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Draft Energy Demand Forecast

Additional submitted attachment is included below.



South Coast Air Quality Management District

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Comments Regarding California Energy Commission (CEC) Docket Number 25-IEPR-03 Draft Energy Demand Forecast

South Coast Air Quality Management District (South Coast AQMD) staff appreciates the analysis and work conducted by the California Energy Commission staff and the opportunity to comment on the 2025 Integrated Energy Policy Report (IEPR) Load Modifier Energy Demand Forecast Results presented at the November 14 webinar.

The South Coast AQMD is responsible for achieving state and federal air quality standards in multiple air basins, including the South Coast Air Basin (Basin), a region in Southern California with 17 million residents that is designated extreme nonattainment for ozone pollution and serious non-attainment for PM_{2.5} by U.S. EPA. As demonstrated in recent State Implementation Plan submittals to the U.S. EPA for attainment of the 2015 ozone standard, the Basin will need to reduce nitrogen oxide (NO_x) emissions by at least 67% by 2037 to meet the federal and state clean air standards. The goods movement sector includes hundreds of thousands of heavy-duty vehicles and equipment that make up about half of our region's NO_x emissions. Further, South Coast AQMD is charged with improving localized air quality in communities, including through the statewide AB 617 program which focuses on over-burdened communities. The only viable pathway to achieve the required regional NO_x and localized toxic pollutant reductions is through widespread adoption of zero emission technologies across all stationary and mobile source sectors wherever feasible.

The CEC provides critical analysis every year with its Integrated Energy Policy Report (IEPR). The forecasts that are included as a foundational piece of the IEPR are relied on widely, in particular by investor-owned utilities. The transition to zero emissions technology at the local level is often limited not necessarily by the availability of vehicles and equipment, but instead by the access to supporting charging and fueling infrastructure. For example, it can take several years to build out infrastructure for high energy demand sites, such as charging sites for heavy duty trucks and off-road equipment, or data centers. Oftentimes utilities cannot provide the megawatts needed from the distribution grid on the timelines needed by the consumer. The energy solutions needed for these kinds of sites will vary, but we anticipate that onsite energy generation and storage coupled with other microgrid technologies will necessarily become more widely deployed, at least in part due to potentially faster timelines for deployment and sometimes at cheaper costs than grid-connected solutions. We note that several presentations

from the November 14 webinar indicated that many high energy demand locations should be expected in the coming years, and past CEC analysis pursuant to AB 2127 has shown that more than 150,000 high power charging stations statewide are needed for electric heavy duty trucks.¹

From an air-quality perspective, increased deployment of on-site energy generation technologies—such as natural gas turbines, linear generators, fuel cells, or backup diesel generators—may directly increase stationary-source NO_x and PM emissions within the South Coast Air Basin, even if the grid demand associated with that user appears relatively modest. At the same time, this onsite energy generation may significantly facilitate and advance the deployment of zero emission vehicles, thus overall reducing NO_x and PM emissions. We request that CEC includes potential deployment scenarios of onsite energy generation and storage technologies for high energy demand sites. The impact of this technology deployment could have significant impacts on electrical grid planning.

We recognize that given the initial stages of the market for these technologies that the analytical approach will likely require new methods that evolve from more qualitative to more quantitative approaches through time. South Coast AQMD staff would like to work with CEC staff on these types of analyses moving forward – sharing our experience with these technologies, and evaluating existing tools that have been developed mapping where high energy demand sites may be located in the future for applications like truck charging.²

Below are some initial questions that CEC may want to consider for this topic.

- The growth of onsite energy storage and generation could affect modelling for localized loads. While the growth in onsite photovoltaic energy generation is a welcome development from an air quality and energy supply standpoint, the onsite energy generation, storage, and usage for high energy demand sites using different technologies may affect planning for distributed loads. Is it possible to analyze the potential effect that onsite energy generation may have on the availability of energy and related infrastructure to distributed energy users, either locally, regionally, or statewide?
- Has the CEC considered modelling low/mixed/high scenarios for onsite energy generation for high demand sites? Deployment of these technologies may enable high energy demand sites to avoid or delay grid investments for their respective utility, while simultaneously relying on grid redundancy for reliability. These growth patterns in high energy demand sites may affect grid investment signals that can impact other

¹ <https://www.energy.ca.gov/publications/2024/assembly-bill-2127-second-electric-vehicle-charging-infrastructure-assessment>

² Some existing tools that have recently been developed to assess potential truck charging locations can be found here: SCAG's ZETI study: <https://scag.ca.gov/socalzeti>, and UC Riverside CHARGE-OPT study: www.aqmd.gov/docs/default-source/agendas/technology/technology-committee-agenda-10-17-25.pdf#page=45

energy users.

- When considering onsite energy generation for high demand sites, policies could be explored related to how these sites would affect the surrounding community. For example, would the grid potentially become backup power for that site? Policies related to load transparency and/or efficiency measures could reduce the risk to other energy users in that community if the onsite energy generation suddenly goes offline and the site needs to rely on the grid. We expect many other policy considerations will become apparent (e.g., workforce needs, costs, etc.), and standardized analysis included in the IEPR would be a critical information resource.
- Because onsite energy generation resources reduce only net load observed by the utility, they can obscure the true scale and temporal distribution of energy consumption. They may also mask operational shifts in which facilities alternate between onsite supply and grid supply during outages, maintenance, or peak-pricing periods. From a grid-planning perspective, these dynamics could introduce significant uncertainty for transmission and distribution infrastructure needs, particularly in areas where high energy demand sites are clustered.
- Onsite energy generation and storage also potentially affects air districts related to permitting of onsite generation equipment as well as accounting for such activities in regional air quality modelling. A standardized forecasting method could assist air districts as they conduct their regulatory and planning functions.

We appreciate CEC's important work on the IEPR and look forward to continuing to work with staff on these critical analyses. If there are any questions regarding these comments, please contact me at imacmillan@aqmd.gov, or Kalam Cheung at kcheung@aqmd.gov.

Sincerely,



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