14 November 2023

California Energy
Commission
715 P Street, Sacramento,
CA 9581
Via Electronic Filing

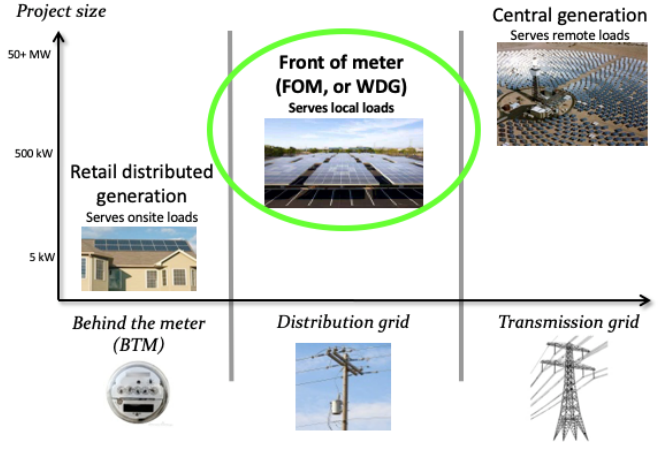
CEC Docket 23-SB-100: Clean Coalition Comments SB 100 Workshop on Modeling Inputs

Dear Chair Hochschild, Vice Chair Gunda, California Energy Commission Members, and Staff,

We appreciate the thoughtfulness that is being put into the development of a specific target for front-of-meter (FOM) distributed energy resources (DER). This iteration of the SB 100 Report represents the biggest opportunity to increase the granularity of the state planning process by making full use of existing built environments (including rooftops, parking lots, and parking structures) for resource deployment. With the current capacity targets in the state required to meet near-and mid-term reliability goals as well as the multi-year waiting process for CAISO cluster studies—that are ever-increasing in size—distributed generation has a key role to play in the transition to a decarbonized/electrified society. Codifying a specific target for FOM DER will help create urgency for policymakers and regulators to remove the inhibitors to swift and cost-effective deployments (including the need to streamline FOM interconnection and to implement effective procurement programs).

The Clean Coalition is a nonprofit organization whose mission is to accelerate the transition to renewable energy and a modern grid through technical, policy, and project development expertise. The Clean Coalition drives policy innovation to remove barriers to procurement and interconnection of DER — such as local renewables, demand response, and energy storage — and we establish market mechanisms that realize the full potential of integrating these solutions for optimized economic, environmental, and resilience benefits. The Clean Coalition also collaborates with utilities, municipalities, property owners, and other stakeholders to create near-term deployment opportunities that prove the unparalleled benefits of local renewables and other DER.

In the past, policy has focused on (wholesale) transmission-interconnected resources and behind-the-meter (BTM) resources, leaving the market for FOM resources, also called wholesale distributed generation (WDG) resources, sorely underutilized.



For example, there are around 66,000 warehouse rooftops that provide perfect locations to deploy large solar arrays. Likewise, every school, church, multi-unit housing facility, critical community facility, and government building presents an opportunity for a DER deployment where the developer does not need to go through the California Environmental Quality Act (CEQA) process. As explained by the Green Power Institute, "Community-scale renewables [or WDG] enjoy the cost advantages of much larger projects without much of the attendant environmental impacts or need for new transmission lines and associated costs. The community-scale market segment combines the benefits of the small-scale and utility-scale market segments."[1] Beyond swift deployments, DER are also increasingly cost-effective because of value stacking multiple benefits, including the ability to:

- Avoid expensive and inefficient transmission infrastructure.
- Defer the need for distribution upgrades, saving ratepayer millions of dollars per project.[2]
- Boost local economies through energy and non-energy benefits.
- Provide new power sources more quickly than central energy generation can.
- Enhance resilience and energy security.
- Boost energy independence and increase the process of decarbonization/electrification.
- Conserve the state's pristine natural lands.

In addition to setting a sizable target for WDG deployments, the state can increase the rate of deployments by first, ensuring that the economic value of location and other attributes is fully recognized and compensated, including the full value of avoided transmission costs, resulting in significant ratepayer savings. Second, increasing the transparency of the distribution grid will enable DER to receive optimized value based on location-specific grid benefits. Third, the state should fully value and compensate DER for resilience, including for indefinite renewables-driven backup power and avoided use of diesel generators and other fossil-fuel-dependent solutions. Lastly, the environmental value of commercial-scale WDG on built environments must be fully recognized and compensated. The Energy Commission's attention to non-energy benefits is critical to setting a realistic and attainable WDG target, given the current status of the market segment.

Modeling for FTM resources should consider targeted DER deployments.

In 2023, Vibrant Clean Energy (VCE) released a study, entitled, "Role of Distributed Generation in Decarbonizing California by 2045," to model the ratepayer savings that can be realized through the deployment of an increased percentage of distributed energy resources throughout the state.[3] The results, which are analyzed in a Clean Coalition-sponsored webinar,[4] explain that if deployed strategically, local solar+storage could lead to reduced electrical rates from the years 2020-2050. **Compared with a utility-only solution, adding local solar+storage would save ratepayers $120 billion in cumulative savings from 2018-2050.** The potential for significant savings should merit the Energy Commission considering the viability of targeted deployments in locations where the greatest benefits from each deployment will be realized by the ratepayers.

[1] Green Power Institute (2023), A MODERN CINDERELLA STORY: Assessing the state of California's community-scale renewable energy market, V1.6, at p. 3.
[2] CONFIDENTIAL DER PAYMENTS REPORT OF SCE (U 338-e), at p. A-1 – A-3. Two projects in SCE's service territory led to around $8 million in ratepayer savings.
[3] https://www.vibrantcleanenergy.com/wp-content/uploads/2021/07/VCE-CCSA_CA_Report.pdf
[4] https://clean-coalition.org/news/webinar-how-local-solar-and-storage-will-save-californians-billions-11-august-2021/

While the study itself concludes that an eyebrow-raising amount of money can be saved through integrated DER and utility-scale resource planning, the precedent for such savings already exists. In 2018, the CAISO canceled a total of 18 transmission projects and changed 23 others due to energy efficiency and demand response programs, totaling $2.8 billion in ratepayer savings. The transition to renewable energy is urgent to combat the effects of climate change, but policymakers should, in the same conversation, consider what the actual implications of such a resource buildout will be on California rates over time. There needs to be a balance between decarbonization and affordability that is already being pushed. For the past 5 years, transmission has been the fastest growing component of electrical rates, and based on the conclusions drawn in this report, that does not seem to be slowing down. If anything, the opposite seems true. The recent CAISO 20-year transmission outlook suggests the need for $30 billion worth of projects over the next two decades, which seems like a small investment to achieve a greater goal, until one considers that $30 billion is the starting point for the projects, rather than an upper ceiling. When factoring in the operations and maintenance (O&M) costs and utility return on equity (ROE) over the lifetime of the projects, each of which will span 40-50 years, the total cost to the ratepayers will end up being over $300 billion, about 10 times the initial price tag. Moreover, the $30 billion price tag is only for the high voltage transmission system and does not consider the utility's low voltage transmission grids. To justify the inevitable rate increases, policymakers must strive to, wherever possible, mitigate excessive spending and maximize the benefit to the ratepayers in California. Therefore, the Clean Coalition recommends that a high target for WDG resources be selected and the VCE modeling be consulted in the process of developing the final SB 100 Report.

Land use screens should be applied to WDG resources.

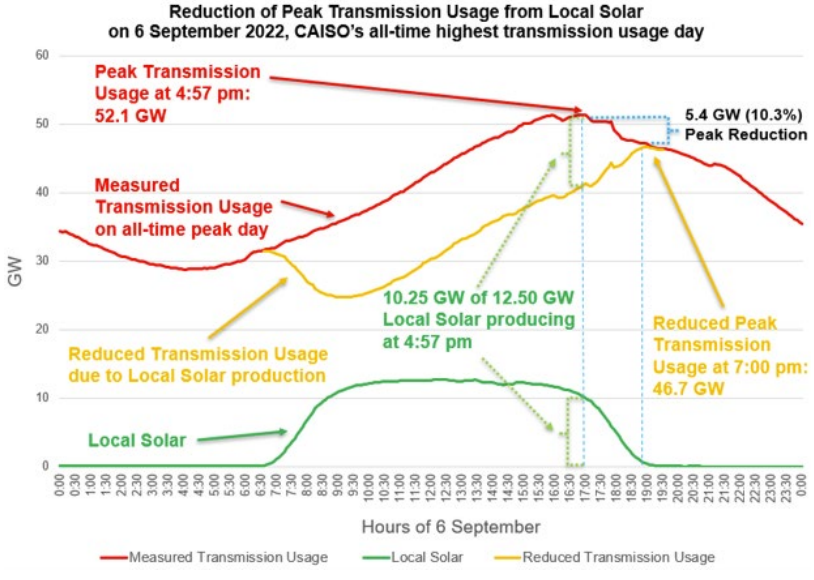
One of the central value offerings of DER is the ability to add capacity without infringing on the pristine natural lands in the state. Given there is a finite amount of space available and that the state/residents put a premium on conservation, sustainability, and environmental responsibility, the Clean Coalition strongly believes that it is of the utmost importance that the Energy Commission puts a specific dollar value on the benefit of conserved land for each kWh of WDG deployed.

Local solar is the best solution for reducing peak transmission usage and electricity costs for ratepayers.

Clean Coalition firmly believes that the final SB 100 Report should address the value of local solar (and solar+storage) to bring down the system peak and ensure that broad grid outages do not occur during extreme weather events. For example, local solar creates value in the form of reduced peak transmission usage that leads to more efficient market outcomes. Reduced energy imported from the transmission grid also means reduced transmission-grid line losses and congestion. Local solar and solar+storage also adds value by helping to set the stage for Community Microgrid deployment.

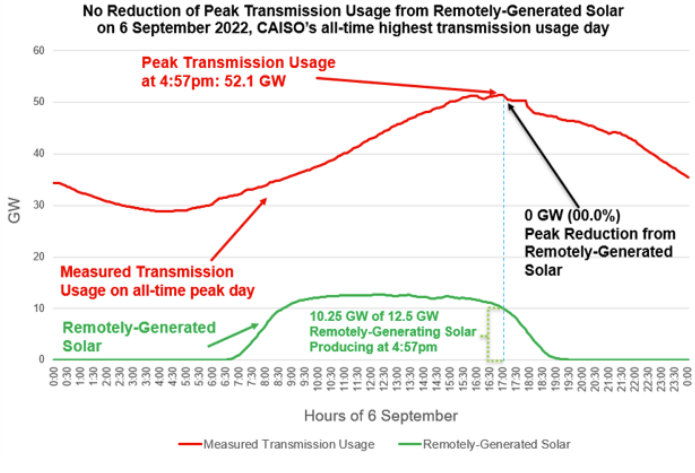
One of the key takeaway should be that local solar is the most effective way to reduce peak transmission usage, and in eliminating transmission costs as the biggest factor increasing electricity prices in California. Consider 6 September 2022, the day the CAISO recorded the highest all-time peak system demand. The graphic below shows that if the 12.5 GW of transmission-interconnected solar generated that day had instead come from local solar, the peak transmission usage on that all-time historic-peak day would have been reduced by over 10%. Hence, local solar would have had a nearly 5 times greater impact in reducing peak transmission usage than the record-setting 1.2 GW of demand response on that day. Therefore, we argue that the Energy Commission should set a FOM target to ensure there is enough

local generation to avoid outages. **The combined target for new capacity of FOM and BTM resources should be at least 12.5 GW.**



Given that peak transmission usage is the primary cause of new transmission investments, local solar is poised to save ratepayers hundreds of billions of dollars in avoided transmission costs. Local solar reduces peak transmission usage by almost 50% of the total generating capacity of the local solar. Importantly, the benefits of local solar increase exponentially when paired with local energy storage, including via export capabilities coming to Electric Vehicles (EVs). One estimate puts the peak reduction effect of local solar+storage at 70% of installed capacity.[5]

On the other hand, it is worth being crystal clear that remote generation of any flavor that is dependent on the transmission grid does not reduce transmission usage. For a clear example, here is a chart showing the remote solar provided no reduction to the peak transmission usage on 6 September 2022 – the same as on any other day, because remote solar inherently depends on the transmission grid to get delivered to where electricity is needed, which is where people live and work:

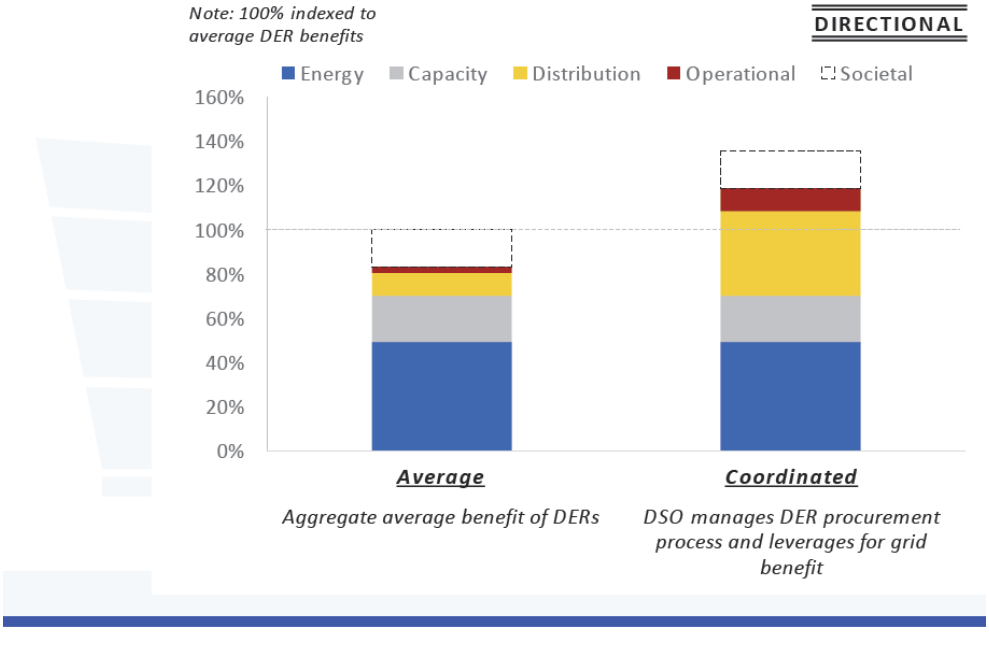


[5] Application of the Center for Biological Diversity, the Protect Our Communities Foundation and the Environmental Working Group for Rehearing of Decision 22-12-056, at p. 26.

DER are increasingly cost-effective because of value stacking multiple benefits, including the ability to avoid transmission infrastructure. There are four main drivers of policy expansion, peak load, reliability, economics, and policy, all of which can be avoided via distributed generation.

Note that the value of WDG will increase over time.
Over the next four years, the IOUs are set to roll out their own Distributed Energy Resources Management System (DERMS), which will optimize resources utilizing the distribution grid, in part by managing local voltage on distribution feeders (e.g., reducing curtailment). As demonstrated by SCE in the figure below (from 2016), when DER are optimized through the use of a DERMS controlled by a DSO, the distribution (yellow box) and operational (red box) benefits are set to increase significantly.

Figure 5: Impact of DSO coordination of DERs on benefits to grid



Southern California Edison, September 2016 7

Better DER management helps increase the amount of DERs that can be sited on a feeder, leading to even more granular voltage management, which is best when it is localized to where the power is being exchanged. The Energy Commission's target for FOM DER should note the increased value with the implementation of a DSO, as compared to the transmission-interconnected resources that will become less valuable overtime (as congestion/line losses increase).

The Energy Commission should set high FOM DER target for Load Pockets
Load pockets are defined as geographic areas of load that, because of transmission limitations, must have resources internal to the area available to operate so as to ensure reliable service to the area's load.[6] For example, the Goleta Load Pocket (GLP) spans 70 miles of coastline, from Point Conception to Lake Casitas, encompassing the cities of Goleta, Santa Barbara, and Carpinteria.

[6] https://www.lawinsider.com/dictionary/load-pocket

The GLP's only connection to the transmission system is routed through the heart of fire, landslide, and earthquake zones via the Goleta Substation. The highly vulnerable transmission route is shown as a purple line in the maps above and below, and as can be seen in the fire risk map below, the GLP's transmission connection is routed through a treacherous fire zone.

The Clean Coalition has worked to size a Community Microgrid capable of sustaining the most critical loads in the region for an extended period. Achieving indefinite renewables-driven backup power that provides 100% protection to the GLP against a complete transmission outage (known as an "N-2 event") will require 200 MW of solar and 400 MWh of energy storage to be sited within the GLP. Much of the energy storage has already been deployed; what the GLP needs most to advance the GLP Community Microgrid is more deployed local solar and the right set of circumstances (e.g., funding, an appropriate tariff, and a utility willing to work as a partner). However, the state's policies are more broadly focused on systemwide reliability than achieving reliability in load pockets with DER, which will improve reliability throughout the state.

Conclusion

The Clean Coalition appreciates the opportunity to submit these comments and we urge the Energy Commission to set a substantial target for FOM DER capacity of at least 6-8 GW. The combination of new FOM and BTM DER should be equal to, or greater than, 12.5 GW, which will help reduce the likelihood of systemwide outages moving forward.

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