energy storage systems have depleted their charge. Any analysis that supports future policy and procurement action must evaluate and ensure reliability in these hours as well.

- **Capture emerging technologies as cost and performance data become available.**

MRP agrees that as more information on (1) hydrogen production and its use as a combustion turbine fuel, and (2) carbon capture and sequestration is available, these technologies should be considered as candidate resources.

- **Stakeholders recommended the joint agencies integrate at least the following into SB 100 planning: Land Use Impacts, Public Health and Air Quality, Water Supply and Quality, Economic Impacts, Resilience**

MRP agrees with incorporating these factors into future SB 100 analysis. MRP also suggests that the SB 100 planning also include “Existing Infrastructure Utilization” and “Transmission System Impacts” as factors in the analysis. Given the subjective nature of these factors, MRP respectfully urges the Joint Agencies to hold a series of workshops with stakeholders to identify how these subjective factors can best be incorporated into the SB 100 studies prior to these factors being incorporated into any analysis.

Comments on Recommendations

MRP’s comments on the proposed recommendations follow (**the proposed recommendations are in bold**; MRP’s comments are in plain.)

Areas for Further Study in the 2025 SB 100 Report

- 1. Perform a comprehensive reliability assessment as the next step in the modeling process.**

As noted above, MRP strongly supports ensuring, through comprehensive reliability assessments, that all portfolios developed by state planning efforts (IRP, SB 100) address *all* bulk power system reliability needs.

- 2. Continue to assess the role and impacts of emerging technologies and non-generation resources.**

The Draft SB 100 Report expressly excludes natural gas-fired generation with carbon capture and sequestration (“CCS”), and coal-fired generation with CCS, from consideration as candidate resources. The former type is excluded because of a lack of cost and performance data, while the latter type is excluded because it is “incompatible with the state’s equity and public health priorities.”²

With regards to the exclusion of CCS applied to natural gas-fired generation, MRP respectfully recommends the Joint Agencies continue to acquire more information regarding this technology with a goal of including it as a candidate resource in future analyses.

- 3. Analyze projected land-use impacts of scenarios and opportunities to mitigate environmental impacts.**

² 2021 SB 100 Joint Agency Draft Report Workshop Presentation (TN235851_20201204T083109_2021) at slide 23. The Draft Report discusses the exclusion of this technology at pages 68-69.

MRP recommends that the Joint Agencies incorporate “Existing Infrastructure Utilization” and “Transmission System Impacts” considerations into future SB 100 analysis. The extent to which new resources mitigate environmental impacts will depend, in significant part, on their ability to leverage existing infrastructure and minimize the need for additional new transmission. Additionally, the ability to determine new resources’ transmission system impacts will also help account for these resources’ impact on local reliability, a key consideration currently absent from the analysis.

4. Define and include social costs and non-energy benefits (NEBs) in future analyses.

MRP supports this; social costs should include the economic and other costs of unreliable electric supply on residents and businesses. The Joint Agencies should hold workshops to identify how subjective costs can be factored into the SB 100 analyses prior to doing so.

5. Continue to study opportunities and impacts related to achieving the 100 percent clean electricity target prior to 2045.

Process and Engagement for SB 100 Reports

6. Convene an annual joint agency SB 100 workshop in years between reports.

7. Align future SB 100 planning with findings and outcomes from relevant state efforts.

MRP supports this, particularly as it relates to the CPUC’s IRP process and the CAISO’s Transmission Planning Process.

8. Consult with advisory groups to guide equitable planning and implementation.

9. Retain and expand upon best practices for community outreach and accessibility.

Supporting Achievement of the 100 Percent Target

10. Continue state support for research and innovation in clean energy technologies.

11. Continue to prioritize energy efficiency and load flexibility to minimize resource build requirements and total implementation costs.

12. Identify and address bottlenecks in project permitting and development.

MRP strongly supports this recommendation.

13. Promote workforce development programs that focus on high-quality job creation.

Conclusion

MRP again commends the Joint Agencies for the informative Report and thanks them for the opportunity to provide these comments.

Respectfully submitted,

/s Brian Theaker

Brian Theaker
Director, Western Regulatory and Market Affairs
Middle River Power, LLC
9460 Double R Blvd., Suite 104
Reno, NV 89521
Phone: (530) 295-3305