

Standard LSE Plan

Pioneer Community Energy

2020 INTEGRATED RESOURCE PLAN

SEPTEMBER 1, 2020

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Introduction and Executive Summary

a. Introduction

Description of Pioneer Community Energy

Pioneer Community Energy (“Pioneer”) is a Joint Powers Authority (“JPA”) formed by the communities of Rocklin, Lincoln, Auburn, Colfax, Loomis and Placer County in July 2017 in order to provide Community Choice Aggregation (“CCA”) service.

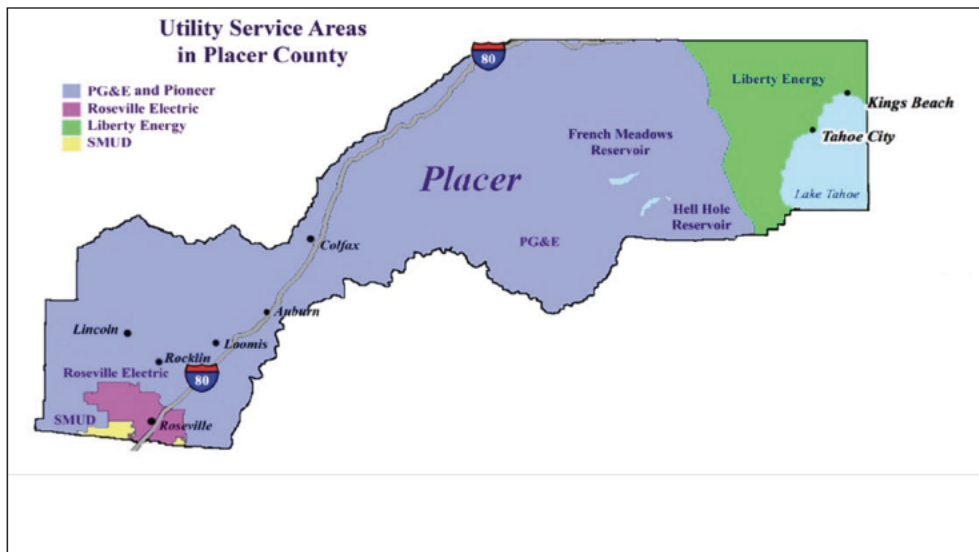
As a JPA, Pioneer is a local government agency. Pioneer is governed by a seven-member board composed of representatives of its member local governments. Through these representatives Pioneer is controlled by and accountable to the communities Pioneer serves.

Pioneer began serving load in February 2018. Pioneer currently provides retail electric generation services and complementary energy programs to customers within the municipal boundaries of the following communities:

- City of Rocklin
- City of Lincoln
- City of Auburn
- City of Colfax
- Town of Loomis
- Placer County

Pioneer’s service area is identified in the following map:

Figure 1: Service Area Map



As of August 2020, Pioneer served approximately 81,000 residential accounts and 11,000 commercial and industrial accounts. Pioneer’s service area spans most of Placer County and the majority of households and businesses receive generation service from Pioneer.

Pioneer’s Mission

Pioneer was formed for the express purpose of empowering its member communities to choose the generation resources that reflect their specific values and needs. Pioneer seeks to provide reliable electric service at a lower cost than offered by the incumbent electric utility and also prioritizes economic development and environmental stewardship in Placer County.

Consistent with Public Utilities Code Sections 366.2(a)(5) and 454.52 (b)(3),¹ all procurement by Pioneer, including the portfolios set forth in this IRP, *must* comply with policy direction provided by Pioneer’s governing board.

Introduction to Pioneer’s IRP

In accordance with the requirements of Sections 454.51 and 454.52 and California Public Utilities Commission (“Commission”) Decisions (“D.”) 20-03-028, D.19-11-016, D.18-02-018, D.19-04-040, and formal guidance provided by the Commission’s Energy Division, Pioneer is providing its load serving entity (“LSE”)-specific Integrated Resource Plan (“IRP”) to the Commission for certification review and use in the Commission’s statewide planning process. In addition to this narrative, Pioneer’s IRP includes the following documents:

- Pioneer’s 38 MMT Resource Data Template
- Pioneer’s 46 MMT Resource Data Template
- Pioneer’s 38 MMT Clean System Power Calculator
- Pioneer’s 46 MMT Clean System Power Calculator
- Pioneer’s Senior Executive Attestation re: D.19-11-016 Incremental Capacity
- Pioneer’s IRP Verification

As directed in D.20-03-028, Pioneer is submitting two conforming portfolios in this IRP, one based on the Commission’s 46 MMT greenhouse gas (GHG) reduction benchmark and associated 38 MMT reference system portfolio (“RSP”), and a second based on the Commission’s 46 MMT benchmark and RSP.

As demonstrated by the significant differences between the Commission’s 2017-2018 RSP and its 2019-2020 RSP, projecting resource need over the time horizon covered by the IRP is an inexact matter. The future resources identified in Pioneer’s IRP represent Pioneer’s best good-

¹ All further citations to statute are to the California Public Utilities Code unless otherwise noted.

faith projection of the resource mix that it will procure over the IRP planning horizon, based on the best information currently available. The resources identified in future iterations of Pioneer's IRP may change due to new information and changed circumstances, and the ultimate resource mix that Pioneer actually procures may differ from what is reflected in the plan due to a number of variables including availability of supply, price of supply and/or other market or regulatory considerations.

Board Approval of IRP

In compliance with Section 454.52(b)(3), this IRP was formally submitted to Pioneer's governing board for approval based on the IRP's compliance with Sections 454.51 and 454.52 ("IRP Statute") and all relevant board-adopted procurement requirements of Pioneer's governing board. On August 20, 2020, Pioneer's board issued Resolution No. 2020-15, which formally approves this IRP and adopts Pioneer's 46 MMT Preferred Conforming Portfolio ("46 MMT PCP") and its 38 MMT Preferred Conforming Portfolio ("38 MMT PCP"). In Resolution No. 2020-15, Pioneer's board also makes the following determinations regarding Pioneer's Preferred Conforming Portfolios ("PCPs"):

- Pioneer's PCPs achieve economic, reliability, environmental, security, and other benefits and performance characteristics that are consistent with the goals set forth in Section 454.52(a)(1) (A-I).
- Pioneer's PCPs include a diversified procurement portfolio consisting of both short-term and long-term electricity and electricity-related and demand reduction products.
- Pioneer's PCPs achieve the resource adequacy ("RA") requirements established pursuant to Section 380.
- Pioneer's PCPs are consistent with the procurement timing, resource mix, and operational attributes of both the Commission's 38 MMT RSP and the Commission's 46 MMT RSP.
- Pioneer's PCPs are fully compliant with all Pioneer board-adopted procurement directives.

Request for Certification

Pioneer respectfully requests that the Commission certify this IRP.

As both the Legislature and the Commission have recognized, the Legislature has granted CCAs broad authority to procure resources on their customers' behalf, an authority limited only where "other generation procurement arrangements have been expressly authorized by

statute.”² Likewise, the Legislature has granted CCAs autonomy in setting their own rates and managing interactions with their customers.³ The Commission has three primary interests in the CCA IRP process:

- Ensuring that CCA IRPs provide the CCA procurement information that the Commission needs in order to develop its statewide plan.⁴
- Ensuring that CCAs’ current and planned procurement is consistent with the RA requirements established pursuant to Section 380.⁵
- Ensuring that CCA’s current and planned procurement satisfies the CCA’s share of renewables integration resource identified in the Commission’s RSP, and that the CCA either self-provides or pays for investor-owned utility (“IOU”) procurement for its share of any renewable integration shortfall.⁶

Pioneer has prepared its IRP with these interests in mind, and thanks the Commission in advance for its recognition of CCA procurement autonomy and the benefits of a collaborative approach with CCAs in its certification review of Pioneer’s IRP.

b. Executive Summary

This narrative provides a detailed description of the development and content of Pioneer’s PCPs, each portfolio’s compliance with applicable requirements, and an action plan detailing Pioneer’s planned next steps.

Pioneer developed its IRP through the following steps:

- Pioneer compiled data for its existing energy contracts, RA capacity contracts, and its share of capacity for allocated Cost Allocation Mechanism (“CAM”) resources.
- For each IRP planning year, Pioneer identified its short positions relative to Pioneer planning targets in consideration of its assigned load forecast.

² Section 366.2(a)(5).

³ D.05-12-041 at 5 (“Nothing in the statute directs the CPUC to regulate the CCA’s program except to the extent that its programs may affect utility operations and the rates and services to other customers. For example, the statute does not require the CPUC to set CCA rates or regulate the quality of its services”); D.19-04-040 at 18 (“the Commission does not approve CCA or ESP rates”).

⁴ D.19-04-040 at 17-18 (“The Commission’s portfolio aggregation and evaluation process, which relies on fulfillment of IRP filing requirements by LSEs, is the only process capable of assessing the overall needs of the CAISO grid and meeting the statewide GHG, reliability, and least-cost goals collectively. While LSEs may use their IRP process to meet local planning needs as well, the statewide planning function is the statutorily required process...”).

⁵ Section 454.52(b)(3)(C).

⁶ Section 454.51.

- Pioneer populated the Resource Data Template with all current contracts.
- Pioneer compiled detailed information on projects for which it is currently negotiating power purchase agreements, including information regarding project status and timing.
- Pioneer identified future contracts it expects for new solar, storage, biomass, and wind generation. Pioneer prioritized the selection of future resources that ensure Pioneer’s overall portfolio of new resources is consistent with the relevant Reference System Portfolio’s resource attribute/category mix, procurement timing, and Pioneer’s proportional share of planned new procurement.
- Pioneer added generic future contracts with existing resources to help fill its remaining open positions.
- Pioneer used the Commission’s Clean System Power Calculator Tool to check the GHG emissions associated with the resulting portfolio to ensure that these emissions are equivalent to Pioneer’s assigned share of the 46 MMT benchmark.
- Pioneer added planned purchases of large hydro-electric energy in sufficient volume to ensure that the portfolio’s emissions were equal to Pioneer’s assigned share of the 46 MMT GHG benchmark
- Pioneer identified the resulting portfolio as its 46 MMT PCP.
- Using the 46 MMT PCP as a starting point, Pioneer replaced planned system energy purchases with additional large hydro-electric energy procurement until the portfolio had emissions equal to Pioneer’s assigned share of the 38 MMT GHG benchmark.
- Pioneer identified the resulting portfolio as its 38 MMT PCP.
- Pioneer checked both its 38 MMT PCP and its 46 MMT PCP for reliability by comparing the total portfolio net qualifying capacity (“NQC”) against Pioneer’s RA requirements for the month of September in each year of the planning period. Pioneer further established that its planned incremental capacity exceeds its pro rata share of its incremental capacity procurement obligation (i.e. 18.5 MW) as well as its pro rata share of capacity that may be needed for replacement of Diablo Canyon.

Pioneer reached the following findings regarding its 38 MMT PCP:

- Pioneer’s 38 MMT portfolio includes the procurement of the following new resources:
 - New hybrid resources totaling 60 MW solar/ 50 MW battery storage
 - New wind resources totaling 25 MW
 - New biomass resources totaling 5 MW
 - New grid connected battery storage of 7 MW
 - New long duration storage of 10 MW
- Pioneer’s 38 MMT portfolio provides for the following overall resource mix in 2030:
 - 104 MW of large hydro

- 5 MW of Biomass
- 10 MW of Geothermal
- 13 MW of Small Hydro
- 39 MW of Wind
- 169 MW of Solar
- 57 MW of Short Duration Battery Storage
- 10 MW of Long Duration Storage
- [REDACTED]
- Pioneer's 38 MMT portfolio is consistent with procurement timing, resource quantities, and general resource attributes identified in the 38 MMT RSP.
- Pioneer's 38 MMT portfolio would have 2030 emissions of 0.160 MMT. This is slightly below Pioneer's assigned share of 2030 emissions, 0.161 MMT.
- Pioneer's 38 MMT portfolio meets all relevant reliability metrics.
- Pioneer's 38 MMT portfolio provides more than Pioneer's load-proportional share of renewable integration resources.

Pioneer reached the following findings regarding its 46 MMT portfolio:

- Pioneer's 46 MMT portfolio includes the procurement of the following new resources:
 - New hybrid resources totaling 60 MW solar/ 50 MW battery storage
 - New wind resources totaling 25 MW
 - New biomass resources totaling 5 MW
 - New grid connected battery storage of 7 MW
 - New long duration storage of 10 MW
- Pioneer's 46 MMT portfolio provides for the following overall resource mix in 2030:
 - 64 MW of large hydro
 - 5 MW of Biomass
 - 10 MW of Geothermal
 - 13 MW of Small Hydro
 - 39 MW of Wind
 - 169 MW of Solar
 - 57 MW of Short Duration Battery Storage
 - 10 MW of Long Duration Storage
 - [REDACTED]
- Pioneer's 46 MMT portfolio conforms to the procurement timing, resource quantities, and general resource attributes identified in the 46 MMT RSP.
- Pioneer's 46 MMT portfolio would have 2030 emissions of 0.202 MMT. This is equivalent to Pioneer's assigned share of 2030 emissions, 0.202 MMT.

To implement its PCPs, Pioneer is adopting the action plan described in section IV, below. This action plan consists of the following steps:

- Pioneer will periodically solicit offers for new renewable generation and storage projects. These resources are typically secured through long term power purchase agreements. Pioneer expects to secure power purchase agreements for new projects in multiple solicitations conducted over the next several years.
- Periodically throughout the year, Pioneer will solicit offers for short term renewable energy, RA, system energy, and other products needed to balance the portfolio and adhere to position limits established through Pioneer’s risk management policy and practices. These solicitations can take the form of formal request for offers processes, bilateral discussions, and transactions arranged through broker markets.

I. Study Design

a. Objectives

Pioneer had the following objectives in performing the analytical work to develop its IRP:

1. Identify a 38 MMT portfolio with emissions equal to Pioneer’s proportional share of the 38 MMT GHG reduction benchmark, as determined using the Commission’s emissions calculator.
2. Identify a 46 MMT portfolio with emissions equal to Pioneer’s proportional share of the 46 MMT GHG reduction benchmark, as determined using the Commission’s emissions calculator.
3. Identify 38 and 46 MMT portfolios that achieve economic, reliability, environmental, security, and other benefits and performance characteristics that are consistent with the goals set forth in Section 454.52(a)(1) (A-I).
4. Identify diverse and balanced 38 and 46 MMT portfolios that include both short-term and long-term electricity and electricity-related and demand reduction products.
5. Identify portfolios that achieve the RA requirements established pursuant to Section 380 and fully provide Pioneer’s share of system reliability and renewable integration resources.

6. Identify portfolios that fully comply with all Pioneer board-adopted procurement directives.
7. Identify portfolios that are fully compliant with Pioneer’s obligations under the Renewables Portfolio Standard program.
8. Identify portfolios that are cost-effective and minimize rate impacts on Pioneer’s customers.

b. Methodology

i. Modeling Tool(s)

In developing its planned portfolios Pioneer uses modeling tools that quantify portfolio targets for renewable energy content, capacity, and portfolio GHG emissions, as well as physical and financial positions to ensure adherence to Pioneer’s risk management policies and business practices. Pioneer uses proprietary models to assess annual, monthly, and hourly open positions taking account of forecast hourly electric loads and expected deliveries from Pioneer’s resource portfolio. Pioneer uses a proprietary financial model to project power supply costs and incorporate existing and planned procurement into an overall financial assessment of revenues, costs, and cash flows. Pioneer also utilizes a commercially available energy trading and risk management system to monitor positions, market exposure, credit exposure, value-at-risk, and other risk management metrics.⁷

For new resource selection, Pioneer relied upon the modeling and assumptions in the Reference System Portfolio as well as Pioneer’s recent procurement experience which provides insight into resource availability and cost. The mix of new resources selected in the RSP is similar to the mix Pioneer would select based on its procurement experience, with one notable exception. Pioneer includes new biomass generation projects in its PCPs, consistent with Pioneer’s policy objectives to support use of biomass to help reduce wildfire risk within its service area. No other significant differences were identified.

GHG emissions were assessed using the Commission’s Clean System Power tool for the 38 MMT and 46 MMT variations.

ii. Modeling Approach

Load Forecast

⁷ Pioneer Solutions TRMTracker SaaS.

Pioneer developed its IRP using its assigned load forecast from Attachment A to the May 20, 2020 *Administrative Law Judge’s Ruling Correcting April 15, 2020 Ruling Finalizing Load Forecasts and Greenhouse Gas Benchmarks for Individual 2020 Integrated Resource Plan Filings* (“Load Forecast Ruling”). Pioneer’s assigned load forecast is as follows:

Table 1: Pioneer’s 2020-2030 Load Forecast

| Year | Load Forecast (GWh) |
|-------------|----------------------------|
| 2020 | 1157 |
| 2021 | 1145 |
| 2022 | 1139 |
| 2023 | 1137 |
| 2024 | 1138 |
| 2025 | 1140 |
| 2026 | 1141 |
| 2027 | 1140 |
| 2028 | 1141 |
| 2029 | 1141 |
| 2030 | 1141 |

Load Shape

In developing its portfolio Pioneer used the default load shape from the Clean System Power Calculator, which reflects the California Independent System Operator (“CAISO”) hourly system average load shape forecast for the 2019 IEPR Mid Baseline Mid AAEE case.

The use of this load shape does not change Pioneer’s total annual energy volumes for both load and load modifiers, and these energy volumes remain consistent with Pioneer’s assigned load forecast.

Load-Proportional GHG Emissions Benchmark

Pioneer assessed its modeling against its 2030 load-proportional share of the respective 38 MMT and 46 MMT benchmarks, as specified in the 38 MMT and 46 MMT Clean System Power tools. Pioneer understands these values to be consistent with the benchmarks assigned in Table 1 of the Load Forecast Ruling, with adjustment for certain allocated emissions as reflected in the Clean System Power tools:⁸

⁸ Load Forecast Ruling at 5-7 (Table 1).

Table 2: Pioneer’s Assigned Shares of GHG Reduction Benchmarks

| 2030 Load (GWH) | Proportion of 2030 Load Within IOU Territory | 2030 GHG Benchmark (MMT) – 46 MMT Scenario | 2030 GHG Benchmark (MMT) – 38 MMT Scenario |
|------------------------|---|---|---|
| 1,141 | 1.5% | 0.202 | 0.161 |

Compiling Existing Resources

To populate its baseline resource templates, Pioneer added existing resources from the following sources:

- Energy Contracts.
- Capacity (Resource Adequacy) Contracts.
- Pioneer’s assigned share of capacity for CAM resources, taken from the most recent year-ahead CAM resource list available on the Commission’s RA Compliance Materials webpage.

Selecting New Resources

To identify its new resource procurement, Pioneer first determined the new resource capacity it intends to add each year, in consideration of resource need (open positions), long-term renewable contracting requirements, renewable portfolio standards, RA requirements, the need for incremental RA capacity to contribute to system reliability and renewable integration needs, the potential for technological improvements, and financial considerations. Pioneer selected resource types based on its experience with competitive solicitations for new renewable and storage resources as well as by making reference to the studies and modeling underlying the adopted Reference System Portfolios.

Confirming Reliability

Pioneer’s portfolios were evaluated to ensure that sufficient dependable capacity (NQC) is available to meet peak load requirements plus a 15% reserve margin. Pioneer used technology specific Effective Load Carrying Capacity (“ELCC”) factors provided by the Commission to assess the contribution of each resource to system reliability. Pioneer’s portfolios were designed to ensure that current incremental RA capacity obligations are met, and that Pioneer contributes to new resource development to address fossil fuel retirements and decommissioning of the Diablo Canyon nuclear power plant.

Calculating GHG Emissions

Pioneer calculated the emissions associated with its 38 MMT PCP and its 46 MMT PCP using the Commission’s Clean System Power calculator tool. The assigned load forecast and default load shapes and behind the meter adjustments were used for this assessment, along with the planned supply portfolios. The results were checked against the assigned GHG benchmarks included in the Clean System Power tools.

II. Study Results

c. Conforming and Alternative Portfolios

As required by the Commission, Pioneer is submitting two conforming portfolios – a 38 MMT PCP that conforms to the Commission’s 38 MMT RSP and a 46 MMT PCP that conforms to the Commission’s 46 MMT RSP. Pioneer is not submitting alternative portfolios.

Under D.20-03-028, “LSEs are not required to adhere directly to the exact proportion of resources selected by RESOLVE in the 46 MMT or 38 MMT portfolios, in developing their own portfolios” and “specific resources may be used as proxies for similar resources.”⁹ The Decision requires that LSEs procure resources in five broad categories defined by their attributes: long-duration storage (8-12 hours); short-duration storage (4 hours or less); renewables; hybrid resources; and other resources.¹⁰ Similarly, the Energy Division has stated that “The RSP is meant to guide planning, but LSEs do not have to procure an amount of resources that aligns with their proportional share of resources selected in the RSP. LSEs may submit portfolios that include more or less resources than their share of the RSP as long as those portfolios achieve their emissions goals.”¹¹ Below, Pioneer follows this guidance and assesses its portfolios for general consistency with the Commission’s RSPs.

Pioneer’s 38 MMT PCP

The table included as Attachment A to this Narrative provides a summary of Pioneer’s 2030 38 MMT Portfolio, identifying resources by type and distinguishing between the following procurement categories:

- Existing resources (energy and capacity) that Pioneer owns or contracts with, consistent with definitions provided in the Resource Data Template.

⁹ D.20-03-028 at 63

¹⁰ *Id.*

¹¹ See *Filing Requirements Questions and Answers* (updated August 11, 2020), at 19-20 (Answer to Question 34).

- Existing resources (energy and capacity) that Pioneer plans to contract with in the future.
- Existing resources (capacity) that Pioneer partially pays for through CAM.
- New Resources (energy and capacity) that are under development that Pioneer is planning to procure.
- Future new resources (energy and capacity) that Pioneer is planning to procure.

In summary, to meet Pioneer’s projected 2030 energy demand of 1,141 GWh, Pioneer has selected a 2030 38 PCP composed primarily of the following resources:

- Existing solar (owned or under contract) – 61 MW
- Existing solar (planned procurement) – 14 MW
- Existing wind (planned procurement) – 14 MW
- Existing hydro (planned procurement) – 104 MW
- Existing geothermal (owned or under contract) – 10 MW
- New solar (under development) – 34 MW
- New solar (future resources) – 60 MW
- New wind (future resources) - 25 MW
- New biomass (future resources) – 5 MW
- New short duration storage (future resources) – 57 MW
- New long duration storage (future resources) – 10 MW

Additionally, Pioneer’s 2030 38 MMT PCP includes capacity-only resources composed primarily of the following resources:

- [REDACTED]
- [REDACTED]

Pioneer’s portfolio includes a mix of existing and new resources. Approximately 191 MW of Pioneer’s 2030 portfolio is composed of new resources, reflecting Pioneer’s role as an active player in the State’s development of new renewable and storage resources.

Pioneer’s 38 MMT PCP Is Consistent with the 38 MMT RSP

The new resources included in Pioneer’s 38 MMT PCP are consistent with the 38 MMT RSP’s 2030 new resource mix.

As demonstrated in the following table, Pioneer’s 38 MMT portfolio is generally consistent with Pioneer’s proportional share of *new procurement* for each of the four “resource types” identified in D.20-03-028:

Table 3: 38 MMT PCP New Resource Procurement by Resource Type Compared to

38 MMT RSP

| Resource Type | 38 MMT RSP New Resources ¹² | Pioneer’s Load-Proportional Share of 38 MMT RSP New Resources | Pioneer’s 38 MMT Portfolio |
|--|--|---|----------------------------|
| Long-Duration Storage | 1,605 MW | 10 | 10 |
| Short Duration Storage (4 hours or less) | 9,714 MW | 58 | 57 |
| Renewable Resources | 20,274 | 122 | 124 |
| Hybrid Resources ¹³ | 0 MW | 0 | 0 |
| Other Resources | 222 | 1 | 0 |

The differences between Pioneer’s raw proportional share of the 38 MMT RSP New Resources and the resources amounts in Pioneer’s 38 MMT Portfolio are minimal.

Pioneer’s 46 MMT PCP

The table included as Attachment B to this Narrative provides a summary of Pioneer’s 2030 46 MMT PCP, identifying resources by type and distinguishing between the following procurement categories:

- Existing resources (energy and capacity) that Pioneer owns or contracts with, consistent with definitions provided in the Resource Data Template.
- Existing resources (energy and capacity) that Pioneer plans to contract with in the future.
- Existing resources (capacity) that Pioneer partially pays for through CAM.
- New Resources (energy and capacity) that are under development that Pioneer is planning to procure.
- Future new resources (energy and capacity) that Pioneer is planning to procure.

In summary, to meet Pioneer’s projected 2030 load of 1,141 GWh, Pioneer has selected a 2030 46 MMT PCP composed primarily of the following resources:

- Existing solar (owned or under contract) – 61 MW
- Existing solar (planned procurement) – 14 MW
- Existing wind (planned procurement) – 14 MW
- Existing hydro (planned procurement) – 64 MW
- Existing geothermal (owned or under contract) – 10 MW

¹² D.20-03-028 at 46 (Table 8).

¹³ Pioneer interprets the category “hybrid resources” as including generation resources that are capable of reliably dispatching to meet late-afternoon peak load. This would include biogas generation, combined solar and storage, and geothermal.

- New solar (under development) – 34 MW
- New solar (future resources) – 60 MW
- New wind (future resources) - 25 MW
- New biomass (future resources) – 5 MW
- New short duration storage (future resources) – 57 MW
- New long duration storage (future resources) – 10 MW

Additionally, Pioneer’s 2030 46 MMT PCP includes capacity-only resources composed primarily of the following resources:

- [REDACTED]
- [REDACTED]

Pioneer’s portfolio includes a mix of existing and new resources. Approximately 191 MW of Pioneer’s 2030 portfolio is composed of new resources, reflecting Pioneer’s role as an active player in the State’s development of new renewable and storage resources.

As demonstrated in the following table, Pioneer’s 46 MMT PCP is generally consistent with Pioneer’s proportional share of new procurement for each of the four “resource types” identified in D.20-03-028:

Table 4: 46 MMT PCP New Resource Procurement by Resource Type Compared to 46 MMT RSP

| Resource Type | 46 MMT RSP New Resources ¹⁴ | Pioneer’s Proportional Share of 46 MMT RSP New Resources | Pioneer’s 46 MMT PCP |
|--|--|--|----------------------|
| Long-Duration Storage | 973 MW | 6 | 10 |
| Short Duration Storage (4 hours or less) | 8,873 MW | 53 | 57 |
| Renewable Resources | 14,460 | 87 | 124 |
| Hybrid Resources ¹⁵ | 0 MW | 0 | 0 |
| Other Resources | 222 MW | 1 | 0 |

The differences between Pioneer’s raw proportional share of the 46 MMT RSP New Resources and the resources amounts in Pioneer’s 46 MMT PCP are minimal. As compared to the RSP, Pioneer’s 46 MMT PCP includes more renewable energy and more short and long duration storage which helps contribute to system reliability and renewable resource integration.

¹⁴ D.20-03-028 at 41 (Table 5).

¹⁵ Pioneer interprets the category “hybrid resources” as including generation resources that are capable of reliably dispatching to meet late-afternoon peak load. This would include biogas generation, combined solar and storage, and geothermal.

Pioneer’s 38 MMT PCP And Its 46 MMT PCP Are Consistent with The D.19-11-016 Procurement Requirements

In D.19-11-016, the Commission ordered LSEs to collectively procure a total of 3,300 MW of incremental system capacity by 2023, with specific procurement obligations allocated to each LSE. As part of Pioneer’s contribution to system reliability and renewable integration needs, Pioneer has committed to self-providing its assigned share of the identified system capacity need.

Pioneer’s assigned share of the system capacity need is 18.5 MW,¹⁶ 50% of which must be online by August 1, 2021, 75% of which must be online by August 1, 2022, and 100% of which must be online by August 1, 2023.

On February 18, 2020, Pioneer notified the Commission of its intent to self-provide its share of this requirement.¹⁷ In IRP-filing years, D.19-11-016 further requires LSEs to include an update on incremental procurement activities in their biennial IRPs, including contract and resource information.¹⁸ As instructed by the Commission, this attestation is being provided as part of Pioneer’s IRP submission. Detailed information regarding Pioneer’s procurement towards the D.19-11-016 requirement is provided below in the Incremental Procurement Progress Report section and in Pioneer’s resource data templates.

d. Preferred Conforming Portfolios

38 MMT PCP

As demonstrated in Appendix A, Pioneer’s 38 MMT PCP consists of a combination of:

- Utility-Scale Solar
- In-State Wind
- Short-Duration Storage
- Long-Duration Storage
- Small and large hydro
- Geothermal

¹⁶ D.19-11-016, Ordering Paragraph 3.

¹⁷ *Pioneer Community Energy’s February 15, 2020 Integrated Procurement Planning Progress Report Pursuant to Decision 19-11-016 Adopted in Rulemaking 16-02-007*, filed February 18, 2020.

¹⁸ D.19-11-016, Ordering Paragraph 13 (“All load serving entities serving load as of May 1 of every year beginning in 2020 shall provide the Commission staff with a data response detailing contract and resource information, to allow the Commission and stakeholders to monitor progress about system reliability and renewable integration. In years where an individual integrated resource plan (IRP) is required by Decision (D.) 18-02-018 to be filed, the same information shall be included in each LSE’s individual IRP.”)

- Biomass
- Natural Gas/Other (capacity only)

As stated above, in accordance with Section 454.51(b)(3), Pioneer’s governing board has determined that the resource mix in its PCP achieves “economic, reliability, environmental, security, and other benefits and performance characteristics that are consistent with the goals set forth in [Section] 454.51(a)(1).” These benefits and characteristics are discussed as follows.

GHG Reduction Goals

Pioneer’s 38 MMT PCP achieves results and performance characteristics consistent with the Section 454.52(a)(1)(A) goal of meeting the Commission’s 38 MMT GHG reduction benchmark. The 2030 emissions from Pioneer’s 38 MMT PCP are slightly lower than Pioneer’s load-proportional share of the 38 MMT emissions benchmark. Pioneer’s proportional share of the 38 MMT benchmark is 0.161 MMT. According to the Commission’s emissions calculator, Pioneer’s 38 MMT PCP would account for 0.160 MMT in 2030 emissions, which is slightly below the assigned benchmark.

Renewable Energy

Pioneer’s 38 MMT PCP achieves results and performance characteristics consistent with the Section 454.52(a)(1)(B) goal of ensuring that portfolios are composed of at least 50% eligible renewable resources. In 2030 Pioneer’s 38 MMT overall PCP portfolio would consist of 60 percent eligible renewable generation, well in excess of the 50% target.

Minimizing Bill Impact

Pioneer’s 38 MMT PCP achieves results and performance characteristics consistent with the Section 454.52(a)(1)(D) goal of minimizing the impact of planned procurement on ratepayers’ bills. Pioneer’s portfolio consists primarily of renewable resources that benefitted from increasing economies of scale over the past several years and have price projections that continue to drop in the foreseeable future.

Pioneer’s recent procurement experience indicates that solar costs continue to decline, and lithium ion battery storage is increasingly cost effective relative to other capacity products available in the market, particularly when offered in a tax-advantaged hybrid configuration with solar generation.

Pioneer prioritizes cost competitiveness, reliability, use of renewable energy and local resource development. Pioneer anticipates that bill impacts will be minimized as new solar generation projects generally have lower net costs than the prices paid in the short-term renewable energy markets. Coupling new solar with battery storage increases the capacity value of the projects, displacing the need to buy expensive RA products, and provides limited dispatchability for the solar generation, minimizing the risk of degradation in energy value. Further, Pioneer’s 38

MMT PCP minimizes exposure to volatile natural gas prices and the bill impacts that can result from periodic spikes in fossil fuel prices.

Ensuring System and Local Reliability

Pioneer's 38 MMT PCP achieves results and performance characteristics consistent with the Section 454.52(a)(1)(E) goal of ensuring system and local reliability. The 38 MMT PCP meets system RA requirements as detailed in Section III.f. Pioneer will meet its local RA requirements until such time as the central procurement entity ("CPE") takes on this responsibility pursuant to D.20-06-002. Some of the planned capacity-only contracts in Pioneer's 38 MMT PCP will be displaced by local RA procured by the CPE. However, adoption of the CPE construct is a recent development, and the details of its planned procurement are not yet known. To ensure there are no reliability gaps in Pioneer's 38 MMT PCP, and pursuant to Energy Division Guidance, Pioneer's portfolio assumes no CAM allocations or CAM resources beyond what is described in the most recently issued year-ahead CAM resource list and allocations. This approach, while consistent with Energy Division direction, will likely ultimately indicate more RA than Pioneer will be responsible for procuring. Thus, Pioneer provides this information with the understanding that its RA positions will be reduced by any future CAM allocations.

Demand-Side Energy Management

Pioneer's 38 MMT portfolio achieves results and performance characteristics consistent with the Section 454.52(a)(1)(G) goal of enhancing demand-side energy management. Pioneer has existing RA contracts with demand response resources, and will likely continue to contract with such resources to the extent they offer a competitive and reliable source of system capacity.

Minimizing Localized Air Pollutants with Emphasis on DACs

Pioneer's 38 MMT portfolio achieves results and performance characteristics consistent with the Section 454.52(a)(1)(H) goal of minimizing localized air pollutants and other GHG emissions with early priority on disadvantaged communities. Pioneer's 38 MMT portfolio relies primarily on renewable generation and hydro-electric generation and would have relatively low GHG and localized air pollution emissions. Pioneer's 38 MMT portfolio minimizes Pioneer's reliance on unspecified system power, instead opting for renewable generation procurement and development and hydro generation whenever feasible.

Results from the Clean System Power ("CSP") tool indicate the following localized air pollutants associated with Pioneer's 38 MMT portfolio in 2030:

- NOx: 54
- PM 2.5: 22
- SO2: 6

These emissions derive from planned use of system energy and biomass energy in the 38 MMT PCP, as well as emissions from Combined Heat and Power (“CHP”) resources and system energy assigned to the Pioneer portfolio by the CSP tool. In evaluating new biomass resources, Pioneer will prioritize development outside of DACs where feasible.

46 MMT PCP

As demonstrated in Appendix A, Pioneer’s 46 MMT PCP consists of a combination of:

- Utility-Scale Solar
- In-State Wind
- Short-Duration Storage
- Long-Duration Storage
- Small and large hydro
- Geothermal
- Biomass
- Natural Gas/Other (capacity only)

As stated above, in accordance with Section 454.51(b)(3), Pioneer’s governing board has determined that the resource mix in its PCP achieves “economic, reliability, environmental, security, and other benefits and performance characteristics that are consistent with the goals set forth in [Section] 454.51(a)(1).” These benefits and characteristics are discussed as follows.

GHG Reduction Goals

Pioneer’s 46 MMT PCP achieves emissions *equal to* Pioneer’s proportional share of the 46 MMT benchmark. CCA Program’s Proportional Share of the 46 MMT benchmark is 0.202 MMT. According to the Commission’s emissions calculator, Pioneer’s 46 MMT portfolio would account for 0.202 MMT in 2030 emissions.

Renewable Energy

Pioneer’s 46 MMT portfolio achieves results and performance characteristics that are consistent with the Section 454.52(a)(1)(B) goal of ensuring that portfolios are composed of at least 50% eligible renewable resources. In 2030 Pioneer’s 46 MMT portfolio would consist of 60 percent eligible renewable generation, well in excess of the 50% target.

Minimizing Bill Impact

Pioneer’s 46 MMT portfolio achieves results and performance characteristics consistent with the Section 454.52(a)(1)(D) goal of minimizing the impact of planned procurement on ratepayers’ bills. CCA’s portfolio consists primarily of renewable resources that benefitted from increasing economies of scale over the past several years and have price projections that continue to drop in the foreseeable future. Pioneer’s portfolio consists primarily of renewable

resources that benefitted from increasing economies of scale over the past several years and have price projections that continue to drop in the foreseeable future.

Pioneer's recent procurement experience indicates that solar costs continue to decline, and lithium ion battery storage is increasingly cost effective relative to other capacity products available in the market, particularly when offered in a tax-advantaged hybrid configuration with solar generation.

Pioneer prioritizes cost competitiveness, reliability, use of renewable energy and local resource development. Pioneer anticipates that bill impacts will be minimized as new solar generation projects generally have lower net costs than the prices paid in the short-term renewable energy markets. Coupling new solar with battery storage increases the capacity value of the projects, displacing the need to buy expensive RA products, and provides limited dispatchability for the solar generation, minimizing the risk of degradation in energy value. Further, Pioneer's 46 MMT PCP minimizes exposure to volatile natural gas prices and the bill impacts that can result from periodic spikes in fossil fuel prices.

Ensuring System and Local Reliability

Pioneer's 46 MMT portfolio achieves results and performance characteristics consistent with the Section 454.52(a)(1)(E) goal of ensuring system and local reliability.

The 46 MMT PCP meets system RA requirements as detailed in Section III.f. Pioneer will meet its local RA requirements until such time as the CPE takes on this responsibility pursuant to D.20-06-002. Some of the planned capacity-only contracts in Pioneer's 46 MMT PCP will be displaced by local RA procured by the CPE. However, adoption of the CPE construct is a recent development, and the details of its planned procurement are not yet known. To ensure there are no reliability gaps in Pioneer's 46 MMT PCP, and pursuant to Energy Division Guidance, Pioneer's portfolio assumes no CAM allocations or CAM resources beyond what is described in the most recently issued year-ahead CAM resource list and allocations. This approach, while consistent with Energy Division direction, will likely ultimately indicate more RA than Pioneer will be responsible for procuring. Thus, Pioneer provides this information with the understanding that its RA positions will be reduced by any future CAM allocations.

Demand-Side Energy Management

Pioneer's 46 MMT portfolio achieves results and performance characteristics consistent with the Section 454.52(a)(1)(G) goal of enhancing demand-side energy management. Pioneer has existing RA contracts with demand response resources and will likely continue to contract with such resources to the extent they offer a competitive and reliable source of system capacity.

Minimizing Localized Air Pollutants with Emphasis on DACs

Pioneer's 46 MMT portfolio achieves results and performance characteristics consistent with the Section 454.52(a)(1)(H) goal of minimizing localized air pollutants and other GHG emissions with early priority on disadvantaged communities. Pioneer's 46 MMT portfolio relies primarily on renewable generation and hydro-electric generation and would have relatively low GHG and localized air pollution emissions. Pioneer's 46 MMT portfolio minimizes Pioneer's reliance on unspecified system power, instead opting for renewable generation procurement and development and hydro generation whenever feasible.

Results from the CSP tool indicate the following localized air pollutants associated with Pioneer's 46 MMT portfolio in 2030:

- NOx: 57
- PM 2.5: 24
- SO2: 6

These emissions derive from planned use of system energy and biomass energy in the 46 MMT PCP, as well as emissions from CHP resources and system energy assigned to the Pioneer portfolio by the CSP tool. In evaluating new biomass resources, Pioneer will prioritize development outside of DACs where feasible.

e. GHG Emissions Results

Pioneer used its load-based proportional share of the 38 MMT and 46 MMT benchmark to determine the emissions compliance for its 38 MMT PCP and its 46 MMT PCP. Pioneer's assigned load-proportional share of the 38 MMT benchmark is 0.161 MMT. Based on the 38 MMT version of the CSP calculator, Pioneer's 38 MMT portfolio would result in total 2030 GHG emissions of 0.160 MMT, outperforming Pioneer's assigned share of the 38 MMT GHG reduction benchmark by 0.001 MMT.

Pioneer's assigned load-proportional share of the 46 MMT benchmark is 0.202 MMT. Based on the 46 MMT version of the CSP calculator, Pioneer's 46 MMT portfolio would result in total 2030 GHG emissions of 0.202 MMT, which is equal to its assigned load-proportional share of the 46 MMT benchmark.

f. Local Air Pollutant Minimization and Disadvantaged Communities

i. Local Air Pollutants

The 38 MMT version of the CSP calculator estimates the following emissions associated with Pioneer's 38 MMT portfolio:

- NOx: 54
- PM 2.5: 22

- SO2: 6

The 46 MMT version of the CSP calculator estimates the following emissions associated with Pioneer's 46 MMT portfolio:

- NOx: 57
- PM 2.5: 24
- SO2: 6

ii. [Focus on Disadvantaged Communities](#)

Pioneer's IRP is fully consistent with the goal of minimizing local air pollutants, with early priority on DACs. As identified in CalEnviroScreen 3.0, Pioneer serves no census tracts categorized as Disadvantaged Communities.

In total, Pioneer serves 0 customer accounts located within DACs. This is approximately 0 percent of Pioneer's total customer base (92,000 customers).

In developing its IRP, Pioneer carefully considered the impact of its resource procurement on DACs. Most of the new resources Pioneer plans to develop are renewable or storage with no local emissions, with the exception of planned biomass resources. As previously discussed, Pioneer will prioritize development of biomass resources outside of DAC areas where feasible.

[g. Cost and Rate Analysis](#)

Pioneer's 38 MMT and 46 MMT portfolios are both reasonable from a cost perspective. In selecting resources for its portfolios, Pioneer carefully considered the cost implications of specific resource selections and procurement timing. This analysis was informed by

This analysis was informed by Pioneer's procurement experience and the standard assumptions and results of the Commission's RESOLVE/SERVM modeling.

In general, Pioneer sought to balance the need to procure resources with enough lead time to meet Pioneer's LSE-specific procurement shortfalls and the Commission-identified overall system new resource need with the cost-saving benefits of waiting to procure renewable and storage resources with downward sloping cost projections. Pioneer also recognizes that future resource costs are highly uncertain, and technological advancement can happen unexpectedly; Pioneer's procurement cycle is designed to take advantage of technological and cost improvements by adding new resource commitments incrementally over time.

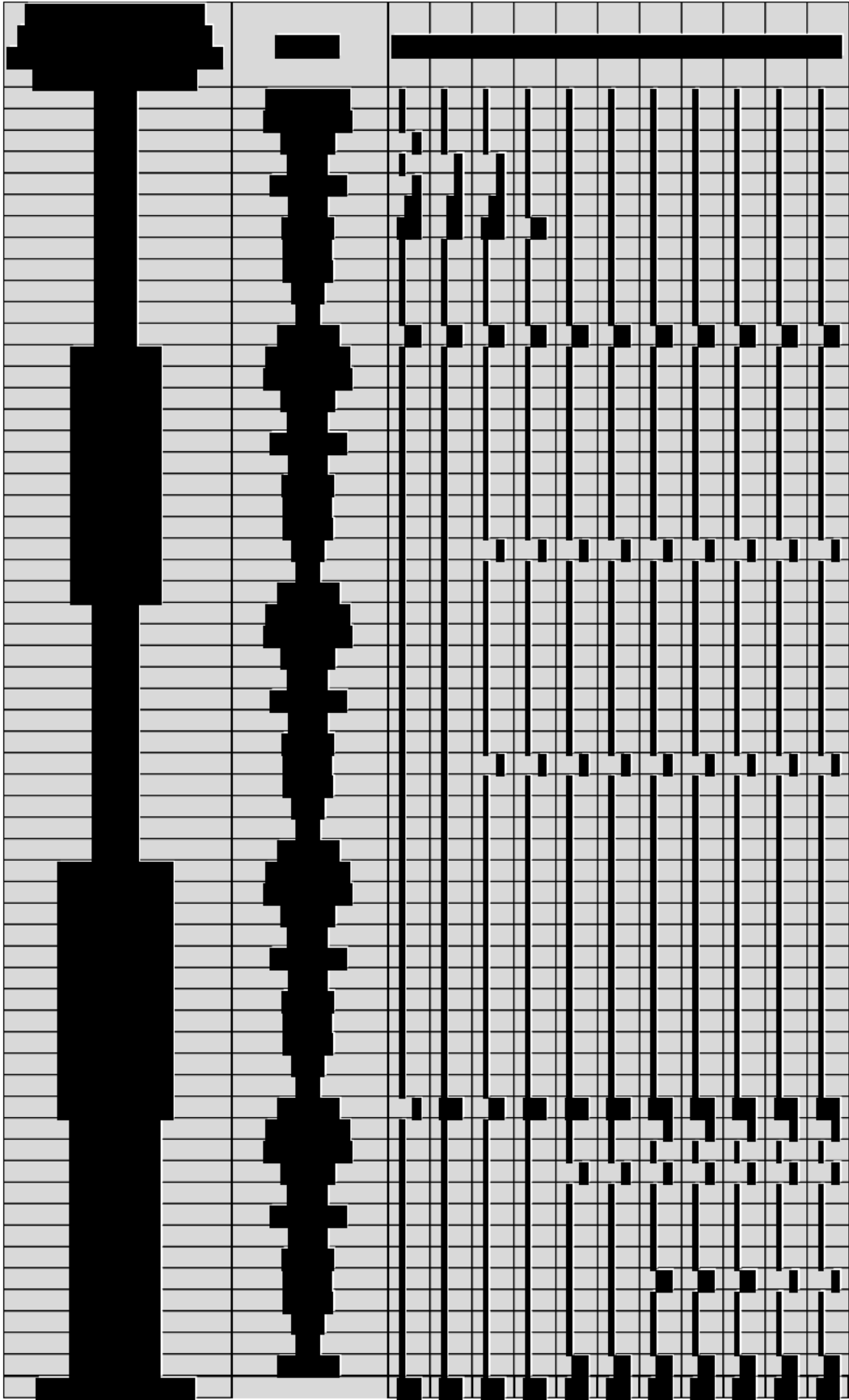
Pioneer's PCPs take advantage of the rapidly falling cost of solar, wind, and battery storage resources. Pioneer's PCPs also take advantage of the fact that, compared to IOUs, CCAs have

significantly shorter generation project development timelines, in part due to the fact that CCAs do not require Commission approval of such projects. These shorter timelines result in significant direct savings and give Pioneer more flexibility to time its procurement to take maximum advantage of falling renewable generation prices.

h. System Reliability Analysis

Both Pioneer’s 38 MMT PCP and its 46 MMT PCP are reliable and contribute Pioneer’s fair share to system reliability.

The effective capacity of Pioneer’s 38 MMT PCP is provided in the following “System Reliability Progress Tracking Table” from the its 38 MMT Resource Data Template dashboard (note that the row containing peak demand is confidential and has been excluded from this table). The NQC for the month of September is shown for each year in the following table:

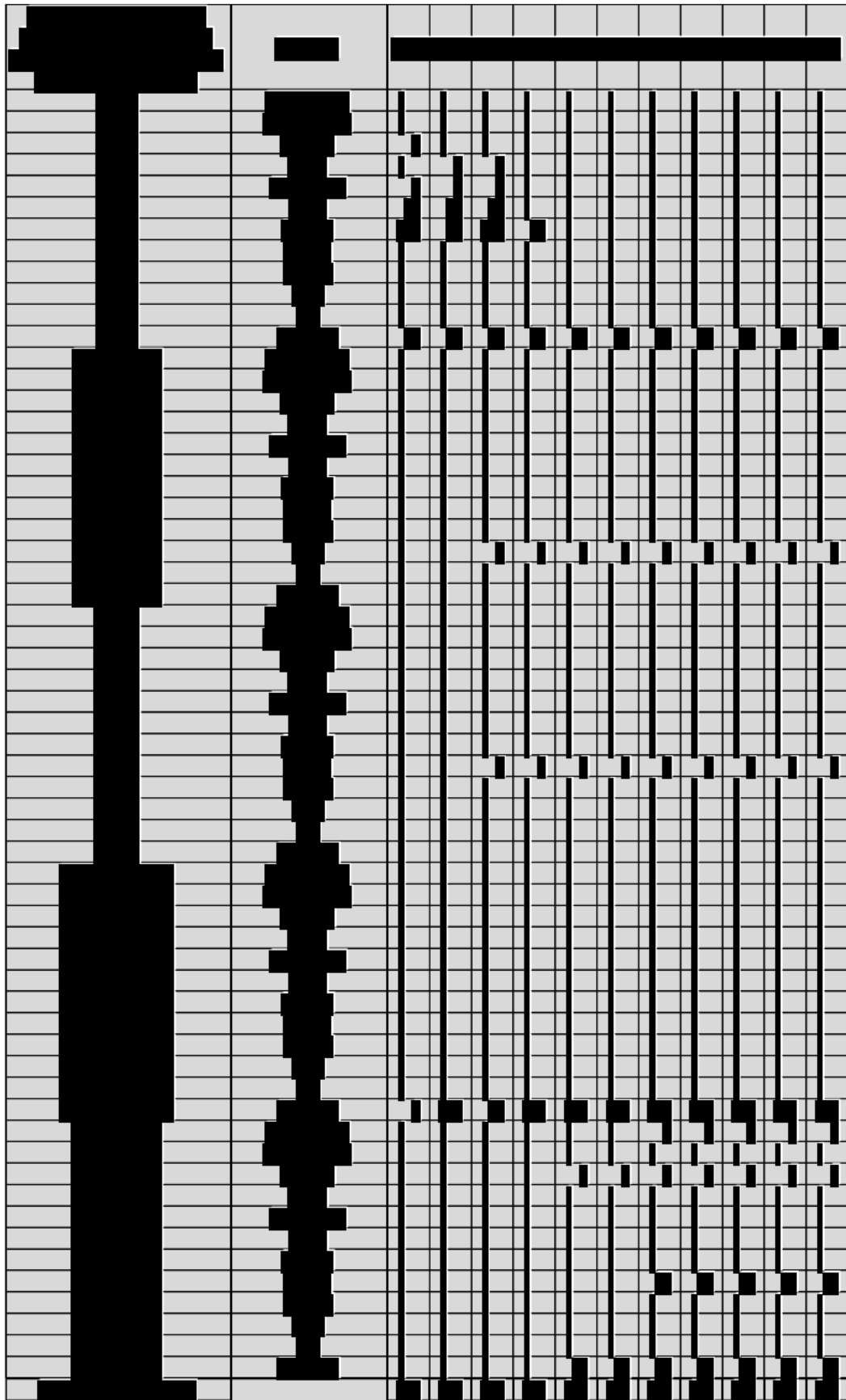


[REDACTED]

.¹⁹ This balanced portfolio of flexible capacity works to effectively and reliability integrate a renewables-heavy portfolio, thus meeting and exceeding Pioneer’s share of any systemwide renewable integration resource requirement.

The effective capacity of Pioneer’s 46 MMT PCP is provided in the following “System Reliability Progress Tracking Table” from the its 46 MMT Resource Data Template dashboard (note that the row containing peak demand is confidential and has been excluded from this table). The NQC for the month of September is shown for each year in the following table:

¹⁹ An undetermined portion of this capacity is expected to be procured by the CPE.



[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

.²⁰ This balanced portfolio of flexible capacity works to effectively and reliability integrate a renewables-heavy portfolio, thus meeting and exceeding Pioneer’s share of any systemwide renewable integration resource requirement.

i. Hydro Generation Risk Management

In developing its portfolios, Pioneer took several steps to manage the risk of reduced hydro availability due to in-state drought. First, Pioneer has developed a network of Pacific Northwest hydro-electric power suppliers, including entities that have substantial Asset Controlling Supplier (“ACS”) energy volumes and are thus able to sell firm volumes to Pioneer. Pioneer’s RSP include hydro resources located within California as well as imported hydro power from the Pacific Northwest. Second, Pioneer prioritizes hydro contracts with marketers that provide firm delivery volumes, helping to reduce the planning uncertainty associated with drought and variable hydro-electric conditions within California. Third, Pioneer’s planned use of hydro in its 46 MMT PCP is very similar to the proportions included in the RSP (see table below). For its 38 MMT PCP, Pioneer increased its planned use of hydro, which could be at risk under drought conditions. However, if drought conditions or other factors restrict available hydro energy, Pioneer would plan to substitute renewable energy resources to ensure it meets its assigned GHG benchmark.

Table 5: Pioneer Preferred Conforming Portfolio’s Planned Use of Hydro Compared to RSP

| Hydro Resource | 38 and 46 MMT RSP MW | Pioneer Proportionate Share | Pioneer 46 MMT PCP | Pioneer 38 MMT PCP |
|----------------|----------------------|-----------------------------|--------------------|--------------------|
| CAISO Hydro | 7,070 | 42 | 45 | 73 |
| Hydro Imports | 2,852 | 17 | 19 | 31 |

²⁰ An undetermined portion of this capacity is expected to be procured by the CPE.

j. Long-Duration Storage Development

The Commission's 38 MMT RSP calls for 1,605 MW of new long-duration storage to be developed and operational by 2026, while the 46 MMT RSP calls for 973 MW of new long-duration storage to be operational by 2026.

In response to the Commission's analysis, Pioneer and twelve other CCAs ("Joint CCAs") issued a request for information ("RFI") on long-duration storage in June 2020. This RFI defined long-duration storage resources as those with the capability to discharge at full capacity for at least 8 hours. The RFI requested the following types of information: (1) storage technology and commercial history; (2) project specifics, including location, permitting, financing and development risks; (3) contracting terms and preferences, including indicative pricing.

The Joint CCAs received responses from 31 entities representing numerous types of chemical, mechanical and thermal long-duration storage technologies, such as: lithium-ion batteries; vanadium redox and other flow batteries; used electric vehicle batteries; waste to fuels via ultrasound; hydrogen storage; pumped storage hydro; geomechanical pumped storage; crane and stacked blocks; compressed air; flywheels; and molten salt and other thermal storage technologies. Moreover, the respondents identified 25 specific projects that represent more than 9,000 MW of capacity, two thirds of which is advertised as able to achieve commercial operation by 2026.

Pioneer and other CCAs are now engaging in the critical next step of assessing the economics of such projects. This assessment is expected to lead to Requests for Offers ("RFOs") and transactional discussions aimed at bringing actual projects online by 2026. For its part, Pioneer anticipates it will procure its share of the CPUC's 1,605 MW target, which for Pioneer translates to 10 MW of long-duration storage online by 2026. Due to the scale and complexity of these projects, however, successful development will depend on efficient collaboration among numerous entities including load-serving entities, developers, manufacturers, market operators, regulators and environmental stakeholders.

k. Out-of-State Wind Development

The Commission's 38 MMT RSP calls for 3000 MW of new out-of-state wind generation ("OOS Wind") to be developed and operational by 2030, while the 46 MMT RSP calls for 606 MW of new OOS Wind to be operational by 2030. Pioneer understands that the transmission projects needed to connect OOS Wind to the CAISO grid require significant lead-times. However, given the fact that OOS Wind is not needed until 2030, Pioneer believes that a careful and considered approach to potential OOS Wind projects is best. Pioneer does not have specific plans for use

of OOS Wind at this time but is open to purchases of such resources and will evaluate offers it receives during its regular procurement process.

I. Transmission Development

In identifying resource locations for all portfolios, Pioneer was guided by the following considerations:

- Pioneer has a general preference for resources located within its service area and the communities it serves.
- Pioneer preferred projects in locations that can utilize existing transmission infrastructure with minimal upgrade/modification costs.
- Pioneer preferred low-impact renewable energy projects that provide economic benefit to DACs, subject to community interest in locally siting such projects.

Unlike the IOUs, Pioneer is not a transmission and distribution (“T&D”) system operator. Pioneer does not enjoy the benefits of a granular knowledge of Pacific Gas and Electric Company’s (“PG&E”) T&D system, and Pioneer is not in the best position to identify optimal resource locations. In practice, Pioneer relies on project developers to conduct the research and technical studies necessary for siting potential generation projects. Pioneer evaluates projects offered by developers based on a variety of criteria, including transmission availability, nodal prices and potential for congestion, project viability, environmental, workforce, and other factors. As such, Pioneer generally utilized the RSP selected candidate resources as a guide for likely resource locations in its 38 MMT PCP and its 46 MMT PCP. These should be treated as general expectations based on the above-listed considerations, not set-in-stone selections, and actual project locations will be selected during Pioneer’s solicitation processes.

Pioneer’s preferred 38 MMT PCP includes a total of 1,304 MW of new resources to be built at the locations identified in Pioneer’s 38 MMT resource data template. The following table provides a list of these resources, their identified locations, and Pioneer’s preferred alternate locations if the Commission’s modeling finds that the selected locations are not feasible.

| New Resource Type | Size (MW) | Selected Resource | Preferred Alternative Resource/Location |
|--------------------------|------------------|-----------------------------|--|
| Wind | 25 | Northern_California_Ex_Wind | Solano_Wind |
| Biomass | 5 | InState_Biomass | N/A |
| Hybrid | 60 | New_Hybrid | N/A |
| Storage | 7 | New_Li_Battery | N/A |
| Storage, Long Duration | 10 | New_Li_Battery | New_Flow_Battery |

Pioneer’s 46 MMT PCP includes a total of 1,189 MW of new resources to be built at the locations identified in Pioneer’s 46 MMT resource data template. The following table provides a list of these resources, their identified locations, and Pioneer’s preferred alternate locations if the Commission’s modeling finds that the selected locations are not feasible.

| New Resource Type | Size (MW) | Selected Resource | Preferred Alternative Resource/Location |
|--------------------------|------------------|-----------------------------|--|
| Wind | 25 | Northern_California_Ex_Wind | Solano_Wind |
| Biomass | 5 | InState_Biomass | N/A |
| Hybrid | 60 | New_Hybrid | N/A |
| Storage | 7 | New_Li_Battery | N/A |
| Storage, Long Duration | 10 | New_Li_Battery* | New_Flow_Battery* |

*Pioneer is exploring numerous long-duration storage technology types, as highlighted above in section H. However, the new resource categories limits LSEs to “new lithium-ion” and “new flow” technology types for purposes of the Resource Data Template.

III. Action Plan

a. Proposed Activities

Pioneer has a well-established procurement process that it will use to steadily achieve its PCP over the next ten years (i.e., by 2030). Pioneer’s procurement process includes the following key activities:

- a) Identification of planned resources by type, desired online date, and capacity.
- b) Planning for procurement activities in consideration of Pioneer’s Board direction; risk management policy; resource acquisition lead times including, where applicable, development timelines; staff capacity; and financial considerations.
- c) Design and administration of resource solicitations. For new resources, these typically take the form of periodic request for offers processes, while for existing resources, procurement activity is more frequent and routinized.
- d) Careful negotiation of contract terms to ensure positive outcomes for Pioneer customers with appropriate risk mitigation.
- e) Ongoing contract management, including where applicable, careful monitoring of development milestones.

b. Procurement Activities

Pioneer intends to take the following near-term (in the next 1-3 years) to implement its IRP and associated portfolio:

- Conduct one or more competitive solicitations for new renewable resources with planned online dates before 2026.
- Complete ongoing negotiations for short duration storage.
- Manage existing development contract for new solar project to ensure expected commercial operation date is met.
- Refine plans for procurement of long duration storage and begin solicitation process in 2023 or 2024 for a planned online date in 2026.
- Continue to manage Pioneer's supply portfolio to achieve Pioneer's policy objectives and ensure compliance with all regulatory requirements.

c. Potential Barriers

Pioneer has identified the following market, regulatory, financial, or other barriers or risks that may impede Pioneer's ability to acquire the resources identified in its Portfolio:

- Impacts of the Covid-19 pandemic on supply chains, the labor force, financial markets, and the overall ability of firms to timely develop generation and storage resources
- The potential for regulatory changes, including centralized procurement and rule changes that create uncertainty and undermine Pioneer's willingness or ability to enter into long term resource commitments
- Uncertainty around possible resource allocations from PG&E resulting from the Power Charge Indifference Adjustment ("PCIA") working group process
- Factors that may restrict availability of RA Capacity such as retirement of conventional resources, the potential re-rating of renewable resource or battery storage Effective Load Carrying Capacity
- Factors that may increase Pioneer customer costs such as potential regulatory changes relating to the treatment of PG&E generation costs and the share of costs allocated to Pioneer customers through the PCIA
- The potential for reduced availability of large hydro-electric energy due to drought or increasing demand

d. Commission Direction or Actions

Pioneer encourages the Commission to adopt durable rules and processes to bring greater stability to the regulatory framework within which Pioneer and suppliers must plan and operate. Frequent rule changes disrupt Pioneer's ability to plan for the long term and to execute on the plan while minimizing costs to its customers.

e. Diablo Canyon Power Plant Replacement

Pioneer has included plans for new capacity development in its PCPs that are sufficient to meet its share of replacement capacity from the Diablo Canyon Power Plant. Pioneer's load ratio share of Diablo Canyon is estimated to be 14 MW, and Pioneer has plans to add 141 MW of new capacity, including 76 MW of (September) NQC by 2030. 32 MW of the planned incremental NQC would be available by 2024 when decommissioning of Diablo Canyon commences.

f. Incremental Procurement Progress Report

Pioneer has executed agreements that will satisfy all of Pioneer's incremental capacity requirements for 2021-2023. As of the date of this submission, Pioneer has approximately 16.3, 19.82, and 19.82 MW of NQC under contract in years 2021, 2022, and 2023, respectively. The projects reflected in these contracts are expected to be online in advance of the deadlines prescribed in D.19-11-016.

Pioneer's completed and planned capacity procurement towards its D.19-11-016 requirement is reflected in Pioneer's 38 MMT and 46 MMT Resource Data Templates. Pioneer also provides a narrative description of specific incremental procurement efforts below.

Sutter Energy Center

On July 20, 2020, Pioneer executed a *Master Power Purchase and Sale Agreement Confirmation Letter* with Calpine Energy Services, L.P. ("Calpine") for 9.2 MW of capacity from the Sutter Energy Center in 2021, 8 MW in 2022 and 8 MW in 2023. The period for this agreement begins on January 1, 2021 and continues through December 31, 2023. D.19-11-016 defines the Sutter Energy Center as an incremental capacity resource.²¹ Although located outside of the CAISO balancing authority, D.19-11-016 also indicates the Sutter Energy Center is not an import for purposes of the capacity procurement ordered by the decision²² and thus not subject to the D.19-11-016's 20% limitation on import resources. Pioneer's agreement with Calpine is also

²¹ D.19-11-016, Ordering Paragraph 6.

²² D.19-11-016, Ordering Paragraph 6.

consistent with D.19-11-016's requirement that commitments based on existing resources must "stay in place at least through the end of the resource adequacy summer months of 2023."²³

The Sutter Energy Center is in the process of securing final regulatory approval from CAISO, which is expected in the coming months, and is on schedule to be online by January 1, 2021 pursuant to its obligations under its agreement with Pioneer. Pioneer's agreement with Calpine satisfies Pioneer's 2021 requirements and represents approximately 46% of Pioneer's total procurement requirement.

The Sutter Energy Center is represented in both the 46MMT and 38MMT Resource Data Templates as incremental capacity (please refer to the "Unique_Contracts" tab of Pioneer's Resource Data Templates).

Edwards Sanborn Solar IV

In April 2020 Pioneer executed a *Power Purchase and Sale Agreement* with Edwards Sanborn Solar IV, LLC ("Edwards Sanborn Solar IV project"). This 15-year power purchase agreement ("PPA") is for a new-build solar energy project located in Kern County, California. The project has a nameplate capacity of 33.7 MW, with a September NQC of approximately 4.7 MW. This resource is a new grid resource that is not included on the baseline resource list adopted in Rulemaking 16-02-007.²⁴ Thus, the Edwards Sanborn Solar IV project is eligible to count towards Pioneer's assigned 18.5 MW of incremental system resource capacity.

The guaranteed commercial operation date ("COD") is July 1, 2022, which is in advance of the 2022 procurement deadline defined in D.19-11-016.

The Edwards Sanborn Solar IV project is represented in both the 46MMT and 38MMT Resource Data Templates as incremental capacity (please refer to the "Unique_Contracts" tab of Pioneer's Resource Data Templates).

GasCo Rd, LLC

In August 2020 Pioneer executed a *Power Purchase and Sale Agreement* with GasCo Rd, LLC ("GasCo") for a 10-year term. The contract is for 7.1 MW NQC of battery storage located in Kern County, California. This resource is a new grid resource that is not included on the baseline resource list adopted in Rulemaking 16-02-007.²⁵ Thus, the GasCo project is eligible to count towards Pioneer's assigned 18.5 MW of incremental system resource capacity.

The guaranteed COD is August 1, 2021, which is in advance of the 2021 procurement deadline defined in D.19-11-016.

²³ D.19-11-016 at 47.

²⁴ See *Administrative Law Judge's Ruling Finalizing Baseline for Purposes of Procurement Required by Decision 19-11-016*, filed January 3, 2020, Rulemaking 16-02-007.

²⁵ *Id.*

The GasCo project is represented in both the 46MMT and 38MMT Resource Data Templates as incremental capacity (please refer to the “Unique_Contracts” tab of Pioneer’s Resource Data Templates).

IV. Lessons Learned

Pioneer recognizes the improvements made to the data templates relative to the 2018 planning cycle, including consolidation of the new and baseline templates and enhancements to better capture the full range of resources in LSE existing and planned portfolios. Pioneer believes that additional improvements in the data templates can be made, and Pioneer looks forward to further discussions with Energy Division staff. Our experience completing the resource data template and the clean system power tools leads to the following observations and suggestions:

- The Resource Data Template “dashboard” sheet could be enhanced to auto-populate comparisons of the LSE portfolio to the Reference System Portfolio, which could then be directly used in the IRP Narrative
- The requirement to use “transfer_sale” and “transfer_purchase” for certain entries in the resource field caused a loss of information. It would be better to allow the actual resource information to be entered in the resource field and include another field to indicate if the transaction is a sale or purchase with another load serving entity.
- The resource categories in the Clean System Power tool should be consistent with those in the Resource Data Template, and ideally a summary sheet would be created in the Resource Data Template to compile the Supply data needed for the Clean System Power calculator. For example, there is no category for a hybrid resource in the Clean System Power tool and no obvious category mapping.
- The Resource Data Template should include annual CAM capacity and allow the LSE to simply enter its load ratio share to auto-populate its CAM allocations.
- Reliability metrics should be standardized and specified to the extent that the NQC dashboard presented in the RDT does not capture required reliability attributes.

The time needed to complete the templates remains a concern and we ask that Energy Division staff consider whether all requested data are necessary, or if any of the requested data can be eliminated.

The late receipt of final templates and instructions makes it extremely challenging complete the IRP and obtain Board approval before the filing deadline. There were many changes in the IRP requirements this cycle, which took considerable time to understand and get clarification where needed. Pioneer recognizes the challenge Commission staff faces in trying to refine and manage the IRP process, but more consideration must be given to the burdens this process puts on respondent load serving entities, many of which are small entities with limited staff. In this cycle, updated guidance was provided by the Commission as late as August 11th, which is

unreasonably late in the process, considering the unchanged September 1st filing deadline. The Commission should establish rules that require a minimum of four months from the time that final templates, guidance, and instructions are published and the due date for filing the IRPs.

Pioneer also found that the directions and guidance provided by the Commission and staff for this IRP cycle suffered from lack of clarity and inconsistencies in certain key respects. Again, Pioneer recognizes that the IRP process is evolving, but there is tremendous room for improvement in providing clear and consistent instructions in a timely manner.

Glossary of Terms

Alternative Portfolio: LSEs are permitted to submit “Alternative Portfolios” developed from scenarios using different assumptions from those used in the Reference System Plan. 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, formerly “Clean Net Short”) methodology: the methodology used to estimate GHG 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.

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.

Net Qualifying Capacity: 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.

Reference System Plan: the Commission's integrated resource plan that includes an optimal portfolio (Reference System Portfolio) of resources for serving load in the CAISO balancing authority area and meeting multiple state goals, including meeting GHG reduction and reliability targets at least cost.

Reference System Portfolio: the multi-LSE portfolio identified by staff for Commission review and adopted/modified by the Commission as most responsive to statutory requirements per Pub. Util. Code 454.51; part of the Reference 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).

Appendix A

Pioneer 2030 Resource Mix – 38 MMT PCP

| Resource Type | Existing Resources (Owned/Contracted) | Existing Resources (Planned Procurement) | Existing Resources (CAM) | New Resources (In Development) | Future New Resources | Total |
|---|--|---|---|---|---------------------------------|--------------|
| Nuclear | | | | | | 0 |
| CHP | | | | | | 0 |
| Natural Gas | | | | | | 0 |
| Coal | | | | | | 0 |
| Hydro (Large) | | 73 | | | | 73 |
| Hydro (Scheduled Imports) | | 31 | | | | 31 |
| Biomass | | | | | 5 | 5 |
| Geothermal | 10 | | | | | 10 |
| Hydro (Small) | | 13 | | | | 13 |
| Wind | | 14 | | | 25 | 39 |
| Out-of-State Wind on New Transmission | | | | | | 0 |
| Solar | 61 | 14 | | 34 | 60 | 169 |
| Customer Solar | | | | | | 0 |
| Battery Storage | | | | | 50 | 50 |
| Pumped (long- duration) Storage | | | | | | 0 |
| Shed Demand Response | | | | | | 0 |
| <i>Capacity-Only</i> | | | | | | |
| Natural Gas | | 201 | 29 | | | 230 |
| Battery Storage | | | | | 7 | 7 |
| Long Duration Storage | | | | | 10 | 10 |

Pioneer 2030 Resource Mix – 46 MMT PCP

| Resource Type | Existing Resources (Owned/Contracted) | Existing Resources (Planned Procurement) | Existing Resources (CAM) | New Resources (In Development) | Future New Resources | Total |
|---------------------------------------|--|---|---------------------------------|---------------------------------------|-----------------------------|--------------|
| Nuclear | | | | | | 0 |
| CHP | | | | | | 0 |
| Natural Gas | | | | | | 0 |
| Coal | | | | | | 0 |
| Hydro (Large) | | 45 | | | | 45 |
| Hydro (Scheduled Imports) | | 19 | | | | 19 |
| Biomass | | | | | 5 | 5 |
| Geothermal | 10 | | | | | 10 |
| Hydro (Small) | | 13 | | | | 13 |
| Wind | | 14 | | | 25 | 39 |
| Out-of-State Wind on New Transmission | | | | | | 0 |
| Solar | 61 | 14 | | 34 | 60 | 169 |
| Customer Solar | | | | | | 0 |
| Battery Storage | | | | | 50 | 50 |
| Pumped (long-duration) Storage | | | | | | 0 |
| Shed Demand Response | | | | | | 0 |
| <i>Capacity-Only</i> | | | | | | |
| Natural Gas | | 201 | 29 | | | 230 |
| Battery Storage | | | | | 7 | 7 |
| Long Duration Storage | | | | | 10 | 10 |