Standard LSE Plan

DESERT COMMUNITY ENERGY

2022 INTEGRATED RESOURCE PLAN

November 1, 2022

DESERT COMMUNITY ENERGY

Table of Contents

I. Executive Summary

Desert Community Energy (DCE) was formed to offer a Community Choice Aggregation program in the desert region of Riverside County. DCE is a California joint powers authority located within the geographic boundaries of Riverside County, which formed in 2017 for the purpose of offering rate savings to electricity customers and developing and implementing sustainable energy initiatives that reduce energy demand, increase energy efficiency, and advance the use of clean, efficient, and renewable resources available in the region. DCE is governed by a board of directors that includes an elected representative from each participating city. While DCE formed in 2017, DCE only began serving load on April 1, 2020, for one of its two member agencies, the City of Palm Springs. DCE's other founding member agency is the City of Palm Desert. The next possible launch date for Palm Desert is 2024. Cathedral City has withdrawn from DCE effective July 1, 2021.

DCE's Integrated Resource Plan (IRP) objectives include the following:

- Report on recent procurement activity, including expected long-term contracts for renewable energy and compliance with the mid-term reliability (MTR) procurement mandate in D.21-06-035 ("MTR Decision");
- Quantify how expected long-term contracts for renewable energy from DCE's 2020 request for offers (RFO) will help DCE meet California's contracting requirements, including renewable portfolio standard (RPS) requirements, MTR requirements, and greenhouse gas (GHG) emissions reductions;
- Quantify how much additional "green" power supply is still needed to meet California's 2030 GHG emissions reduction goals and the DCE Board's long-term procurement objectives; and
- Guide DCE's future procurement activities such that all California's contracting requirements and DCE Board goals are achieved in a timely fashion.

To meet these objectives, DCE has modeled two portfolios as part of this IRP: 1) targeted to meet the 30 MMT GHG emissions target in 2035 ("30 MMT Portfolio") and 2) targeted to meet the 25 MMT GHG emissions target in 2035 ("25 MMT Portfolio"). Both portfolios are considered conforming portfolios based on the CPUC's IRP filing requirements and both meet DCE's internal goals for green power supply set by its Board. The 25 MMT Portfolio will function as an aspirational portfolio that DCE will actively plan towards for meeting its internal GHG emissions reduction goals.

Both portfolios include resources for which DCE has executed contracts as well as planned resources needed to meet midterm reliability (MTR) requirements per D.21-06-035. Both portfolios also include additional local wind generation resources in 2035 to meet DCE's goal to make its Carbon Free product 100% renewable on an annual basis beginning in 2030 and to meet GHG emissions requirements. (The Carbon Free product is the default product upon DCE customer enrollment and is estimated to be 75% of DCE's load.) Because the 25 MMT GHG reduction target is lower, this portfolio includes twice the added wind in 2035 (28 MW) than the 30 MMT Portfolio (14 MW).

DCE is also committed to procuring resource adequacy (RA) to meet all CPUC requirements and contribute its fair share to grid reliability. DCE has performed a reliability analysis using marginal effective load carrying capabilities for each conforming portfolio per the CPUC's instructions. DCE

acknowledges it may need to change its future procurement targets to accommodate new RA requirements post RA reform. DCE will report on this in its next IRP.

This IRP was reviewed and approved by the DCE Board of Directors on October 17, 2022, at a public meeting to be ready for submittal by the deadline. This document reflects the intent of the DCE Board of Directors to increase the procurement of renewable energy and continue to offer a 100% carbon-free option. DCE will also comply with the long-term procurement requirements set forth by Senate Bill (SB) 350.

In addition, Board priorities in the near term, include the following:

- Approving contracts to complete DCE's procurement to meet MTR requirements.
- Working with TerraVerde Energy ("TerraVerde") on a new distributed generation pilot program that enables CCAs to partner with customers in deploying distributed solar plus battery energy storage systems.
- Providing economic development opportunities for local disadvantaged communities.

Longer term, the Board also intends to consider new programs, which could include electric vehicle incentives, building electrification, grid resiliency, and energy efficiency.

DCE will report on its progress with these activities in future IRPs.

DCE has learned much throughout the IRP process, including how critical the role of regulatory uncertainty plays in DCE's planning. For instance, there were significant changes between the previous IRP plan and this IRP due to the creation of MTR requirements and the introduction of the voluntary allocation market offer (VAMO) process. DCE urges the Commission to reduce this uncertainty to the maximum extent possible prior to setting IRP requirements to avoid a situation where IRPs become out-of-date as soon as they are printed. DCE hopes the creation of the programmatic approach to IRP will be a significant improvement in this regard.

II. Study Design

Desert Community Energy (DCE) was formed to offer a Community Choice Aggregation program in the desert region of Riverside County. DCE is a California joint powers authority located within the geographic boundaries of Riverside County, which formed in 2017 for the purpose of offering rate savings to electricity customers and developing and implementing sustainable energy initiatives that reduce energy demand, increase energy efficiency, and advance the use of clean, efficient, and renewable resources available in the region. DCE is governed by a board of directors that includes an elected representative from each participating city. While DCE formed in 2017, DCE only began serving load on April 1, 2020 for one of its two member agencies, the City of Palm Springs. DCE's other founding member agency is the City of Palm Desert. The next possible launch date for Palm Desert is 2024. Cathedral City has withdrawn from DCE effective July 1, 2021.

DCE was established with founding principles, as described in the 2017 joint powers agreement, which guide the development of this IRP and related procurement activities:

- Reducing greenhouse gas emissions related to the use of power throughout DCE jurisdictions and neighboring regions;
- Providing electric power and other forms of energy to customers at a competitive cost;
- Carrying out programs to reduce energy consumption;
- Stimulating and sustaining the local economy by developing local jobs in renewable and conventional energy; and
- Promoting long-term electric rate stability, energy security, and reliability for residents through local control of electric generation resources.

These broad policy objectives were used as the basis for the more specific energy procurement strategies included in this IRP. These objectives underpin decision making to create conforming resource portfolios within the IRP requirements framework that include use of DCE's assigned load forecast and GHG emissions targets.

a. Objectives

DCE's Integrated Resource Plan (IRP) objectives include the following:

- Report on recent procurement activity, including expected long-term contracts for renewable energy and compliance with the mid-term reliability (MTR) procurement mandate in D.21-06-035 ("MTR Decision");
- Quantify how expected long-term contracts for renewable energy from DCE's 2020 request for offers (RFO) will help DCE meet California's contracting requirements, including renewable portfolio standard (RPS) requirements, MTR requirements, and greenhouse gas (GHG) emissions reductions;
- Quantify how much additional "green" power supply is still needed to meet California's 2030 GHG emissions reduction goals and the DCE Board's long-term procurement objectives; and
- Guide DCE's future procurement activities such that all California's contracting requirements and DCE Board goals are achieved in a timely fashion.

To meet these objectives, DCE has modeled two portfolios as part of this IRP: 1) targeted to meet the 30 MMT GHG emissions target in 2035 ("30 MMT Portfolio") and 2) targeted to meet the 25 MMT GHG emissions target in 2035 ("25 MMT Portfolio"). Both portfolios are considered conforming portfolios based on the CPUC's IRP filing requirements and both meet DCE's internal goals for green power supply set by its Board. The 25 MMT Portfolio will function as an aspirational portfolio that DCE will actively plan towards for meeting its internal GHG emission reduction goals. Further information on the portfolios is provided in Section III of the IRP. The Action Plan in Section IV of the IRP provides further detail on how the IRP will guide DCE's future procurement activities.

b. Methodology

i. Modeling Tool(s)

DCE developed a spreadsheet model to create each portfolio. DCE relied on the CPUC's Clean System Power (CSP) calculator spreadsheet tool ("CSP calculator") to estimate the emissions

from each portfolio. It did not conduct any production cost modeling or portfolio optimization studies. The independent spreadsheet model and CSP calculator results are attached to this IRP. DCE also used a spreadsheet to develop a custom hourly dispatch profile for its one-to-one configuration hybrid resources as discussed in more detail in the Modeling Approach section below. This spreadsheet is also attached to the IRP.

ii. Modeling Approach

Load

As part of the 2022 IRP process, each LSE is assigned a retail sales forecast to use for resource planning through 2035 for all conforming portfolios. The assigned forecast is based on the 2021 Integrated Energy Policy Report (IEPR) mid case forecast,[1] with modifications by LSEs approved by the Administrative Law Judge in the IRP proceeding.[2] In DCE's case, only Palm Springs' load is included in this IRP. Future IRPs may include expansion, such as if the city of Palm Desert decides to begin serving customers in future years.

Because GHG emissions are calculated on an hourly basis in the CSP calculator, an hourly load shape must be applied to the approved annual load forecast. DCE elected to use a mix of the default load shapes provided in the CSP calculator. DCE assumes a mix of approximately 44% commercial and industrial sales based and 56% non-commercial and industrial sales. This is consistent with the assumption from the previous IRP.

GHG Emissions Targets

As part of the 2022 IRP process, the CPUC planned for two different GHG emissions reduction scenarios for California: one targeting 38 MMT of GHG emissions in 2030 and one targeting 30 MMT of GHG emissions in 2030. Each scenario also included a 2035 GHG emissions target of 30 MMT and 25 MMT respectively. Each LSE was assigned 2030 and 2035 emissions benchmarks corresponding to each of these goals. These benchmarks were used for DCE's IRP portfolio planning. All four of the assigned emissions benchmarks are shown in the table below.

[1] For more information on the IEPR, please refer to https://www.energy.ca.gov/data-reports/reports/integrated-energy-policy-report.

[2] See *Administrative Law Judge's Ruling Finalizing Load Forecasts And Greenhouse Gas Emissions Benchmarks For 2022 Integrated Resource Plan Filings*, June 15, 2022, https://docs.cpuc.ca.gov/PublishedDocs/Efile/G000/M485/K625/485625915.PDF.

Table 1. DCE 2030 and 2035 GHG Emission Benchmarks, millions of metric tons (MMT).

	30 MMT Scenario	25 MMT Scenario
Assigned 2030 Benchmark	0.057	0.043
Assigned 2035 Benchmark	0.044	0.035

DCE Rate Products

DCE currently offers two rate products to its customers. The first option, which was the default option for the April 2020 enrollment, is the Carbon Free product, which provides 100% carbon-free electricity at rates at a premium to SCE's current rates, and targets this product to be 100% renewable by 2030. The second option is Desert Saver, which offers comparable renewable content to SCE's base product at a slightly lower rate. Based on recent opt-down activity, DCE assumed 75% of its sales would be Carbon Free and 25% would be Desert Saver for all years between 2024 and 2035. This represents a higher proportion of opt-downs since the 2020 IRP analysis, which modeled 95% Carbon Free.

Green Energy Portfolio Supply Approach

The portfolios were constructed to capture the following broad procurement goals by DCE:

- DCE's preferred resource types for RPS-qualified procurement for its Carbon Free product are solar, wind, small hydro, and geothermal with carbon-free technology. Biomass/biogas resources are excluded over concern they may have carbon emissions.
- DCE only procures non-RPS qualifying carbon-free energy from existing large hydro generation, not nuclear or new large hydro.
- DCE prefers to source green energy from local generation, with preference in the following order: Riverside County, Southern California, all of California, in Western Electricity Coordinating Council (WECC) but outside California.
- DCE only uses portfolio content category one (PCC1) renewable energy credits (RECs) or PCC0 RECs from the voluntary allocation market offer (VAMO) process to satisfy RPS requirements.[3]

For the current IRP, DCE created two resource portfolios for years 2024-2035. Section III of the IRP provides a specific listing of the resources in both portfolios. The assumptions used to build the portfolios are described here. Both portfolios include the following:

- DCE's executed long-term contracts for renewable energy.

[3] The Board has provided DCE some flexibility to use PCC3 RECs for compliance, but so far has opted not to use PCC3 RECs. No PCC3 RECs were modeled for this IRP.

- DCE's allocation of existing renewable resources procured through the VAMO process from SCE.
- DCE's allocation of CAM battery storage resources that are eligible for entry into the CSP calculator.
- A generic solar hybrid resource with an online date of 2024 modeled to ensure MTR compliance.

DCE selected a generic solar plus storage resource because it can also supply energy to meet the zero-emission capacity needed in 2025 given the only other resource in DCE's portfolio capable of meeting that requirement (Deer Creek) is currently at risk. This is discussed further in Section IV.a.ii.c of the IRP.

Once the above resources were modeled, DCE discovered two gaps to fill to meet green energy targets:

- In 2024, DCE was short of the necessary carbon-free energy procurement to meet its internal procurement goals for its Carbon Free product. Therefore, 37 GWh of short-term imported hydro purchases were included in that modeled year, which is consistent with DCE's current procurement practices for its Carbon Free product.
- In 2035, due to contract expiration and load growth, DCE will need to purchase additional renewable energy and additional carbon-free power to meet emissions requirements. DCE added approximately 14 MW of local existing wind and 28 MW of local existing wind for the 30 MMT and 25 MMT scenarios respectively to meet these targets. Local wind was selected in accordance with DCE's preferred resources, but DCE is open to alternative resources depending on availability as discussed further in Section IV.a.v.

Resources were modeled using the default profiles in the CSP calculator, except for DCE's hybrid resources. As the CSP calculator documentation explains, the default hybrid or paired solar plus storage resource is modeled as a two-to-one solar to battery configuration, meaning the nameplate rating of the solar resource is twice that of the battery. DCE's hybrid resources are a one-to-one configuration. The one-to-one configuration's larger battery size relative to the energy from the solar resource allows it to move a greater fraction of the solar generation out of the midday period subject to the most curtailment. This increases the emissions reduction potential of the resource. The CSP calculator documentation suggests using a custom hourly dispatch profile to capture this additional functionality, so one was developed for this purpose. The custom dispatch reflects the following constraints:

- The hourly solar profile for new Southern California solar from the CSP calculator was used to model the dispatch of the solar resource prior to any battery charging or discharging.
- Charging was prioritized during midday hours as opposed to early morning or evening.
- Discharging was prioritized in early evening hours when the net peak is most likely to occur.

- Total dispatch was kept under the interconnection limit, which is equal to the battery capacity.
- The battery was cycled daily and fully charged most days.
- A loss factor of 10% was assumed.

The same profile was used for both the Deer Creek resource, which DCE has a signed contract for, and the generic hybrid resource modeled to meet MTR requirements.

Reliability

Both portfolios take a similar approach to meet reliability requirements for IRP planning purposes. Both IRP portfolios include the following:

- Resource adequacy from DCE's executed long-term renewable contracts and an executed contract for demand response.
- DCE's allocated share of resources SCE procured on its behalf in response to D.19-11-016, which DCE has purchased via the one-time allocation opportunity specified in D.22-05-015.
- Resource adequacy from a generic long-duration battery storage resource and solar + storage hybrid resource modeled to meet MTR compliance.
- DCE's proportional share of resources subject to the cost allocation mechanism (CAM).
- DCE's allocated share of SCE's demand response resources.
- To the extent there is still a gap in RA procurement needs, DCE assumes it will procure System RA using short-term, RA-only contracts from existing gas resources.

These portfolios are discussed in more detail in the System Reliability Analysis Section of the IRP.

III. Study Results

a. Conforming and Alternative Portfolios

DCE has modeled two portfolios, both of which are considered conforming portfolios based on the CPUC's IRP filing requirements:

- **30 MMT Portfolio**: a portfolio that meets DCE's assigned 30 MMT emissions benchmark in 2035.
- **25 MMT Portfolio**: a similar portfolio to the 30 MMT portfolio, but with additional local wind procurement needed to meet DCE's assigned 25 MMT emissions benchmark in 2035. Given DCE's preference for aggressive green energy development, this is DCE's preferred portfolio of the two.

DCE elected not to model any Alternative Portfolios.

The methodology used to construct each portfolio is described in detail in Section IIb above. Here, DCE provides a detailed listing of all resources included in each portfolio.

Resources with Executed Contracts

DCE has executed renewable contracts for three wind projects, one solar hybrid project, and a new geothermal project.[4] It also has executed a contract for demand response, which will be used for MTR compliance and resource adequacy compliance.

Table 2 outlines the various characteristics of each contracted resource:

Table 2. Summary of DCE Resources with Executed Contracts.

Developer	Project	Product	Technology	Contract Start Date	Proposed Size (Solar Component) (MW)	Annual Energy Delivery (GWh)	Battery Storage Capacity (MW)	Battery Storage Duration (Hours)
Vesper Energy	Deer Creek Solar I	Energy + Capacity	New Solar + Storage	Mid 2024	50	181	50	4
Terra-Gen	East Wind	Energy + Capacity	Existing Wind	January 2023	12.6	34	N/A	N/A
Terra-Gen	Coachella Hills Wind II	Energy + Capacity	New Wind	May 2021	10.6	36	N/A	N/A
Terra-Gen	Altwind	Energy + Capacity	Existing Wind	January 2023	9.8	25	N/A	N/A
Resi Station LLC (OhmConnect)	Aggregated DR	Capacity Only	New Demand Response	January 2023	4.5	0	N/A	N/A
Cape Generating Station I LLC (Fervo Energy)	Cape Generating Station	Energy + Capacity	New Geothermal	June 2026	3	24	N/A	N/A

VAMO Resources

DCE has procured an allocated share of energy and RECs from SCE's portfolio of existing renewable resources through SCE's voluntary allocation in the VAMO process. The amount varies over time,

[4] The RDT lists the geothermal contract with a status of "Review" as it was executed after August 2022.

starting with 159 GWh in 2023 declining to 99 GWh by 2035 as resources retire. The mix of resource types is shown in the figure below.

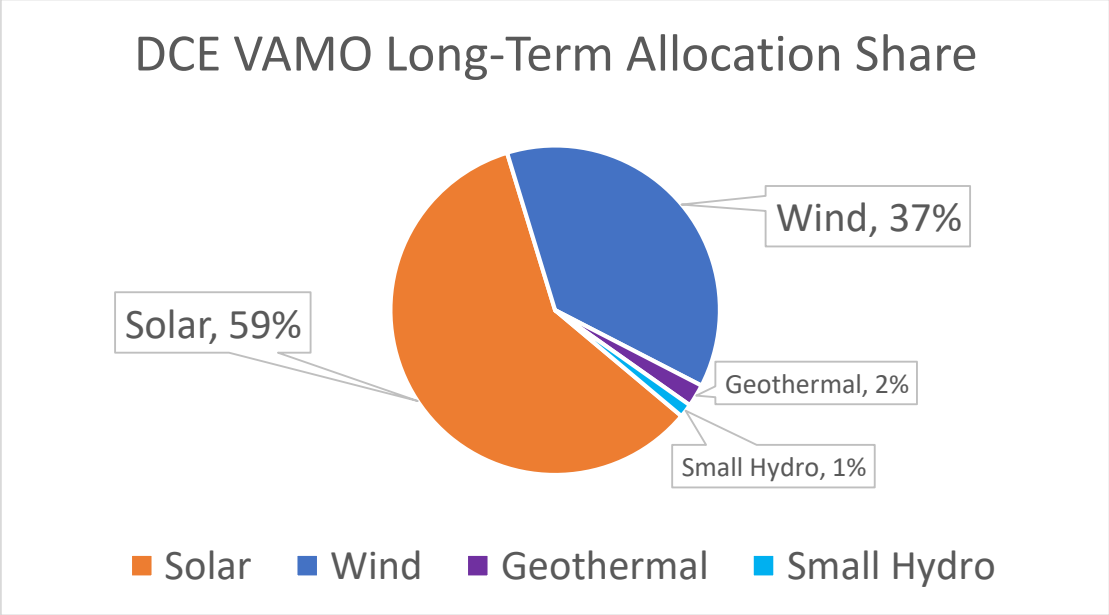

Figure 1. Resource mix for DCE's VAMO resources.

Modified CAM (MCAM) Resources

Pursuant to D.22-05-015, DCE has also elected to purchase its share of resource adequacy from ten battery storage facilities that SCE contracted with to meet D.19-11-016 requirements. All resources are four-hour lithium-ion battery projects with start dates between 2021 and 2023.

Additional Resources

As discussed in Section IIb above, DCE also anticipates needing 37 GWh of additional short-term purchases of existing imported large hydro energy to meet its carbon free procurement goals in 2024. It also assumes new long-term contracts will be needed per the table below. The long-term contracts for long-duration storage and hybrid resources are included to ensure compliance with MTR requirements, whereas the local wind contract ensures compliance with emissions requirements and DCE's internal renewable energy goals in 2035. The inclusion of local existing wind to meet emissions requirements is subject to availability, and DCE is open to alternative resource types as discussed in Section IV.a.v.

Table 3. Additional resources assumed to be procured under long-term contract.

		Contract Begins	30 MMT Portfolio	25 MMT Portfolio
New Resources	**Long-Duration Storage**	2026	3.9 MW	3.9 MW
	Solar Hybrid	2024	18.5 MW Solar + 18.5 MW 4-Hour Battery	18.5 MW Solar + 18.5 MW 4-Hour Battery
Existing Resources	**Local Wind**	2035	14 MW	28 MW

DCE's portfolios also include its share of CAM resources and enough capacity from existing gas generation to meet any remaining reliability need as discussed in more detail in the System Reliability Analysis section of the IRP.

Portfolio Results Summary

Figure 4 shows the mix of resources included in the 30 MMT Portfolio over time on an annual energy basis. After the hybrid resources come online in 2024, the amount of green energy procured exceeds DCE's load until 2031. In 2035, additional wind resources are added to meet emissions requirements and DCE's renewable energy goals.

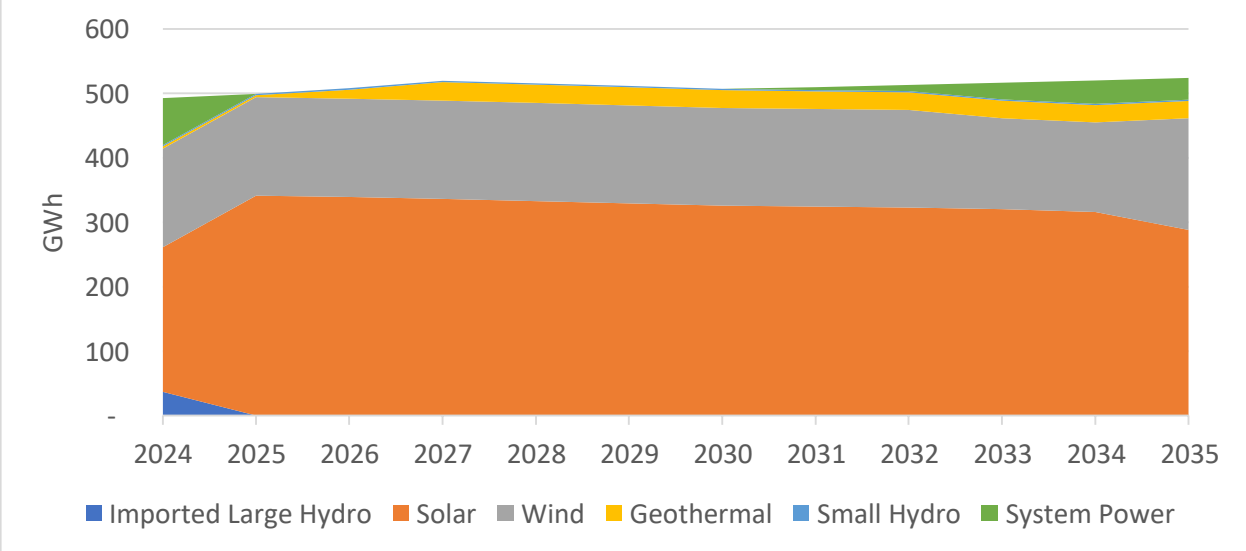

Figure 2. DCE 30 MMT Portfolio annual energy resource mix.

Similar results for the 25 MMT Portfolio are shown in the chart below. The results for each portfolio are the same until 2035. The 25 MMT Portfolio includes a larger amount of added wind resources to meet emissions targets, resulting in enough green energy procurement to meet demand that year.

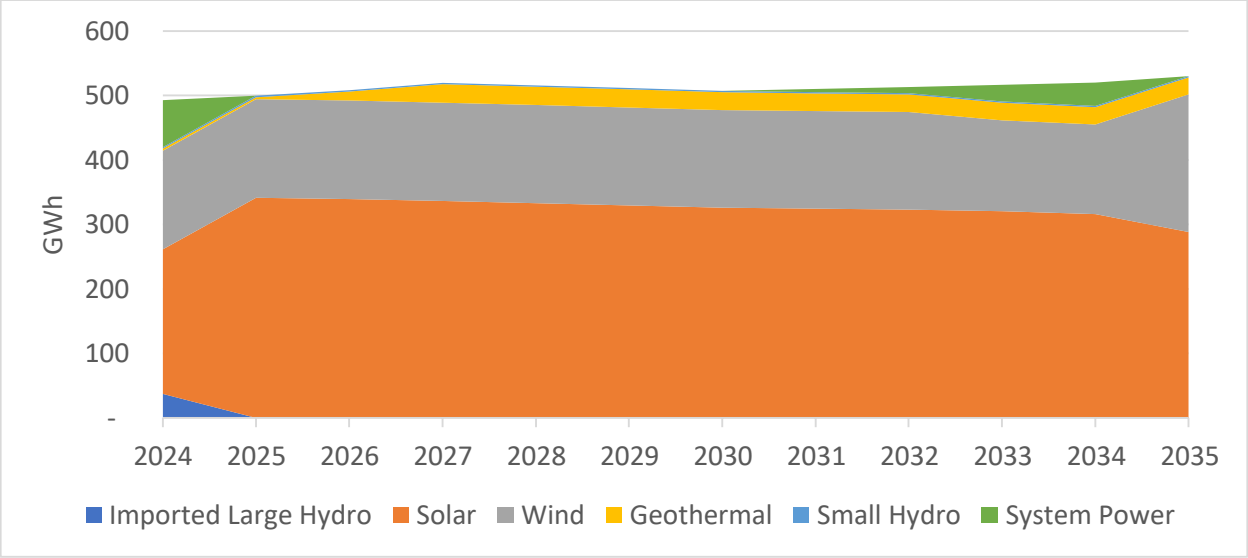

Figure 3. DCE 25 MMT Portfolio annual energy resource mix.

Comparison of New Resources to PSPs

The table below compares the mix of new resources in 2035 in each DCE conforming portfolio to the mix of new resources in the PSPs with updates. The largest difference between the two is the lack of new wind resources in DCE's portfolio. However, DCE does have considerable existing wind resources in its portfolio. It also has included new out-of-state wind and offshore wind in the portfolio for the high electrification sensitivity, as discussed further in Section III.g of the IRP.

Table 4. Comparison of mix of new resources in PSPs with updates and DCE conforming portfolios.

		PSP With Updates				DCE	
		30MMT	25MMT	30MMT	25MMT	Both Portfolios	
		2035	2035	2035	2035	2035	2035
Biomass	*MW*	134	134	0.3%	0.2%	-	0.0%
Geothermal	*MW*	1,135	1,135	2.2%	2.0%	3	2.0%
Wind	*MW*	3,562	4,270	7.0%	7.6%	-	0.0%
Wind OOS New Tx	*MW*	4,636	4,828	9.1%	8.6%	-	0.0%
Offshore Wind	*MW*	4,707	4,707	9.2%	8.3%	-	0.0%
Solar	*MW*	17,418	21,794	34.2%	38.7%	69	46.2%
Battery Storage	*MW*	17,350	17,742	34.1%	31.5%	72	48.8%
Pumped Storage	*MW*	1,000	1,000	2.0%	1.8%	-	0.0%
Shed DR	*MW*	977	767	1.9%	1.4%	5	3.0%
Total Resources	*MW*	50,920	56,378	100.0%	100.0%	148	100.0%

b. Preferred Conforming Portfolios

The CPUC requires each LSE to select one conforming portfolio to be its preferred conforming portfolio for each assigned GHG emissions benchmark. Because DCE only modeled one conforming portfolio for each benchmark, each portfolio is considered a "preferred conforming portfolio" for IRP compliance purposes. These portfolios are described in detail in Section II.a above, and each should adequately address all requirements in Public Utility Code Section 454.52(a)(1).

GHG Reduction Goals

Based on the output of the Clean System Power calculator, the 2030 and 2035 GHG emissions from DCE's 30 MMT and 25 MMT conforming portfolios are equal to the Commission's assigned benchmarks for each portfolio as shown in Table 5 of Section III.c of the IRP. Thus, DCE's conforming portfolios meets the Section 454.52(a)(1)(A) goal of reducing GHG emissions to meet state GHG reduction mandates.

Renewable Energy

Section 454.52(a)(1)(B) states that portfolios must be composed of at least 60% eligible renewable resources by 2030. DCE has its own internal green energy procurement goals that exceed this minimum standard, including a 100% renewable energy target by 2030 for its Carbon Free product. Thus, both conforming portfolios source almost 100% of annual energy from renewable resources, exceeding the minimum 60% renewable requirement. This is shown in Figures 2 and 3 in Section III.a of the IRP.

Minimizing Bill Impact

Section 454.52(a)(1)(D) requires LSEs to select resources to minimize the impact of planned procurement on ratepayers' bills. Rate competitiveness is one of DCE's rate setting objectives. DCE conducts competitive solicitations to ensure selection of cost competitive resources. DCE expects it can meet its current procurement objectives as embedded in the 25 and 30 MMT portfolios as well as its rate objectives. More discussion of DCE's rate setting process and objectives can be found in Section III.e of the IRP.

Ensuring System and Local Reliability

Section 454.52(a)(1)(E) states that LSEs must plan to meet system and local reliability as part of their IRPs. DCE has prepared a forecast of how it plans to meet adequate reliability requirements as detailed in Section III.f of the IRP. As discussed in more detail in that section, DCE's reliability portfolio includes RA purchased under long-term contract from renewable and battery resources as well as short-term RA-only contracts. DCE also commits to meeting all local RA requirements, except for those local RA requirements that must be contracted by the central procurement entity. To date DCE has never been issued a citation for failing to meet RA requirements.

Long-Term Contract Procurement

Section 454.52(a)(1)(F) states that portfolios meet long-term contracting requirements under the RPS standard. DCE has modeled 100% of all renewable purchases as secured through long-term contracts, exceeding the minimum requirement.

Diversity, Sustainability, and Resilience of Transmission, Distribution, and Local Communities

Consistent with the goals in Section 454.52(a)(1)(G), DCE has selected a diverse set of resources for its conforming portfolios, including solar, wind, small hydro, geothermal, demand response and battery storage resources. DCE also has a preference for developing local renewable energy resources in the Riverside County-Palm Springs area, which would reduce the need for long distance transmission lines to serve its load. DCE also offers a net energy metering program to support behind-the-meter resource development, which can enhance system resilience at the distribution level. DCE is also exploring additional programs to enhance distributed generation development and grid resiliency as described in Section IV.a of the IRP.

Demand-Side Energy Management

Section 454.52(a)(1)(G) states portfolios must have a goal of enhancing demand-side energy management. DCE includes an executed contract for shed demand response (DR) directly in its conforming portfolios. Section IV.a of the IRP also provides a list of energy programs DCE is exploring, which include demand-side energy management programs, such as transportation electrification and energy efficiency. DCE customers also remain eligible for demand-side energy management programs run by SCE.

Minimizing Localized Air Pollutants With Emphasis on Disadvantaged Communities (DACs)

Section 454.52(a)(1)(H) requires LSE portfolios work to minimize local air pollutants with an emphasis on DACs. The CSP tool results for localized air pollutants associated with DCE's conforming portfolios are provided in Section III.d. These emissions are solely from DCE's system power purchases, which DCE seeks to minimize through its aggressive green energy procurement goals including a 100% renewable energy goal by 2030 for its Carbon Free product.

As noted in Sections III.d and IV.b of the IRP, DCE does not serve any DACs other than Tribal lands as identified using the CalEnviroScreen tool. However, DCE does conduct outreach to low-income communities to encourage enrollment in rate discount programs. Moreover, DCE's Board has adopted procurement guidelines for improving service to and providing economic development opportunities for local DACs. Further discussion of DCE's DAC-related activities are described in Sections III.d and IV.b of the IRP.

Portfolio Operations

As shown in the next section, the 25 MMT Portfolio has emissions below its assigned 2030 benchmark. DCE does not anticipate this portfolio will operate significantly differently from a reliability perspective depending on whether other LSEs procure in a manner consistent with a 30 MMT or 25 MMT target for the following reasons:

- Its new solar resources will all be backed by battery storage to avoid curtailment.
- DCE plans to have RA-only contracts with natural gas resources to support grid reliability.

DCE acknowledges that increased procurement of wind, solar, and battery resources could cause the effective load carrying capability of those resource types to decrease but did not attempt to quantify that for purposes of this IRP. However, DCE emphasizes its commitment to meeting all CPUC reliability requirements in its future procurement. DCE acknowledges the uncertainty in those requirements and may need to change its future procurement targets to accommodate those requirements.

c. GHG Emissions Results

The table below shows the GHG emissions results for both DCE conforming portfolios as output by the CPUC's CSP calculator. (The load modeling assumptions used for the calculator are described in Section II.b above.) For both portfolios, emissions are below the 2030 benchmarks and equal to the 2035 benchmarks.

Table 5. DCE GHG Emissions Results.

CO_2	*Unit*	2024	2026	2030	2035	GHG Emissions Benchmark	
						2030	2035
30 MMT Portfolio	*MMt/yr*	0.037	0.007	0.025	0.043	0.057	0.044
25 MMT Portfolio	*MMt/yr*	0.036	0.009	0.032	0.034	0.043	0.035

Despite DCE's aggressive renewable procurement goals in 2030 and 2035, the GHG emissions are not zero. This is because: a) the Desert Saver portfolio is allowed to rely on system power, and b) the 100% renewable target for the Carbon Free portfolio is on an annual basis whereas emissions are calculated on an hourly basis. Some hours have lower emissions reduction potential than other hours in the CPUC's CSP methodology. Emissions also increase between 2026 and 2035. This is because the procurement is front loaded, such that green energy targets are exceeded in 2026 and 2030, but due to load growth and contract expirations, the surplus is reduced until new procurement is required by 2035 to meet the targets once again.

d. Local Air Pollutant Minimization and Disadvantaged Communities

i. Local Air Pollutants

The Coachella Valley desert climate creates excellent conditions for renewable energy development. There is a significant amount of generation already in the Coachella Valley, especially near North Palm Springs. This includes multiple wind farms, several solar farms and natural gas-fired plants, as well as one small hydro plant. The map below from the California Energy Commission shows the general location of these facilities.

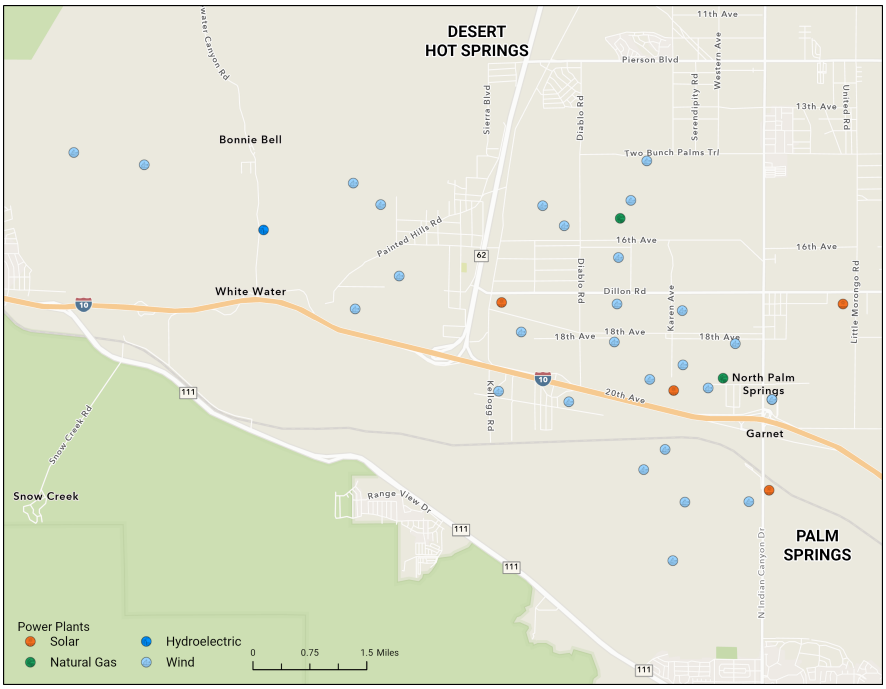

Figure 4. Map of local generation resources.

The largest natural gas-fired station in the local area is the Sentinel Energy Center, an 800 MW facility in North Palm Springs.

Table 6 shows emissions results for local criteria air pollutants for each DCE portfolio. Results are generated by the CPUC CSP calculator using assumed hourly emissions rates. All emissions are from system power, and thus will be spread throughout the state of California, and not just the Coachella Valley. DCE expects to reduce reliance on system power through its aggressive renewable energy procurement goals, which is shown graphically in Figures 2 and 3 above.

Table 6. DCE Portfolio local criteria air pollutant emissions.

	Emissions Total	*Unit*	2024	2026	2030	2035
30 MMT Portfolio	PM2.5	*tonnes/yr*	0.7	(0.3)	0.8	1.8
	SO_2	*tonnes/yr*	0.1	(0.0)	0.1	0.2
	NO_x	*tonnes/yr*	3.0	1.8	2.8	3.0
25 MMT Portfolio	PM2.5	*tonnes/yr*	0.7	(0.4)	0.9	1.5
	SO_2	*tonnes/yr*	0.1	(0.0)	0.1	0.1
	NO_x	*tonnes/yr*	3.0	1.6	2.8	1.8

Both portfolios include plans for contracts with local resources, both new and existing. DCE plans to pursue continued development of new renewable resources in the Coachella Valley area. Such development is expected to reduce emissions and provide local economic development. DCE does not plan to contract with any new local fossil fuel resources. Thus, when customers elect to take service from DCE, it should not increase local emissions, and it may decrease local emissions, depending on how new renewable development impacts the dispatch of local natural gas-fired generation.

ii. Focus on Disadvantaged Communities

DCE's service territory lies within Riverside County's Coachella Valley. The valley has long been and continues to be a popular winter tourist destination and is home to a diverse population year-round. It is also known as a retirement haven and has a large population of people over 65.

DCE identified 32 census tracts that at least partially overlap with DCE's two-city service territory. Excerpt for the Tribal lands discussed below, there are no census tracts within DCE's service area that CalEPA has designated as disadvantaged communities under SB 535. However, there are 12 census tracts that at least partially overlap with areas considered low income under AB 1550. Figure 5 shows these areas graphically.

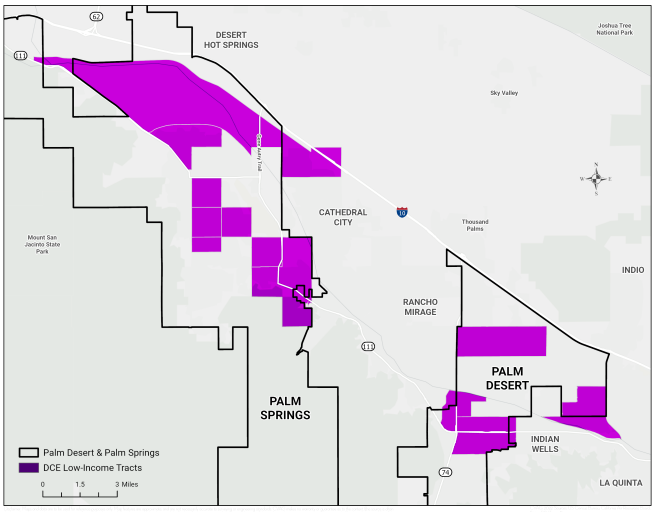

Figure 5. Map of low-income communities in DCE service territory.

The DCE service territory also includes Tribal lands of the Agua Caliente Band of Cahuilla Indians (ACBCI). For purposes of the IRP, these Tribal lands are considered a disadvantaged community. Figure 6 shows these Tribal lands and their overlap with the low-income communities in DCE service territory.

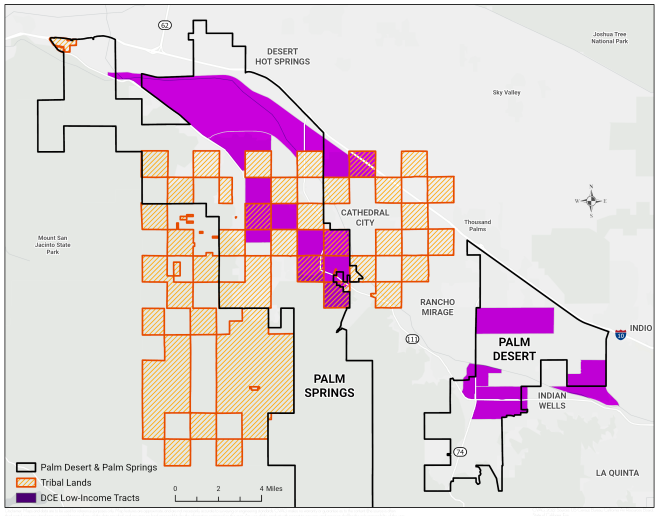

Figure 6. Map of Tribal lands and low-income communities in DCE service territory.

Due to the checkerboard pattern of the Reservation lands, these lands are occupied by non-tribal Palm Springs residents and business pursuant to long-term land leases (up to 99 years), and those residents and businesses would not separately qualify as a disadvantaged community. In June 2022, members of the ACBCI Tribal Council received an update on DCE as part of the annual General Assembly of the Coachella Valley Association of Governments (CVAG). CVAG provides administrative and staffing services to DCE pursuant to an Implementation and Management Services Agreement. Tribal Council members did not provide any feedback

to DCE following that presentation. The Tribe itself is a direct access customer for most of its facilities (offices, casino etc.), and is not enrolled in DCE.

DCE recognizes its responsibility to consider equity issues for disadvantaged communities and others as part of its Least-Cost Best Fit evaluation criteria. Although DCE does not serve any disadvantaged communities based on the definition used for IRP purposes (except for the Tribal lands noted above), the greenhouse gas emissions reduction and air quality improvements associated with DCE's conforming portfolios are expected to benefit the low income and disadvantaged communities in the region, even though they may be outside the DCE territory. DCE has also focused on programs that would assist low income and disadvantaged communities. In 2020, DCE initiated an outreach program to encourage income eligible customers who are not currently enrolled in utility discount programs. These programs include California Alternate Rates for Energy (CARE) that reduces energy bills for eligible customers by about 30% and Family Electric Rate Assistance (FERA) which provides an approximate 18% bill discount. CARE, FERA and Medical Baseline customers account for approximately 17% of all customers in Palm Springs.

DCE procurement efforts have emphasized local projects that will bring local jobs and economic benefits to the community. In July 2022, the DCE Board adopted a procurement policy. For procurements that are solely for DCE, it is the policy of DCE to promote employment and business opportunities for local residents and local businesses on all contracts and give preference to local residents, workers, businesses, contractors, and consultants to the extent consistent with the law and the interests of DCE and its customers.

e. Cost and Rate Analysis

DCE Rates

Providing power at competitive cost is one of DCE's founding principles. DCE has adopted rate designs and rates based on SCE's current rates. Pursuant to the Rate Stabilization Schedule adopted by the DCE Board in November 2020, DCE's currently applied rate protocols include designing Desert Saver rates within a 0 - 1% average total bill discount versus SCE's comparable bundled base product and designing DCE's 100% Carbon Free rates at a 14% or less average total bill premium versus SCE's bundled base product (averaged across customer classes). Over time, DCE will consider adopting unique rate designs. Rate setting will typically be done in an open and transparent process culminating in a Board decision. The Board retains the right to change rates at any time if circumstances warrant.

Pursuant to the Rate Stabilization Schedule, DCE has adopted the following rates for domestic (residential) customers effective October 1, 2022: $0.11420 /kWh for Desert Saver customers and $0. 0.15948 /kWh for customers electing Carbon Free power. All other rates, including time-of-use rates and commercial rates are available on DCE's website.[5]

[5] See https://desertcommunityenergy.org/billing-rates/.

DCE offers a NEM program that matches SCE's rates for surplus production exported to the grid. Existing SCE NEM customers were automatically enrolled upon DCE's launch. DCE has also continues SCE's FERA, CARE, and Medical Baseline programs for low-income customers and those with medical limitations. Such customers are enrolled the lower Desert Saver rate unless they opt up to the carbon free rate

DCE Procurement Costs

DCE works with its portfolio manager, The Energy Authority (TEA), to evaluate contracts, including robust quantitative modeling of costs and risk prior to contract execution. As part of the bid evaluation process, a thorough quantitative analysis is undertaken by DCE and TEA staff to determine which projects (and their specific bid variation(s)) present the highest likelihood of value for DCE's portfolio. This analysis includes a quantitative scoring of each project bid variation's marginal net present value, based on the project's expected generation and resource adequacy value in several different scenarios of future market prices. The quantitative evaluation also looks at how closely each offer's hourly generation coincides with DCE's projected hourly load, potential grid congestion costs, and the impact of negative pricing events due to overgeneration.

All planned resources in the IRP conforming portfolios will be subject to this quantitative assessment prior to contract execution, and this analysis will serve to verify whether the resources selected for IRP modeling purposes meet the least cost best fit criteria. For instance, for IRP modeling purposes, the conforming portfolios include additional existing local wind resources in 2035. This is in part due to DCE's past success in contracting for such resources and knowledge that they meet DCE's preference for local generation, while also being competitive on cost. But this assumption will be tested for all contracts, and DCE may select an alternative resource type if it finds it scores better in its evaluation.

f. System Reliability Analysis

DCE is committed to procuring resource adequacy (RA) to meet all CPUC requirements and contribute its fair share to grid reliability. DCE has performed a reliability analysis using marginal effective load carrying capabilities (ELCCs) for each conforming portfolio per the CPUC's instructions, the results of which are shown in the tables and charts below. The reliability portfolios include the following:

- DCE's allocated share of resources subject to the cost allocation mechanism (CAM). Per the CPUC's IRP filing requirements instructions, DCE included a share of all SCE CAM resources in the most recent year-ahead CAM list as aggregated by Energy Division Staff. DCE's allocated share is estimated based on the year-ahead share of the total coincident peak load for the SCE service territory, as assigned in the Commission's annual resource adequacy process.
- DCE's allocated share of SCE demand response resources. For purposes of the RA tracking table, the 2023 initial allocation was held constant through 2035 and is reported with contract type online.

- DCE's allocated share of resource adequacy from ten battery storage facilities that SCE contracted with to meet D.19-11-016 requirements. DCE has executed a contract to purchase this resource adequacy pursuant to D.22-05-015. All resources are four-hour lithium-ion battery projects and modeled with contract type online or development in the tracking tables.
- The reliability contribution from DCE's executed contracts with wind, solar hybrid, geothermal, and demand response resources, excluding resources procured through the VAMO process, which does not supply resource adequacy capacity.
- The reliability contribution from DCE's planned contracts with a new long-duration storage resource and new solar hybrid resource needed to ensure compliance with MTR requirements.
- The reliability contribution from DCE's planned contract with an existing local wind resource needed to ensure compliance with 2035 emissions targets.
- To the extent there is still a gap in reliability procurement needs, DCE assumes it will procure System RA using short-term, RA-only contracts from existing gas resources. These are planned existing contracts for thermal resources in the tracking tables.

The required tracking tables and charts from the RDTs are provided on the following pages.

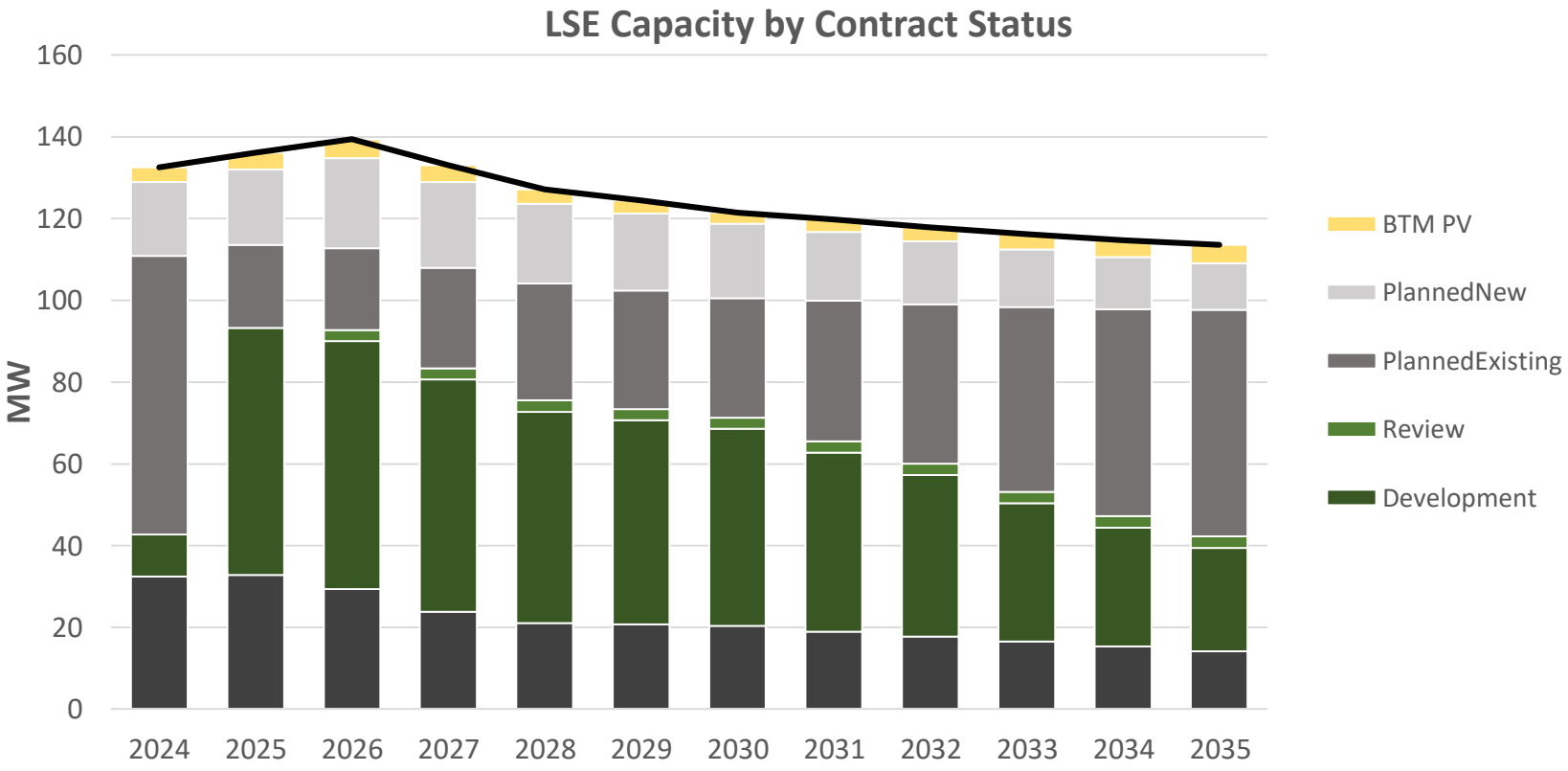

Figure 7. Reliability chart from RDT for the 30 MMT Portfolio.

Table 7. Reliability table from RDT for 30 MMT Portfolio.

	2024	2025	2026	2027	2028	2029	2030	2031	2032	2033	2034	2035
LSE reliability need (MW)	**133**	**136**	**139**	**133**	**127**	**124**	**121**	**120**	**118**	**116**	**115**	**114**
ELCC by contract status (effective MW)												
Online	32	33	29	24	21	21	20	19	18	17	15	14
Development	10	60	61	57	52	50	48	44	40	34	29	25
Review	-	-	3	3	3	3	3	3	3	3	3	3
PlannedExisting	68	20	20	25	29	29	29	34	39	45	51	55
PlannedNew	18	19	22	21	19	19	18	17	15	14	13	11
BTM PV	4	4	5	4	4	3	3	3	3	4	4	5
LSE total supply (effective MW)	**133**	**136**	**139**	**133**	**127**	**124**	**121**	**120**	**118**	**116**	**115**	**114**
Net capacity position (+ve = excess, -ve = shortfall) (effective MW)	-	-	-	-	-	-	-	-	-	-	-	-

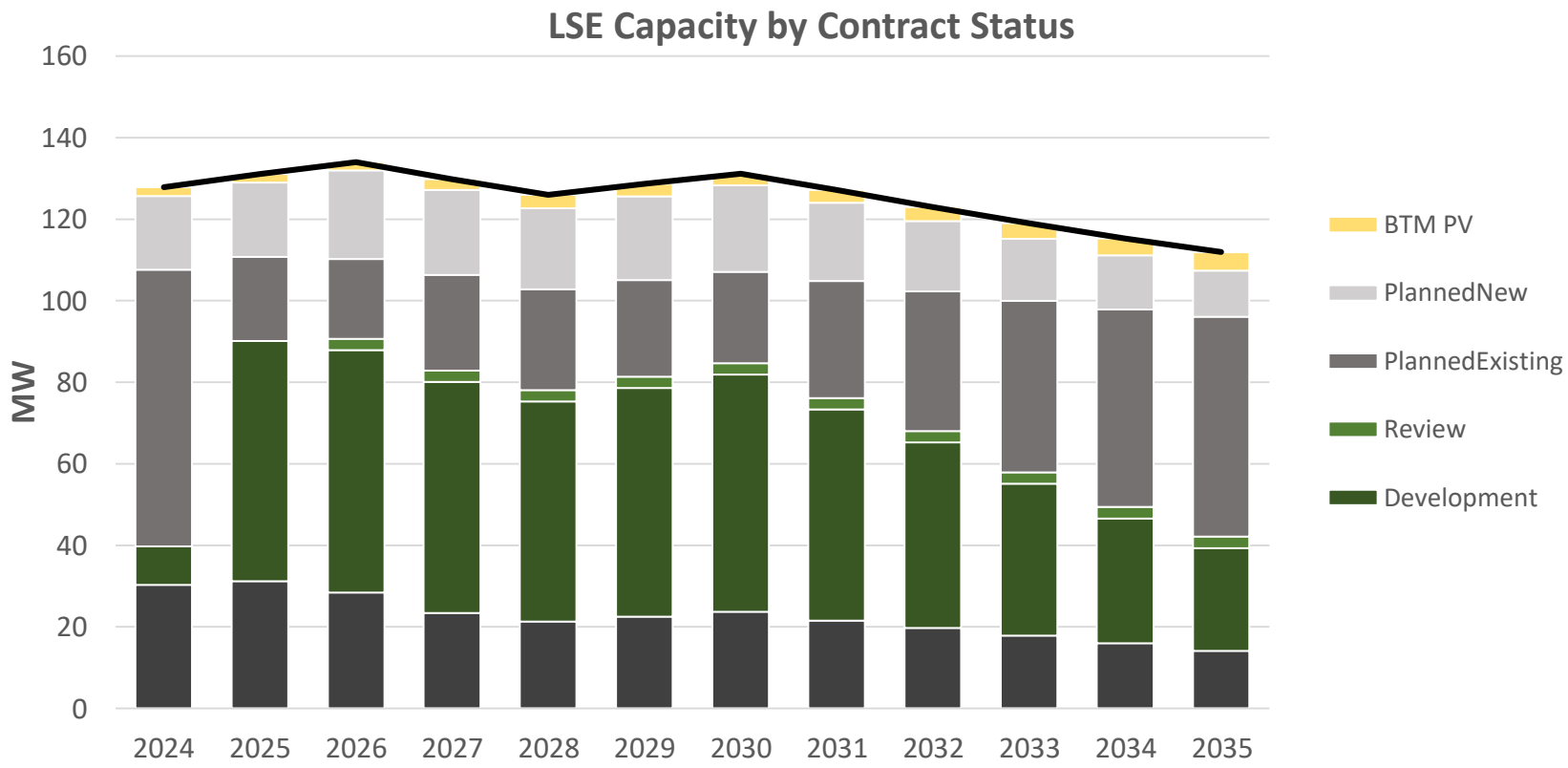

Figure 8. Reliability chart from RDT for the 25 MMT Portfolio.

Table 8. Reliability table from RDT for 25 MMT Portfolio.

	2024	2025	2026	2027	2028	2029	2030	2031	2032	2033	2034	2035
LSE reliability need (MW)	**128**	**131**	**134**	**130**	**126**	**129**	**131**	**127**	**123**	**119**	**115**	**112**
ELCC by contract status (effective MW)												
Online	30	31	28	23	21	22	24	22	20	18	16	14
Development	10	59	59	57	54	56	58	52	46	37	31	25
Review	-	-	3	3	3	3	3	3	3	3	3	3
PlannedExisting	68	21	20	23	25	24	22	29	34	42	48	54
PlannedNew	18	18	22	21	20	21	21	19	17	15	13	11
BTM PV	2	2	2	3	3	3	3	3	3	4	4	5
LSE total supply (effective MW)	**128**	**131**	**134**	**130**	**126**	**129**	**131**	**127**	**123**	**119**	**115**	**112**
Net capacity position (+ve = excess, -ve = shortfall) (effective MW)	-	-	-	-	-	-	-	-	-	-	-	-

DCE will report back in future IRPs regarding RA procurement once more is known about how RA requirements will change post RA reform.

g. High Electrification Planning

The CPUC requires LSEs to discuss what additional procurement each would do under a high electrification scenario. DCE anticipates more procurement would be necessary under such a scenario to meet the 2035 emissions targets. DCE expects other LSEs would also need to procure more resources to meet the added load growth and create a competitive environment for new resource development. It is difficult to predict what resource types would be available to DCE under such a scenario, but for long-term planning purposes, DCE expects it may need to procure offshore wind, out-of-state wind or some combination of the two. For purposes of this IRP, DCE assumes a 50/50 energy mix of each resource type would be procured, as shown in the table below. Again, this procurement would be subject to availability and is not known until an actual solicitation for new resources is performed if a high electrification future comes to pass.

Table 9. Additional procurement to meet emissions requirements for high electrification scenario.

Resource Type	MWs	Annual GWh	2035 GHG target	Transmission Zone	Substation/Bus	Alternative location
Offshore Wind	11	46.5	Both	Morro Bay	No preference	Humboldt
Out of State Wind	10	46.5	Both	Wyoming	No preference	Other States

h. Existing Resource Planning

DCE's conforming portfolios both include existing resources. Inclusion of these resources in the conforming portfolios was not directly influenced by the finding in the previous IRP process that the quantity of existing resources that LSEs included in their plans exceeded the amount of existing resources available on the system. However, DCE has considered the risks of reliance on existing resources and has back-up plans if existing resources are ultimately unavailable.

The type and amount of existing resources has changed significantly from the previous IRP portfolios. The portfolios for this IRP include an additional long-term contract for an existing wind farm, the Altwind Project. They also include existing resources procured through the VAMO process, which was not available to DCE at the time of the previous IRP.

The previous IRP also included a mix of existing and new resources to be procured through a future RFO by 2030. Based on the conforming portfolio modeling in this IRP, after the MTR procurement is completed, DCE will not need additional resources from another RFO until 2035. DCE chose to model the procurement from that RFO to be local existing wind. However, DCE cannot confirm what actual resources will be procured until the future RFO is completed. Because it recognizes that

existing resource availability is limited and DCE must compete to secure contracts with these resources, it is currently considering issuing a request for information (RFI) regarding existing wind projects in the Coachella Valley area to gather data on what resources may come available in the 2030-2035 timeframe for future procurement. If existing wind is ultimately unavailable, DCE will consider additional resource types for procurement, including new solar or wind resources, offshore wind, and out-of-state wind.

The IRP reliability portfolios also include planned existing gas-fired resources needed for reliability requirements. The amount of these resources in the portfolios increases between 2025 and 2035, largely due to the reduction in ELCC values for DCE's hybrid resources over time. However, the amount remains lower than the expected amount in 2024, prior to when the hybrid resources included in the conforming portfolios come online. If existing resources are unavailable, DCE may seek further procurement of new battery resources to integrate the renewable generation in its portfolio and enhance reliability. This will be reported on in future IRPs as more is known about RA requirements post RA reform.

i. Hydro Generation Risk Management

Hydro Generation Risk Background

There are two fundamental issues regarding hydro risk management. The first relates to the limited availability of new hydro development. The second relates to the annual variability in hydro generation. Both will be discussed in turn below.

Hydro Availability

Other than some ongoing development of new large hydro resources in Canada, there is little to no development of new hydro resources in North America. This is largely due to a lack of available sites to build new facilities and concerns over the environmental impacts of creating new impoundments.

However, the existing hydro fleet is expected to continue to provide significant benefits in terms of low-cost, flexible, carbon-free generation. As decarbonization mandates intensify over the coming years, resource planners anticipate hydro generation resources will be in high demand. The problem is that if enough LSEs plan to rely on hydro to meet green power goals, there may be inadequate hydro available to supply this demand, which would ultimately lead to inadequate development of new, non-hydro, carbon-free resources. Thus, for IRP purposes, LSEs are required to assess their reliance on hydro generation.

Hydro Variability

The amount of generation supplied by a hydro facility may vary year-to-year because of variation in water supply. The volume of water available to flow through a hydro turbine determines how much electric generation a hydro facility will produce. In a drought, there will be reduced water supply available for generation. In some hydro systems, large reservoirs can hold water multiple years, including from wet years into dry years, to average out the impact of drought through time. California's hydro system does not have such water storage capacity, so the hydro generation varies

year-to-year based on hydrological conditions. The chart below shows how during recent droughts, California's hydro generation has decreased.

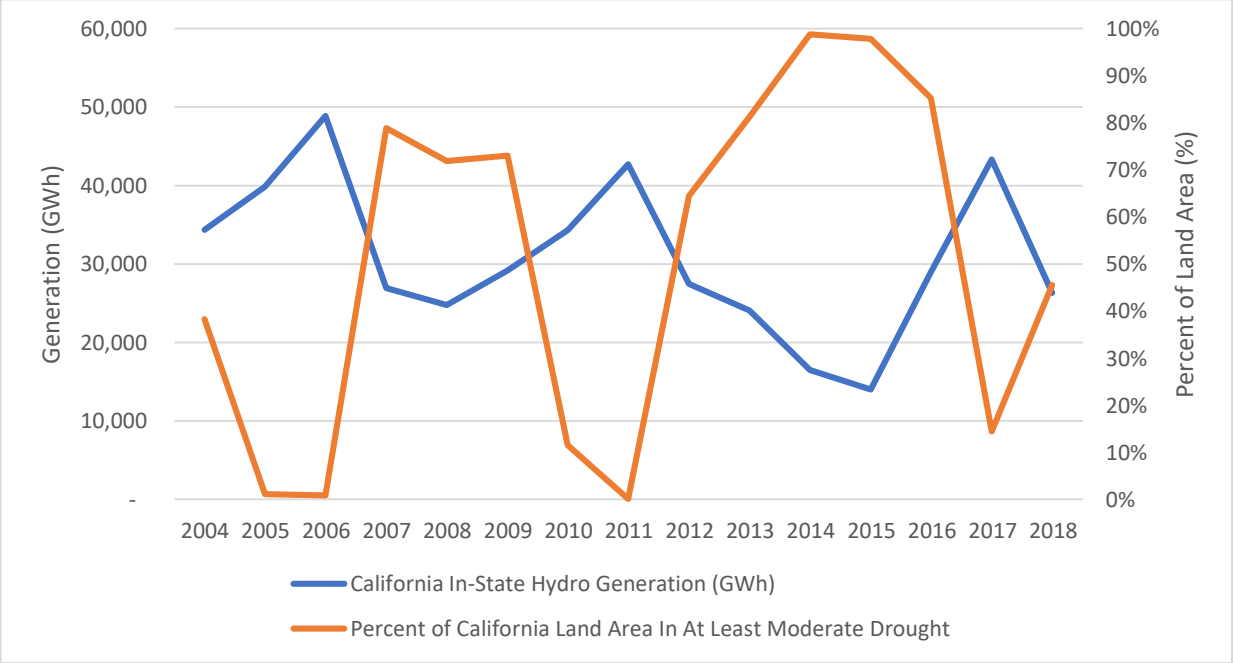

Figure 9. California In-State Hydro Generation compared to percent of California land area in at least moderate drought for 15 years.[6]

Though drought also impacts generation from hydro facilities in the Pacific Northwest region, for purposes of IRP, LSEs are only required to discuss strategies to mitigate the risk from in-state drought.

DCE Hydro Generation Risk

DCE currently relies on imported large hydro for its Carbon Free product portfolio. It also relies on some in-state small hydro resources procured through the VAMO process. It does not rely on in-state hydro resources. DCE is committed to reducing reliance on large hydro over time and instead relying on renewable resources to meet its Carbon Free procurement objectives. Reliance on large hydro is expected to decline as DCE brings new resources online to meet MTR requirements. The conforming portfolios for this IRP show no large hydro reliance after 2025 when its new MTR resources become available.

This is consistent with DCE's aspirational goal of no large hydro reliance in 2030. DCE is open to continued procurement of small hydro resources, but has limited reliance on small hydro for 2030 and

[6] Generation data from CEC at: https://ww2.energy.ca.gov/almanac/electricity_data/total_system_power.html; Drought index data from: https://www.drought.gov/drought/states/california.

2035 planning purposes to its share of resources procured through VAMO. DCE has also chosen not to include any new large hydro resources in its portfolio.

The chart below compares the in-state hydro in DCE's conforming portfolios to DCE's load ratio share of in-state hydro from the PSP with Updates over time. The small amount of small hydro in DCE's portfolio is much less than its load ratio share of all in-state hydro. Thus, DCE is much less reliant on hydro generation for meeting GHG emissions compliance goals than California as a whole.

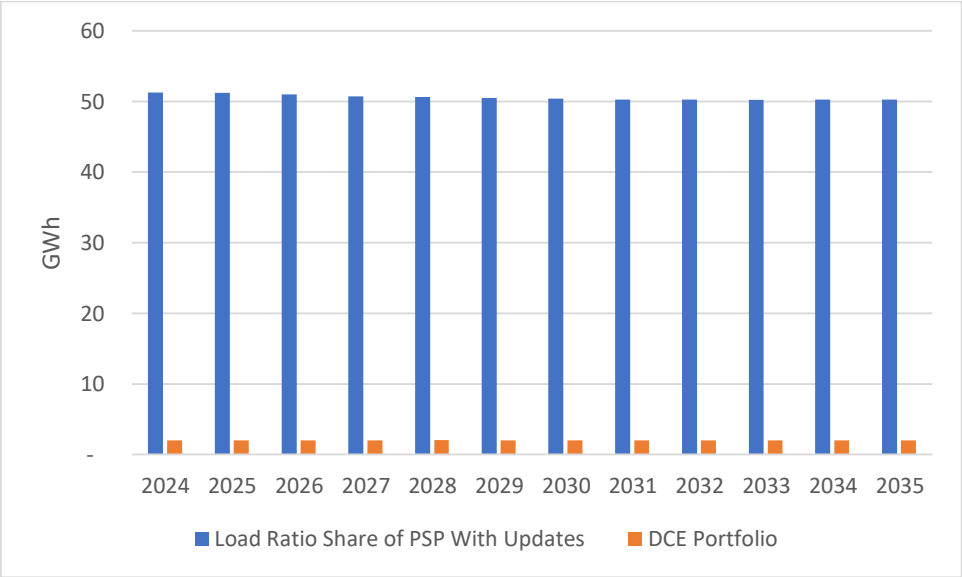

Figure 10. Comparison of hydro reliance in preferred system portfolios (CAISO system) and DCE's conforming portfolios. Hydro purchases include all small hydro and in-state large hydro.

With regard to risk management from hydro variability and drought, currently DCE relies on imported hydro resources and not in-state hydro resources. To date, DCE has only bought hydro from counterparties guarantying a certain amount or range of amounts of energy delivery. The majority of sellers DCE has procured from are out-of-state generation owners. In-state hydro generation owners are typically investor-owned utilities who are not often offering to sell, perhaps to mitigate their own risk of drought versus a guaranteed delivery contract. For IRP planning purposes, DCE assumes its reliance on imported hydro will continue until resources to meet MTR requirements are online.

j. Long-Duration Storage Planning

The CPUC defines long-duration storage as a minimum of 8-hour duration.[7] DCE actively sought offers for 8-hour battery storage in its 2020 RFO. However, such resources were not selected due to cost concerns, though DCE did execute a contract for a hybrid resource with 4-hour storage batteries.

[7] D.21-06-035, p. 35.

DCE has not yet executed a contract with a long-duration storage resource to meet the 2026 long-lead time procurement mandate from the MTR Decision. DCE expects to issue another RFO to secure a contract for such a resource later this year or early next year.

For IRP modeling purposes, DCE did not include any additional long-duration storage beyond what is needed to meet MTR requirements. DCE will consider adding more of this resource to its reliability portfolio post RA-reform when it becomes clearer what additional value the longer duration can bring to DCE's portfolio.

k. Clean Firm Power Planning

For its MTR compliance procurement efforts, DCE staff worked with other CCAs on a joint procurement, rather than conducting a stand-alone solicitation. As part of this effort, DCE recently executed a contract with Cape Generating Station 1 LLC, a subsidiary of Fervo Energy (Fervo), for a geothermal project located in Beaver County, Utah. DCE's pro rata share of the project is 3 megawatts (MW) of the 20 MW average net capacity over a 15-year period, with an expected commercial operation date (COD) of June 1, 2026.

Fervo's geothermal systems make use of horizontal drilling techniques coupled with Organic Rankine Cycle (ORC) generator systems to deliver zero-carbon, zero-emission electricity. ORC power plants are zero-carbon, zero-emission generators. Thermal energy is supplied at high temperature to the ORC by a heat transfer fluid consisting of geothermal brine. The ORC turbogenerator then converts thermal energy from geothermal fluid into electric energy using a turbine coupled with an electric generator. ORC plants are fully dispatchable and flexible, with extremely fast ramping rates of up to 30 percent of nominal capacity per minute. The project will be eligible for RPS certification and inclusion in DCE's Carbon Free product generation portfolio.

The Cape Generating Station project will be located outside of Milford in Beaver County, Utah, approximately 10-to-15 miles from the Milford Wind Corridor project. That project is connected directly to the Los Angeles Department of Water and Power's (LADWP) Intermountain Power Project (IPP) Station Switchyard via the Milford Wind Line, which is a dedicated transmission line. Fervo anticipates negotiating a private user agreement with the owner of that line and entering into a Large Generator Interconnection Agreement with LADWP for an interconnection at the IPP Station Switchyard.

Though DCE did not include additional geothermal resources in its IRP portfolios for this planning cycle, DCE remains open to supporting further geothermal development, especially local development in the Imperial Valley and projects with carbon-free technology. DCE will consider offers from geothermal energy in response to future RFOs, and will report back on this topic in future IRPs.

l. Out-of-State Wind Planning

DCE prefers to procure resources local to its service territory, but it still allowed out-of-state wind developers to submit responses to its 2020 RFO. One out-of-state wind resource did submit an offer,

but it was not selected both due to cost and the availability of wind located directly in Palm Springs. DCE anticipates it will continue to be open to offers for out-of-state wind, but also continue to preference local resources. Thus, for purposes of this IRP, the conforming portfolios include procurement of local wind resources to meet emissions requirements. Out-of-state wind is included in its procurement for the High Electrification sensitivity.

m. Offshore Wind Planning

As indicated above in its discussion of out-of-state wind, DCE prefers to procure resources local to its service territory. Thus, for purposes of this IRP, the conforming portfolios include procurement of local wind resources to meet emissions requirements. Offshore wind is only included in its procurement for the High Electrification sensitivity. If a mandate for offshore wind procurement is issued in response to state policy, such as Assembly Bill 525, DCE anticipates it will end up procuring less local wind resources and more offshore wind resources.

n. Transmission Planning

DCE does not know of any transmission upgrades needed to ensure interconnection of contracted resources.[8] Most of DCE's contracts are with existing resources. For its new resources, the demand response resource, as a demand-side management resource, will not require transmission upgrades. Deer Creek plans to interconnect to SCE's distribution system; however, Deer Creek through its developer Vesper Energy (Vesper) has informed DCE that no SCE transmission network upgrades are required. The geothermal resource is expected to interconnect through the existing IPP Station Switchyard as discussed above in the Clean Firm Power Planning section of the IRP.

For its planned resources, DCE can provide the following information regarding resource location and transmission upgrades:

- **Long-duration storage:** DCE has not completed its procurement to meet MTR requirements for new long-duration storage. DCE anticipates this will be for a long-duration battery project in the Southern California Edison territory at a substation where there is available transmission to interconnect storage. DCE would not oppose the Staff modeling an alternative resource location in the CAISO region.
- **Imported hydro:** DCE actively secures contracts for energy from large hydro resources located outside California and expects such contracts will continue until DCE's new solar hybrid resources come online. Since these large hydro resources are existing resources, and CAISO currently imports large hydro resources, they are not expected to require transmission upgrades to be deliverable to CAISO.
- **Planned hybrid:** DCE includes a generic hybrid resource in its conforming portfolios for MTR compliance. DCE does not state a location preference for this resource and does not object to the CPUC and CAISO modeling this resource in any location within CAISO.

[8] For CAM and MCAM resources in DCE's portfolio, DCE assumes SCE will report on transmission upgrade status as it is the LSE that procured those resources originally.

- **Existing local wind:** DCE has modeled a new contract with an existing local wind resource to meet emissions requirements in 2035. As an existing resource, DCE does not anticipate the resource would require transmission upgrades.
- **Existing natural gas generation:** DCE does not have a location preference for resources that support its RA only contracts with existing natural gas generation.

DCE's preference for local generation resources is consistent with its past IRPs and one of the reasons its planned resource locations do not align one-to-one with the PSP or TPP portfolios. However, DCE's preference is only a preference. DCE is willing to execute contracts for resources outside of its local area if the resource meets its least-cost best-fit criteria, as demonstrated by its recent contract with a geothermal resource in Utah.[9] Transmission availability will be one of the factors considered for all future contracts DCE executes.

IV. Action Plan

Potential barriers for resource procurement which include weather, regulatory uncertainty, market risks, load changes, and resource development risks. Development risk refers to the risk that a project may not reach commercial operation due to site control failure, permitting failure, financing failure, construction failure, or other failure on the path from a project's conception to its commercial operation date. To reduce this risk, DCE has chosen projects that had clear paths forward for each of these potential obstacles (*e.g.*, completed site control) and that had strong development teams with a history of bringing new renewable projects to commercial operation in California.

A narrative description of risks and barriers to each of the resource types included in DCE's portfolio is discussed in more detail below.

a. Proposed Procurement Activities and Potential Barriers

A detailed action plan for each resource type in DCE's conforming portfolios is described in the sections below.

i. Resources to meet D.19-11-016 procurement requirements

DCE was not assigned a procurement obligation in D.19-11-016. As such, SCE was responsible for procurement to meet these requirements on its behalf. Pursuant to D.22-05-015, DCE has elected to purchase its share of resource adequacy from ten battery storage facilities that SCE contracted with to meet D.19-11-016 requirements. This purchase contract will ensure DCE customers receive the RA benefits of this procurement. Based on data from SCE, seven of the ten resources are online and supplying reliability benefits to the grid. DCE will monitor the development of the remaining three, which are scheduled to come online by August of next year.

[9] DCE's least-cost best-fit criteria are discussed In the Cost and Rate Analysis section of the IRP.

ii. Resources to meet D.21-06-035 procurement requirements, including:

Since its launch in April 2020, DCE has issued two RFOs: an RFO for Long Term Renewable Energy projects issued in May 2020 ("2020 RFO"), which resulted in four Power Purchase Agreements ("PPAs") and an all-source solicitation for projects to support its Mid-Term Reliability procurement requirement ("MTR RFO"). The 2020 RFO was developed to meet both DCE's RPS compliance requirements and the DCE Board's own internally set renewable and clean energy goals. Two of the PPAs executed pursuant to this RFO resulted in contracts eligible for MTR compliance. The MTR RFO was issued in conjunction with two other CCAs with the primary goal of procuring projects to meet the state's reliability requirements and a secondary goal of potentially bringing additional long-term renewable power into DCE's portfolios. DCE executed two contracts subsequent to this RFO.

The MTR RFO has occurred in a market significantly different from the one experienced in the 2020 RFO, with a large number of buyers in search of specific project characteristics and a limited number of viable projects offered by developers to meet these buyers' needs, in part due to the global supply chain issue and other macro factors, as well as other hindrances, such as delays in project interconnection and lack of transmission. Therefore, DCE expects to issue another RFO to complete its procurement to meet MTR requirements in the coming months.

a. 1,000 MW of firm zero-emitting resource requirements

DCE recently executed a contract with Cape Generating Station 1 LLC, a subsidiary of Fervo Energy (Fervo), for a geothermal project located in Beaver County, Utah. DCE's pro rata share of the project is 3 megawatts (MW) of the 20 MW average net capacity over a 15-year period, with an expected commercial operation date (COD) of June 1, 2026. Development risk was evaluated during the shortlisting process of the Fervo Energy project. Fervo's development team members have delivered more than 2 GW of power generation combined over the last decade, including a 49.9 MW Hudson Ranch geothermal power plant, which came online in 2012. Fervo is well funded and has a track record of raising corporate equity. Fervo has full site control of the project area, which has been achieved through geothermal resource leases signed with surface and mineral owners; this will allow Fervo to develop, construct, own and operate the project.

To ensure the project is on track to reaching commercial operation, Fervo is contractually obligated to provide a progress report to DCE every three months until the construction start date. After the construction start date, DCE will be provided a monthly progress report until the COD and agrees to regularly scheduled meetings between representatives of DCE and Fervo to review such monthly reports and discuss Fervo's construction progress.

Fervo is also obligated to meet development milestones, and report on the progress towards achieving these milestones. Progress reports will include whether Fervo has met or is on target to meet the milestones, identification of any missed milestones, including the cause of delay, and a detailed description of Fervo's corrective actions to achieve the missed milestones and all subsequent milestones by the COD. These milestones include: evidence of site control, CEC Pre-Certification obtained, receipt of Phase I and Phase II Interconnection study results for Fervo's Interconnection Facilities, executed interconnection agreement, expected construction start date, initial synchronization, network upgrades completed, and COD.

b. 1,000 MW of long-duration storage resource requirements

DCE has not yet completed its long-duration storage procurement. It expects this will be part of its upcoming solicitation for more MTR compliant resources later this year or early next year. DCE received limited responses for long-duration storage projects in the Request for Proposals that launched in January 2022. Of these responses, the projects were either unviable or ineligible. This is similar to what has been observed with other CCAs that have solicited for this product type. DCE will continue to explore all options available to meet its long-duration storage procurement mandate for MTR compliance, and look at pursuing another joint solicitation effort, partnering with other CCAs that have over-procured capacity, and reaching out to developers that may have the ability to increase capacity on projects that are currently in development.

c. 2,500 MW of zero-emissions generation, generation paired with storage, or demand response resource requirements

In response to its 2020 RFO, DCE signed one PPA for Vesper Energy's Deer Creek Solar I project, which is a 50 MW solar + 50 MW/200MWh storage project expected to reach commercial operation and enter DCE's portfolio in mid-2024. This project is expected to be able to meet MTR compliance needs as a zero-emissions resource.

[redacted]

d. All other procurement requirements

DCE executed a contract with a new wind resource (Coachella Hills Wind II) In response to its 2020 RFO that is eligible to supply some MTR compliance benefit for the 2023 procurement tranche and is already online. This resource, along with DCE's contract with Resi Station LLC for aggregated demand response is expected to supply enough capacity to meet the 2023 tranche obligation. Meeting the 2024 and 2025 obligation is expected to be achieved with a mix of Deer Creek and/or another contract to be executed pursuant to the aforementioned future RFO for MTR procurement.

iii. Offshore wind

DCE does not include offshore wind in its conforming portfolios but does include offshore wind as a resource for the additional procurement needed in a high electrification scenario. Currently, DCE does not preclude purchases of offshore wind but has a preference for development of local wind resources. In a high electrification scenario, DCE anticipates the increased competition for resources will make it more likely DCE will need to procure resources from outside the local area in addition to local resources. It may also be required to procure offshore wind in response to state policy. In a high electrification scenario, DCE will issue solicitations for green energy resources that will include consideration of offshore wind among other resource options. Any procurement in response to state policy will be targeted to meet the requirements of the policy, and DCE will provide more information about this procurement in future IRPs once more about state policy requirements is known.

Offshore wind does face development barriers and risks, as there is little development experience with offshore wind in North America and little development of floating platforms worldwide. There are also transmission limitations in Humboldt County, one of the areas under consideration for new offshore wind. DCE expects a broad statewide effort will be necessary to overcome these barriers and facilitate large offshore wind developments. DCE will work with state policymakers and regulators to effectuate any future offshore wind policies.

iv. Out-of-state wind

As with offshore wind, DCE does not include out-of-state wind in its conforming portfolios but does include out-ot-state wind as a resource for the additional procurement needed in a high electrification scenario. Currently, DCE does not preclude purchases of out-of-state wind but has a preference for development of local wind resources. In a high electrification scenario, DCE anticipates the increased competition for resources will make it more likely DCE will need to procure resources from outside the local area in addition to local

resources. In a high electrification scenario, DCE will issue solicitations for green energy resources that will include consideration of out-of-state wind among other resource options.

The largest barrier to out-of-state wind development is securing long-distance transmission to deliver these resources. DCE will monitor any efforts by state policymakers, regulators, and the CAISO to facilitate new transmission paths to bring more out-of-state wind to California.

v. Other renewable energy not described above

As part of its forecasting and procurement processes, DCE considers the overall diversity and reliability of its renewable portfolio, including such characteristics as a resource's dispatchability and available capacity. DCE also reviews the respective risks – including development and generation risk – associated with short and long-term purchases as part of its forecasting and procurement processes. These efforts will lead to a more diverse resource mix, address grid integration issues, and provide value to the local community.

Presently, DCE is focused on managing its existing portfolio of utility-scale renewable and storage resources to meet the clean and renewable energy targets for the City of Palm Springs and completing its procurement to meet all MTR requirements.

DCE expects to meet the RPS compliance obligations during the coming 10-year timeframe through a mixture of planned long-term contracts with renewable resources resulting from DCE's 2020 RFO, election to receive its long-term allocation through SCE's Voluntary Allocation, future RFOs, local renewable programs, and some amount of short-term renewable procurement. The exact portfolio selected to meet DCE's Board-adopted clean energy goals as well as its mandated RPS compliance may vary depending on legislative and policy changes, technological innovation and the dynamic California and WECC energy landscape. The preferences of the DCE Board and the community it represents will also be considered, as well as other key local developments, such as the potential launch of Palm Desert.

DCE is directly accountable to the community that it serves. DCE strongly supports and is committed to meeting the state's GHG reduction and renewable procurement goals. As a member of CalCCA, DCE supported the passage of SB 100 and has fully incorporated the procurement requirements of the state's RPS program into its overall procurement strategy. Within the multi-year compliance period structure of the RPS, DCE is well-positioned to meet the procurement quantity requirements, portfolio balance requirements, and long-term procurement requirements of the RPS program. To meet its community green energy goals DCE plans an additional Voluntary Margin of Over-Procurement (VMOP) which exceeds DCE's risk assessment-derived minimum margin of procurement.

Beyond the state's minimum renewable procurement requirements, DCE's governing Board has established additional green and renewable energy goals. Specifically, the DCE Board has directed that DCE acquire a portfolio comprised of 100 percent carbon-free

generation for its Carbon Free product; all current customers served by DCE in the City of Palm Springs were opted into this Carbon Free product as the default, and the vast majority of DCE's customers have chosen to remain with this premium product, rather than opting down into the Desert Saver product which provides cost-savings to customers while still meeting RPS compliance requirements. The DCE Board has approved a schedule for issuing renewable solicitations, executing contracts with existing resources, and bringing new projects online in time to meet the applicable RPS targets. This timeline is supported by DCE's procurement team and the collective procurement experience of the CCA community and is shorter and more flexible than the investor-owned utilities' procurement cycles.

VAMO Resources

DCE has entered into a voluntary allocation agreement with SCE for purchase of energy and RECs through the VAMO process. This represents a cost-effective way for DCE to secure access to resources to meet RPS requirements at low risk, since these resources are already online.

Other Existing Local Wind

DCE includes additional local wind resources in its portfolio to meet GHG reduction and RPS requirements in 2035. There has already been significant development of wind resources in Riverside County, especially near North Palm Springs and in the San Gorgonio pass. (Refer to map in Figure 4, above.) Many of the turbines in the San Gorgonio pass are older and in need of repowering. The repowering could increase the total wind produced from the region. DCE is considering issuing an RFI to explore options for purchasing existing wind resources as contracts for these resources expire. If local wind is not available, DCE will consider purchasing wind in other locations, including out-of-state or offshore wind or additional solar and storage, carbon-free geothermal, or small hydro.

vi. Other energy storage not described above

All energy storage in DCE's portfolios is used for meeting MTR requirements and is discussed above.

vii. Other demand response not described above

At the direction of its Board, DCE began partnering with OhmConnect in late 2021 on its demand response project, which encourages residential customers to save money on their energy bill. OhmConnect pays residential customers to conserve power during times of peak demand, sells the collective energy savings back to the grid, and then passes their earnings onto their users in the form of cash and prizes. On December 6, 2021, the CVAG Executive Committee authorized the Executive Director to enter into a similar partnership agreement with OhmConnect for the CVAG areas within the SCE service territory, including the City of Palm Desert. As of September 30, 2022, 556 DCE customers have

signed up with OhmConnect, with 308 customers connecting their devices to the OhmConnect application. The energy savings generated during the early September 2022 heat wave by OhmConnect customers including shared customers with DCE helped maintain grid stability and prevent statewide rolling outages.

viii. Other energy efficiency not described above

DCE is exploring the potential for an application to the CPUC for a CCA Energy Efficiency program. More on this topic will be provided in future IRPs as more is known about the program.

ix. Other distributed generation not described above

DCE is working with TerraVerde Energy ("TerraVerde") on a new distributed generation pilot program. TerraVerde has developed a PPA program that enables CCAs to partner with customers in deploying distributed solar plus battery energy storage systems—with no up-front cost. Under this program framework, the CCA engages target customers with a cost savings and energy resiliency offering in the form of a solar plus battery PPA. Upon securing Letters of Interest from a cohort of customers, the CCA then procures a Distributed Solar + Battery PPA from developers for projects sited at these customer locations. Based on the pricing received from the market, the CCA then offers the electricity generated from the deployed solar PV systems to their cohort of customers at a rate that is higher than the Distributed PPA rate but lower than the customer's standard (or otherwise applicable) rate. Thus, the CCA charges the customer a PPA rate that is lower than the customer's gross bill savings, but at a rate higher than what the CCA is paying to the vendor, thus generating both customer net savings, and CCA net revenue.

The pilot program focuses on large non-residential customers whose energy use profiles and rates structures indicate a high probability of both the customer and DCE benefiting from DERs at their locations. DCE staff is working with its consultants to confirm the interest of the target customers, prepare a robust financial analysis together and develop program documents that minimize risks to DCE. If these efforts are successful, and DCE can procure favorable terms for a PPA with developers following an RFP, the DER program could be operational by the second half of 2024.

Should DCE choose to proceed with the pilot program, procurement through the RFP process and contract negotiations would occur over a three-month period, followed by project design and permitting over another three-month period. The vendor's completion of the projects would be expected to occur within 24 months of signature of the agreement with TerraVerde. Any procurement in this pilot program will be discussed in future RPS Procurement Plans and IRPs. While this procurement may come at an above-market cost, it would support the DCE Board's stated interest in pursuing local renewable energy projects within the DCE community.

x. Transportation electrification, including any investments above and beyond what is included in Integrated Energy Policy Report (IEPR)

DCE is developing load curves that reflect expected increases in load due to both transportation electrification and building electrification for use in developing its load forecasts. Transportation electrification planning for DCE's service area considers personal light duty vehicles and electrification of fleets. DCE is also encouraging expanded vehicle charging stations, which are powered by DCE's carbon free electricity.

xi. Building electrification, including any investments above and beyond what is included in Integrated Energy Policy Report (IEPR)

As stated above, DCE is developing load curves that reflect expected increases in load due to both transportation electrification and building electrification for use in developing its load forecasts. More will be discussed on this topic in future IRPs if the Board adopts a new building electrification program.

xii. Other

DCE will continue its procurement efforts to meet MTR requirements. If Palm Desert or any other city commit to joining DCE's CCA load service area, then it is anticipated that DCE will issue another RFO at that time. Barring any addition to DCE's load service territory, the timing of DCE's next RFO will depend on the outcome of DCE's MTR procurement and the timing of when Deer Creek achieves commercial operation. It will also depend on load growth due to electrification and state policy changes such as dedicated procurement to meet offshore wind goals and to support the possible closure of the Aliso Canyon natural gas storage field. DCE will provide an updated procurement timeline as part of its next IRP.

DCE's communities have been and will continue to be active participants in local environmental planning, including electric service improvements. The City of Palm Springs has been a regional leader in sustainability efforts. Energy Action Plans and Climate Action Plans adopted in 2013, and its 2016 Sustainability Plan confirm Palm Springs's commitment to using renewable energy to reduce greenhouse gas emissions and addressing climate change at the local level. Establishment of a Community Choice Aggregation program was identified in Palm Springs 2016 Sustainability Plan. Encouraging renewable energy is an essential component of the City's path towards sustainable development, carbon neutrality, and a resilient community. In February 2022, the Palm Springs City Council adopted its FY 2021/22 Strategic Plan, which includes achieving reductions in greenhouse gas (GHG) emissions and maintaining and expanding outreach of DCE's 100% carbon-free model. A May 2021 inventory determined that the participation in DCE's carbon free energy by the City of Palm Springs and its residents and businesses helped the city meet its state-mandated goal of reducing 2020 GHG emissions levels below those of 1990. Without the reductions achieved by DCE, Palm Springs' projected 2020 GHG emissions would have been approximately 4.4% above 2010 levels.

As part of the FY 2021/22 Strategic Plan, the Palm Springs Office of Sustainability is currently working on two energy-related ordinances, with technical assistance from DCE staff. The first ordinance would require single-family buildings and dwelling units in multifamily buildings built before 2011 undergoing additions, alterations or remodels to make certain targeted energy efficiency upgrades, where applicable and feasible, to bring them closer to 2022 California Energy Code provisions, including the 2022 Energy Code's electric-ready requirements for new residential buildings. The second ordinance would establish requirements for the use of renewable and carbon free energy by new and existing nonresidential buildings and indoor and greenhouse cannabis cultivation sites in Palm Springs. This ordinance would also add energy and water efficiency standards for indoor and greenhouse cannabis cultivation sites. The Office of Sustainability expects to bring these ordinances before City Council in late 2022 or early 2023.

Palm Desert has also been a long-time regional leader in energy efficiency and sustainability. Though the city has not yet launched as part of the DCE CCA program, DCE's policies are consistent with Palm Desert's Plan adopted by its City Council in August 2022. The Environmental Initiatives Plan tracks the city's ongoing projects in energy conservation, green buildings, and green transportation, including a proposal to replace or solarize carport structures at City Hall and two other city facilities. The total project is estimated to be 979 KW. Two additional sites are being considered. Success of the Environmental Initiatives Plan should lead to decreased utility usage, utility costs, and GHG emissions.

The Coachella Valley Association of Governments (CVAG) is currently working with its partner agencies, Western Riverside Council of Governments and San Bernardino Associated Governments, in the implementation of the Inland Regional Energy Network (I-REN), whose business plan the CPUC approved in November 2021. I-REN will provide opportunities for energy efficiency and energy-related workforce development in our region, as well as opportunities for collaborative efforts with DCE, which shares staff with I-REN through CVAG.

The Board also intends to consider new programs, which could include electric vehicle incentives, building electrification, grid resiliency, and energy efficiency.

In addition, DCE offers its customers Net Energy Metering (NEM) service with grid exports compensated at a rate that matches the rate offered by SCE. This will allow customers to pair cleaner grid electricity with renewable energy generated on their premises and potentially support solar-related jobs in the region. The DCE Board plans to explore ways to incentivize rooftop solar, community solar, and other renewable electric generation systems in the future. In February 2022, the DCE Board adopted a resolution that supports protecting and expanding rooftop solar via a strong succeeding Net Energy Metering tariff and expanding clean energy access by making it easier, not harder, for people to adopt rooftop solar and energy storage in order to meet California's ambitious clean energy targets and deploy solar in all communities and households, particularly those struggling to pay for electricity.

Finally, customers will continue to have access to important electric rate discounts under programs such as Medical Baseline and CARE/FERA, as well as potential new programs specific to DCE customers.

b. Disadvantaged Communities

As noted in Section III.d.ii, excerpt for the Tribal lands, there are no census tracts within DCE's service area that CalEPA has designated as disadvantaged communities under SB 535. However, there are 12 census tracts that at least partially overlap with areas considered low income under AB 1550. In order to increase its outreach to residents of those low-income communities, DCE's Board recently named to DCE's Community Advisory Committee (CAC) two members from those communities in Palm Springs, one of whom is Hispanic. The CAC members are regularly kept informed of DCE's efforts to procure renewable resources and reduce GHG emissions in its service area through DCE's Carbon Free product, and they have an opportunity to provide their feedback at meetings of DCE's Board and the CAC. DCE's Board considers input from the CAC and other community members in its decision-making. Because DCE's direct procurement efforts since its launch in 2020 has been for renewable resources, DCE does not have specific metrics to prioritize the minimization of criteria air pollution in disadvantaged communities.

DCE has an active social media presence in both English and Spanish to promote energy conservation and GHG emissions reductions. In addition, DCE has recently resumed participation in community events. Events at which DCE intends to have an information booth include the Desert AIDS Walk Health and Wellness Village in late October 2022 and the Black History Month Parade and Town Fair in February 2023.

c. Commission Direction of Actions

Though DCE supports efforts to create a programmatic approach to IRP procurement, the number of options of new procurement programs provided in the recent Staff Options Paper make it difficult to speculate as to how the programmatic approach would impact DCE's planning at this time. DCE accordingly requests that the Commission provide clear direction as soon as possible regarding any new procurement mandates emerging from the current IRP cycle. Like other LSEs, DCE has been challenged to procure resources with online dates early enough to satisfy the 2021 mid-term reliability decision (D.21-06-035). Early notification of any future procurement mandates will allow DCE to identify the largest range of options and carefully select and negotiate for optimal resource solutions. Additionally, DCE requests that the Commission delay the earliest compliance deadline of an additional procurement mandate beyond 2025 to avoid the current market challenges that are driving up incremental resource costs and delaying development schedules.

DCE further encourages the Commission to bring greater stability to the regulatory framework within which DCE and other suppliers must plan and operate. Frequent rule changes disrupt DCE's ability to execute long-term planning activities and adopt planning elements while minimizing customer costs. For example, the Commission is currently considering a programmatic approach to the IRP noted above and a Slice of Day reform of the Resource Adequacy program. These reforms will likely alter planned procurement over the long term and may reduce the accuracy of DCE's IRP.

V. Lessons Learned

Through the first three IRP cycles, DCE has learned how critical the role of regulatory uncertainty plays in DCE's planning. For instance, there were significant changes between the previous IRP plan and this IRP due to the creation of MTR requirements and the introduction of the VAMO process. DCE urges the Commission to reduce this uncertainty to the maximum extent possible prior to setting IRP requirements to avoid a situation where IRPs become out-of-date as soon as they are printed. DCE hopes the creation of the programmatic approach to IRP will be a significant improvement in this regard.

Glossary of Terms

Alternative Portfolio: *LSEs are permitted to submit "Alternative Portfolios" developed from scenarios using different assumptions from those used in the Preferred System Plan with updates. Any deviations from the "Conforming Portfolio" must be explained and justified.*

Approve (Plan)*: the CPUC's obligation to approve an LSE's integrated resource plan derives from Public Utilities Code Section 454.52(b)(2) and the procurement planning process described in Public Utilities Code Section 454.5, in addition to the CPUC obligation to ensure safe and reliable service at just and reasonable rates under Public Utilities Code Section 451.*

Balancing Authority Area (CAISO): *the collection of generation, transmission, and loads within the metered boundaries of the Balancing Authority. The Balancing Authority maintains load-resource balance within this area.*

Baseline resources: *Those resources assumed to be fixed as a capacity expansion model input, as opposed to Candidate resources, which are selected by the model and are incremental to the Baseline. Baseline resources are existing (already online) or owned or contracted to come online within the planning horizon. Existing resources with announced retirements are excluded from the Baseline for the applicable years. Being "contracted" refers to a resource holding signed contract/s with an LSE/s for much of its energy and capacity, as applicable, for a significant portion of its useful life. The contracts refer to those approved by the CPUC and/or the LSE's governing board, as applicable. These criteria indicate the resource is relatively certain to come online. Baseline resources that are not online at the time of modeling may have a failure rate applied to their nameplate capacity to allow for the risk of them failing to come online.*

Candidate resource: *those resources, such as renewables, energy storage, natural gas generation, and demand response, available for selection in IRP capacity expansion modeling, incremental to the Baseline resources.*

Capacity Expansion Model: *a capacity expansion model is a computer model that simulates generation and transmission investment to meet forecast electric load over many years, usually with the objective of minimizing the total cost of owning and operating the electrical system. Capacity expansion models can also be configured to only allow solutions that meet specific requirements, such as providing a minimum amount of capacity to ensure the reliability of the system or maintaining greenhouse gas emissions below an established level.*

Certify (a Community Choice Aggregator Plan)*: Public Utilities Code 454.52(b)(3) requires the CPUC to certify the integrated resource plans of CCAs. "Certify" requires a formal act of the Commission to determine that the CCA's Plan complies with the requirements of the statute and the process established via Public Utilities Code 454.51(a). In addition, the Commission must review the CCA Plans to determine any potential impacts on public utility bundled customers under Public Utilities Code Sections 451 and 454, among others.*

Clean System Power (CSP) methodology*: the methodology used to estimate GHG and criteria pollutant emissions associated with an LSE's Portfolio based on how the LSE will expect to rely on system power on an hourly basis.*

Community Choice Aggregator*: a governmental entity formed by a city or county to procure electricity for its residents, businesses, and municipal facilities.*

Conforming Portfolio*: the LSE portfolio that conforms to IRP Planning Standards, the 2030 LSE-specific GHG Emissions Benchmark, use of the LSE's assigned load forecast, use of inputs and assumptions matching those used in developing the Reference System Portfolio, as well as other IRP requirements including the filing of a complete Narrative Template, a Resource Data Template and Clean System Power Calculator*.

Effective Load Carrying Capacity*: a percentage that expresses how well a resource is able avoid loss-of-load events (considering availability and use limitations). The percentage is relative to a reference resource, for example a resource that is always available with no use limitations. It is calculated via probabilistic reliability modeling, and yields a single percentage value for a given resource or grouping of resources.*

Effective Megawatts (MW): *perfect capacity equivalent MW, such as the MW calculated by applying an ELCC % multiplier to nameplate MW.*

Electric Service Provider*: an entity that offers electric service to a retail or end-use customer, but which does not fall within the definition of an electrical corporation under Public Utilities Code Section 218.*

Filing Entity*: an entity required by statute to file an integrated resource plan with CPUC.*

Future*: a set of assumptions about future conditions, such as load or gas prices.*

GHG Benchmark (or LSE-specific 2030 GHG Benchmark)*: the mass-based GHG emission planning targets calculated by staff for each LSE based on the methodology established by the California Air Resources Board and required for use in LSE Portfolio development in IRP.*

GHG Planning Price: *the systemwide marginal GHG abatement cost associated with achieving a specific electric sector 2030 GHG planning target.*

Integrated Resources Planning Standards (Planning Standards)*: the set of CPUC IRP rules, guidelines, formulas and metrics that LSEs must include in their LSE Plans.*

Integrated Resource Planning (IRP) process*: integrated resource planning process; the repeating cycle through which integrated resource plans are prepared, submitted, and reviewed by the CPUC*

Long term*: more than 5 years unless otherwise specified.*

Load Serving Entity*: an electrical corporation, electric service provider, community choice aggregator, or electric cooperative.*

Load Serving Entity (LSE) Plan*: an LSE's integrated resource plan; the full set of documents and information submitted by an LSE to the CPUC as part of the IRP process.*

Load Serving Entity (LSE) Portfolio*: a set of supply- and/or demand-side resources with certain attributes that together serve the LSE's assigned load over the IRP planning horizon.*

Loss of Load Expectation (LOLE): *a metric that quantifies the expected frequency of loss-of-load events per year. Loss-of-load is any instance where available generating capacity is insufficient to serve electric demand. If one or more instances of loss-of-load occurring within the same day regardless of duration are counted as one loss-of-load event, then the LOLE metric can be compared to a reference point such as the industry probabilistic reliability standard of "one expected day in 10 years," i.e. an LOLE of 0.1.*

Maximum Import Capability: a California ISO metric that represents a quantity in MWs of imports determined by the CAISO to be simultaneously deliverable to the aggregate of load in the ISO's Balancing Authority (BAA) Area and thus eligible for use in the Resource Adequacy process. The California ISO assess a MIC MW value for each intertie into the ISO's BAA and allocated yearly to the LSEs. A LSE's RA import showings are limited to its share of the MIC at each intertie.

Net Qualifying Capacity (NQC): *Qualifying Capacity reduced, as applicable, based on: (1) testing and verification; (2) application of performance criteria; and (3) deliverability restrictions. The Net Qualifying Capacity determination shall be made by the California ISO pursuant to the provisions of this California ISO Tariff and the applicable Business Practice Manual.*

Non-modeled costs*: embedded fixed costs in today's energy system (e.g., existing distribution revenue requirement, existing transmission revenue requirement, and energy efficiency program cost).*

Nonstandard LSE Plan*: type of integrated resource plan that an LSE may be eligible to file if it serves load outside the CAISO balancing authority area.*

Optimization*: an exercise undertaken in the CPUC's Integrated Resource Planning (IRP) process using a capacity expansion model to identify a least-cost portfolio of electricity resources for meeting specific policy constraints, such as GHG reduction or RPS targets, while maintaining reliability given a set of assumptions about the future. Optimization in IRP considers resources assumed to be online over the planning horizon (baseline resources), some of which the model may choose not to retain, and additional resources (candidate resources) that the model is able to select to meet future grid needs.*

Planned resource: *any resource included in an LSE portfolio, whether already online or not, that is yet to be procured. Relating this to capacity expansion modeling terms, planned resources can be baseline resources (needing contract renewal, or currently owned/contracted by another LSE), candidate resources, or possibly resources that were not considered by the modeling, e.g., due to the passage of time between the modeling taking place and LSEs developing their plans. Planned resources can be specific (e.g., with a CAISO ID) or generic, with only the type, size and some geographic information identified.*

Qualifying capacity*: the maximum amount of Resource Adequacy Benefits a generating facility could provide before an assessment of its net qualifying capacity.*

Preferred Conforming Portfolio*: the conforming portfolio preferred by an LSE as the most suitable to its own needs; submitted to CPUC for review as one element of the LSE's overall IRP plan.*

Preferred System Plan: *the Commission's integrated resource plan composed of both the aggregation of LSE portfolios (i.e., Preferred System Portfolio) and the set of actions necessary to implement that portfolio (i.e., Preferred System Action Plan).*

Preferred System Portfolio: *the combined portfolios of individual LSEs within the CAISO, aggregated, reviewed and possibly modified by Commission staff as a proposal to the Commission, and adopted by the Commission as most responsive to statutory requirements per Pub. Util. Code 454.51; part of the Preferred System Plan.*

Short term*: 1 to 3 years (unless otherwise specified).*

Staff*: CPUC Energy Division staff (unless otherwise specified).*

Standard LSE Plan*: type of integrated resource plan that an LSE is required to file if it serves load within the CAISO balancing authority area (unless the LSE demonstrates exemption from the IRP process).*

Transmission Planning Process (TPP)*: annual process conducted by the California Independent System Operator (CAISO) to identify potential transmission system limitations and areas that need reinforcements over a 10-year horizon.*