

# California PUC Distributed Energy Resource Plan

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*October, 2021*

## 1. Introduction

In recent decades California has strongly supported Distributed Energy Resources (DER). This is part of our formula for moving the state to net-zero greenhouse gas electricity by 2045. This goal and a document that reported on progress and modeled how to achieve this goal was reviewed in an earlier post (described and linked below) *last spring*.

***Electric Decarbonization:*** *My home-state (California) has a goal to use "...renewable energy resources and zero-carbon resources..." to supply 100 percent of retail electricity sales and electricity procured to serve all state agencies by 2045.*

*The statute (AB 100) calls upon the California Public Utilities Commission (CPUC), California Energy Commission (CEC), and the California Air Resources Board (CARB) to use programs under existing statutes to achieve this policy and issue a joint report on the policy to the Legislature by January 1, 2021, and every four years thereafter. This post briefly covers the first of the above reports.*

<https://energycentral.com/c/cp/electric-decarbonization>

DER is an important part of the effort to displace all greenhouse gas (GHG) in electric generation, and rooftop (etc.) distributed Photovoltaic (PV) and PV + storage is an important type of DER for this effort. A recent post delving into this resource is described and linked below.

***Rooftop Solar Energy Tug of War:*** *California has aggressively promoted photovoltaic systems for small and medium facilities – everything from the rooftops of single-family homes to solar parking lot covers for public campuses and private businesses, and medium-sized arrays on farms, ranches and industrial sites. By and large this program has been very successful. The following is from a post from an earlier paper.*

*In 2006, then-Governor Schwarzenegger signed the Million Solar Roofs Initiative into law, which set a goal of building one million solar energy systems on homes, schools, farms, and businesses throughout the state. Now, the idea that once made international headlines for its "wow factor" is a reality...*

*As they celebrated the one million solar roofs milestone, solar advocates kept their focus on the future with a call for one million solar-charged batteries by 2025.*

*This post looked at the current battle taking place in the California PUC over continuing the state's current generous program to encourage solar rooftops, versus the equity imbalance this has created.*

<https://energycentral.com/c/cp/rooftop-solar-energy-tug-war>

This post looks a DER as described by the California Public Utility Commission (CPUC), and preliminary plans guiding the regulation of this important resource.

## 2. What is DER?

The CPUC takes a much broader view of DER than most utility professionals. Per the document referenced here,<sup>1</sup> DER is:

*The Public Utilities Code 769 (a) states that “distributed resources” means distributed renewable generation resources, energy efficiency, energy storage, electric vehicles, and demand response technologies.*

*DERs include distributed renewable generation resources, energy efficiency, energy storage, electric vehicles, time variant and dynamic rates, flexible load management, and demand response technologies. Most DERs are connected to the distribution grid behind the customer’s meter (BTM), and some are connected in front of the customer’s meter (FTM).*

### 2.1. What is the DER Action Plan

*A roadmap for CPUC decision-makers, staff, and stakeholders to facilitate forward-thinking DER policy. This plan aligns the CPUC’s vision with actions that can be taken by stakeholders to ensure DER policy implementation in support of SB 100 and California’s energy and climate goals is coordinated across proceedings related to grid planning, affordability, load flexibility, market integration, and customer programs.*

*The DER Action Plan is not meant to determine outcomes of individual proceedings.*

In 2016, the CPUC endorsed an earlier version of a DER Action Plan that covered the 2016-2020 period. This first plan, DER Action Plan 1.0, served as a roadmap to coordinate activities across multiple CPUC proceedings. The CPUC has completed the majority of the Action Elements set forth in the first Plan and now seeks to adopt a new DER Action Plan to guide the next phase of DER development. DER Action Plan 2.0 Update will provide guidance for the period of 2021-2026.<sup>2</sup>

## 3. Proceedings and Initiatives

The action plan has been segmented into four tracks, with each track addressing a particular functional area of implementation for DER. The following subsections identify the tracks and the current and future proceedings that fall under each track.

### 3.1. Load Flexibility & Rates

The following proceedings and initiatives fall under Track 1:

- *Net Energy Metering*
- *PG&E Day Ahead Hourly Real Time Pricing (DAHRTP) Rate and Pilot Application to Evaluate Customer Understanding and Supporting Technology*

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<sup>1</sup> Keishaa Austin, CPUC, “Briefing on Proposal for Distributed Energy Resources Action Plan 2.0”, Sep 17, 2021, <https://www.cpuc.ca.gov/-/media/cpuc-website/divisions/energy-division/documents/distributed-energy-resources-action-plan/tribal-presentation--917.pdf> . Note this presentation is briefing for the California Native American Tribes, but the second part of this presentation was the most recent information I could find on the CPUC Plans.

<sup>2</sup> CPUC, “Draft Distributed Energy Resources Action Plan,” 07/23/2021, <https://www.cpuc.ca.gov/about-cpuc/divisions/energy-division/der-action-plan>

- *SDG&E, PG&E and SCE General Rate Case Phase 2*
- *Rate Design Applications for evaluating and implementing default residential time of use (TOU) rate designs.*
- *SDG&E Application for Approval of Electric Vehicle High Power Charging Rate Application*
- *Load Flexibility Management Order Instituting Rulemaking, recommended by CPUC staff.*
- *California Energy Commission’s Load Management Standard*

**Authors Note:** Regarding the fourth bullet above on default TOU rate designs, I use a PG&E Electric Schedule E-TOU-D Tariff. This is one of several tariffs that are available for PG&E residential accounts and it has peak pricing from 5 to 8 p.m. on non-holiday weekdays. Note that time-of-use, real-time and peak-grid-demand-driven rates are important types of DER.

### **3.2. Grid Infrastructure**

The following proceedings and initiatives fall under Track 2:

- *High DER Future Order Instituting Rulemaking*
- *Streamlining Interconnection of Distributed Energy Resources and Improvements to Rule 21*
- *Microgrids Order Instituting Rulemaking*
- *PG&E, SCE and SDG&E General Rate Case Phase 1*

**Authors Note:** Regarding the second bullet above, *Rule 21 governs CPUC-jurisdictional interconnections, which include the interconnection of all net energy metering (NEM) facilities, "Non-Export" facilities, and qualifying facilities intending to sell power at avoided cost to the host utility. Rule 21 does not apply to the interconnection of generating or storage facilities intending to participate in wholesale markets overseen by the Federal Energy Regulatory Commission (FERC). These facilities must typically apply for interconnection under the FERC-jurisdictional "Wholesale Distribution Access Tariff" (when connecting to the distribution system) or "CAISO Tariff" (when connecting to the transmission system).*<sup>3</sup>

### **3.3. Market Integration**

The following proceedings and initiatives fall under Track 3:

- *Resource Adequacy*
- *Successor Storage and/or Demand Response Order(s) Instituting Rulemaking, as recommended by CPUC staff*
- *Rule 21*

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<sup>3</sup> CPUC, “Rule 21 Interconnection,” <https://www.cpuc.ca.gov/rule21/>

- *FERC Order 2222 and Other FERC Proceedings*
- *Potential CAISO Initiatives:*
- *Energy Storage and Distributed Energy Resources,*
- *Energy Storage Enhancements,*
- *Hybrid Resources,*
- *Transmission Planning Process,*
- *Storage as a Transmission Asset,*
- *Dispatch Enhancements (decremental market power and bid floor).*

**Author's Comments:** Regarding resource adequacy (first bullet above), see the paper through the link below:

<https://www.energycentral.com/c/pip/california-resource-adequacy-procedures-community-choice-aggregators-and-direct>

FERC Order 2222 (fourth bullet above) enables DERs to participate alongside traditional resources in the regional organized wholesale markets through aggregations, opening U.S. organized wholesale markets to new sources of energy and grid services.<sup>4</sup>

### **3.4. DER Customer Programs**

The following proceedings and initiatives fall under Track 4:

- *Self-Generation Incentive Program*
- *Energy Efficiency*
- *Building Decarbonization*
- *Integrated Distributed Energy Resources*
- *Transportation Electrification*
- *Demand Response*
- *Net Energy Metering*
- *Energy Savings Assistance Program*

## **4. Action Elements**

Note that, with one exception (track 3 below), I am skipping a step that reference 1 includes: the authors developed "Vision Elements." I'm sure these were useful in expanding the proceedings and initiatives into actions, but they seem to be superfluous, given the action elements.

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<sup>4</sup> FERC, "FERC Order No. 2222: Fact Sheet," <https://ferc.gov/media/ferc-order-no-2222-fact-sheet>

## **4.1. Load Flexibility & Rates**

*Track 1 is focused on improving demand-side resource management through more effective, integrated demand response (DR) and retail rate structures that promote widespread, scalable, and flexible load strategies enabled by electrification and DER deployment opportunities.*

*Action elements address grid issues associated with the growth of renewables, electrification, and DER adoption in support of California's clean energy goals, minimizing the cost of electricity service, and provide fair compensation for grid services provided by customer owned DERs.*

The following are significant action elements in this track (per my judgement):

*By 2023, the CPUC should evaluate the costs and benefits of dynamic and real-time pricing (RTP) rates through pilot evaluation studies to inform rate design options for IOU implementation.*

*By 2023, the IOUs should submit proposals for opt-in and opt-out dynamic and RTP rates in certain customer classes, as permitted by law, informed by pilot evaluation studies in either a load flexibility rulemaking process or separate rate design window applications.*

## **4.2. Grid Infrastructure**

*Track 2 is focused on CPUC actions to guide utility infrastructure planning and operations to maximize the value of DERs interconnected to the electric grid.*

The following are significant action elements in this track:

*By 2023, CPUC staff will complete a comprehensive, data-driven electrification impacts study to estimate the scope of distribution grid buildout and identify opportunities to mitigate costs.*

*By 2025, utilities will update their distribution planning processes and Distribution Investment Deferral Framework process and filings to fully account for, and report on, the scope and costs of ongoing electrification impacts.*

## **4.3. Market Integration**

Track 3 is focused on the efficient integration of behind the meter (BTM) and front of the meter (FTM) DERs into wholesale markets to support renewable integration, greenhouse gas (GHG) reduction, and grid reliability. This track addresses how market integrated DERs connected to the customer, distribution, and transmission grid domains can be harnessed and compensated to produce multiple streams of benefits.

*Vision 3C indicated that Rule 21 interconnection tariffs are reviewed to address barriers and resolve questions of whether, and if so how, BTM DERs can export to the wholesale grid, and the CPUC, CAISO, and CEC resolve questions of whether and how exporting DERs should receive compensation and participate in wholesale markets.*

The action element that will come from the above vision is yet to be defined.

#### **4.4. DER Customer Programs**

*Track 4 is focused on Improving coordination, planning and developing consistent metrics across DER proceedings related to customer programs to maximize their contributions to GHG reductions and other state energy goals.*

*The goal of the track 4 is to enable all customers to effectively manage their energy usage in a manner that ensures equitable participation and distribution of benefits, alignment with evolving rate design and load flexibility, alignment with distribution planning objectives, and alignment with integrated resource planning objectives.*

The following are significant action elements in this track:

*By 2023, the CPUC should consider whether to develop guidelines and metrics that can be used across DER programs to understand and evaluate the impact of all DER programs, whether or not they intentionally target disadvantaged communities, or low- and middle-income ratepayers, to be done before program approval and as part of program evaluation*

*By 2023, the CPUC should consider a framework for mutual eligibility between programs that have similar eligibility criteria and/or are seeking to expand access to similar technologies, with the goal of creating mutual eligibility or auto enrollment in all programs that focus on disadvantaged communities.*

*By 2023, the CPUC should consider issuing rules for standardized data collection for all disadvantaged communities programs.*

*During 2023 and 2024, the CPUC should use the results of a programmatic review to improve program design and organization across all DER customer programs, possibly combining similar programs.*