



Memorandum

TO: HONORABLE MAYOR
AND CITY COUNCIL

FROM: Lori Mitchell

SUBJECT: SEE BELOW

DATE: October 3, 2022

Approved

Date

10/13/22

SUBJECT: SAN JOSE CLEAN ENERGY 2022 INTEGRATED RESOURCE PLAN

RECOMMENDATION

Adopt a resolution:

- (a) Approving San José Clean Energy's 2022 Integrated Resource Plan compliance portfolio with carbon emissions below San José Clean Energy's proportional share of an aggregate electric sector planning target of 25 million metric tons of carbon emissions by 2035 for the submission to the California Public Utilities Commission; and
- (b) Authorizing the Director of Community Energy to use the findings from the San José Clean Energy Integrated Resource Plan modeling analysis to finalize, approve, and submit to the California Public Utilities Commission a San José Clean Energy 2022 Integrated Resource Plan that includes the energy compliance portfolio approved by City Council herein; and directing the Director of Community Energy to submit the final Plan with an information memorandum within 30 days of filing the Plan.

OUTCOME

Approving the energy compliance portfolio, with carbon emissions below San José Clean Energy's (SJCE) proportional share of an aggregate electric sector planning target of 25 million metric tons of carbon emissions by 2035, will allow SJCE to adopt an Integrated Resource Plan (IRP) that will perform better than the State requirements.

Authorizing the Director of Community Energy to finalize, approve, and submit the SJCE 2022 IRP with the above energy compliance portfolio to the California Public Utilities Commission (CPUC) will meet one of the main requirements for compliance with the California 2022 IRP obligations and help guide future procurement.

EXECUTIVE SUMMARY

SJCE recommends approval of a portfolio to be submitted to the CPUC as part of the SJCE 2022 IRP that performs better than the CPUC requirements, resulting in carbon emissions that are below SJCE's proportional share of an aggregate electric sector planning target of 25 million metric tons (MMT) of carbon emissions by 2035. SJCE also modeled a portfolio that achieves San José's goal of being carbon neutral by 2030. SJCE recommends using this carbon neutral portfolio to inform SJCE's ongoing resource procurement.

Consistent with State law, every two years, SJCE must update its long-term plan to purchase and supply reliable, affordable, and low-carbon electricity to meet customer demand in the form of an IRP.¹ The IRP process is administered by the CPUC and requires all load serving entities (LSE) to model both supply side and demand side energy resources to develop an energy resource portfolio. This portfolio is considered in aggregate with other LSE resource portfolios to meet CPUC established reliability and carbon emission thresholds for the electric sector. This IRP cycle, the CPUC required its jurisdictional LSEs, which include community choice aggregators (CCA) such as SJCE, to file an individual 2022 IRP and resource portfolio on November 1, 2022.²

CPUC adopts carbon emission reduction planning targets for the electric sector to meet statutory goals and requires LSEs to demonstrate how their planned portfolios will meet their share of those targets.³ For the 2022 IRP planning cycle, LSEs must develop at least:

1. One portfolio that achieves or goes below the LSE's proportional share of California electric sector carbon emissions assuming the total electric sector will reduce emissions to 38 MMT in 2030 and 30 MMT in 2035 (referred to as a 30 MMT preferred conforming portfolio).
2. A second portfolio that achieves or goes below the LSE's proportional share of California electric sector carbon emissions assuming the total electric sector will reduce emissions to 30 MMT in 2030 and 25 MMT in 2035 (referred to as a 25 MMT preferred conforming portfolio).

CPUC guidance states that if the LSE intends to present a portfolio that goes below its proportional share of both the 30 MMT target and the 25 MMT emission targets, then that LSE will only be required to submit one Preferred Conforming Portfolio as part of its individual IRP filing. SJCE recommends filing one Preferred Conforming Portfolio that achieves slightly lower

¹ Senate Bill 350 (2015) required all LSEs, which comprise of CCAs, investor-owned utilities, and energy service providers, to prepare and file an IRP for review by the CPUC (Public Utilities Code Section 454.52)

² CPUC Decision D.18-02-018 established the IRP filing deadline as May 1 of each even-numbered calendar year. CPUC Decision D.22-02-004 set the individual LSE IRP filing date as November 1, 2022 for this cycle.

³ CPUC "Ruling Finalizing Load Forecasts and Greenhouse Gas Emission Benchmarks for 2022 Integrated Resource Plan Filings." Available at:

<https://docs.cpuc.ca.gov/PublishedDocs/Efile/G000/M485/K625/485625915.PDF>

emissions than SJCE's proportional share of the second scenario (25 MMT preferred conforming portfolio).

SJCE developed two energy resource portfolios as part of its modeling:

1. A portfolio that emits below SJCE's proportional share of the 30 MMT carbon emission target by 2030 and a 25 MMT carbon emission by 2035 target. For ease of reference, this portfolio will be referred to as the CPUC Compliant Portfolio.
2. A portfolio that emits below SJCE's proportional share of a 25 MMT carbon emission target by 2035 and aligns with the City's pledge to achieve overall carbon neutrality by 2030. For ease of reference, this portfolio will be referred to as the City Carbon Neutral Portfolio.

The SJCE 2022 IRP portfolio modeling and analysis highlighted several key findings:

1. Both portfolios require substantial investments in new renewable energy projects, primarily wind and solar plus storage.
2. A portfolio that balances wind and solar plus storage can provide system reliability and carbon-free energy in the evening when solar generation does not deliver power and the electricity grid is typically powered with a higher amount of fossil fuel fired generation.
3. Procurement of storage, either stand-alone or paired with gas, is a cost-effective way to meet SJCE low carbon reliability needs and help meet California system reliability as the share of intermittent renewables on the grid continues to grow.
4. Some hybrid natural gas paired with batteries is needed to cost-effectively maintain reliability to allow SJCE to meet its Resource Adequacy requirements, particularly with the transition to a requirement for each hour of the day. CPUC recently adopted a 24-hour slice approach. This approach requires SJCE to show it can meet SJCE's large weather-driven afternoon and evening demand on hot days.
5. The cost of the less aggressive CPUC Compliant Portfolio and the City Carbon Neutral Portfolio does not differ significantly on an annual basis.

SJCE IRP modeling shows that the most cost-effective emission reduction strategy is to procure wind generation, solar paired with storage, and stand-alone storage capable of using excess solar in the middle of the day to cover evening power demand and reduce potential curtailment if solar exceeds load in the middle of the day. Adding large amounts of wind provides portfolio diversity and clean energy deliveries during non-solar hours. This diversity reduces SJCE's risk of higher energy costs in non-solar producing hours.

SJCE has already made significant progress towards meeting State and City of San José emission reduction goals by contracting for nearly 500 megawatts (MW) of long-term renewables and storage. This is enough energy to power over 300,000 San José homes per year. However, to meet the increasingly aggressive State decarbonization targets, all LSEs including SJCE must significantly increase their rate of clean energy procurement over the next two decades. Staff is in negotiations to add new, zero-emission energy resources to comply with the 2021 CPUC Mid-Term Reliability procurement order requiring additional statewide low carbon capacity

additions.⁴ The CPUC procurement order has largely defined SJCE's build-out until 2025, including the development of long-duration storage and geothermal resources to ensure grid reliability. Both of the 2022 IRP portfolios indicate SJCE should procure additional grid-charged storage, solar paired with storage, and wind resources to meet demand, reliability, and carbon emission reduction goals by 2035.

The 2022 IRP modeling scenarios include consideration of existing renewable projects SJCE already has under contract, resources SJCE needs to comply with CPUC Mid-Term Reliability procurement requirements, and new generation projects that are needed to reduce carbon emissions below the CPUC 25 MMT electric sector carbon emission target by 2035. These resources are also needed to help meet the City of San José's pledge to be carbon neutral by 2030. Two of SJCE's existing renewable projects are built and delivering power to customers.

The Mid-Term Reliability order requires SJCE to add certain resources between 2023 and 2026, and the IRP modeling identified that the most cost-effective approach to meet this requirement would be to add:

- 140 MW of solar paired with 70 MW of four-hour energy storage
- 130 MW of stand-alone four-hour energy storage
- 22 MW of eight-hour (long-duration) energy storage
- 23 MW geothermal

To meet a State carbon emission reduction target of 30 MMT in 2030 and 25 MMT in 2035, the CPUC Compliant Portfolio modeling results show SJCE should add, in addition to the Mid-Term Reliability resources listed above, the following renewable and natural gas resources to its energy resource portfolio between 2025 and 2035:

- 180 MW of in-state or out-of-state wind
- 15 MW of offshore wind
- 104 MW of solar paired with 52 MW of four-hour energy storage
- 420 MW of four-hour energy storage
- 36 MW of geothermal
- 200 MW of natural gas paired with eight MW of batteries

To achieve San José's goal of becoming carbon neutral in 2030, the City Carbon Neutral Portfolio would increase the solar paired with storage, wind, and geothermal resource amounts such that in addition to the amounts required to meet the Mid-Term Reliability order, SJCE would have to procure between 2025 and 2035:

- 300 MW of in-state or out-of-state wind
- 25 MW of offshore wind
- 202 MW of solar paired with 101 MW of four-hour energy storage
- 420 MW of 4-hour energy storage
- 60 MW geothermal

⁴ In Decision 21-06-035 the CPUC ordered LSEs to procure 11,500 MW net qualifying capacity of new zero emitting resources in the 2023-2026 timeframe. SJCE is required to procure 248 MW of new resources. D. 21-06-035

- 200 MW of natural gas paired with eight MW of batteries

Current and ongoing market challenges may impact SJCE's ability to procure sufficient resources to meet these aggressive goals over this accelerated time frame. For example, ongoing supply chain issues from the Covid-19 pandemic continue to impact solar and storage project development, causing both project delays and increases in cost. In particular, the cost of components to build storage resources has risen considerably and interconnection issues continue to delay in-service dates.

Similarly, the development of wind resources is challenging due to the escalating cost of raw materials and limited opportunities for additional wind in California. While there is significant potential for new out-of-state wind development, transmission constraints may limit the ability to import wind into California. In addition, out-of-state wind development is currently concentrated to a limited number of firms. SJCE must make sure it does not have a large proportion of its long-term contracts with a few suppliers. Therefore, SJCE's ability to pursue some of these projects may be limited. SJCE will work with other stakeholders and policy makers to seek solutions to these market challenges.

BACKGROUND

The CPUC Decisions (D.) 18-02-018 and D. 22-02-004 require all LSEs, including investor-owned utilities, CCAs, and electric service providers, to submit an IRP with that agency every two years.⁵ The 2022 IRP filings are due on November 1, 2022.

On June 26, 2018, City Council approved the criteria for SJCE's 2018 IRP and directed SJCE to present an IRP to City Council for approval in March of every second year. On April 7, 2020, City Council amended Subsection B of Resolution No. 78711 to remove the March deadline and instead require approval prior to submitting the IRP to the CPUC, allowing SJCE to align its IRP analysis and recommendations with the CPUC IRP requirements and schedule.

SJCE filed its 2020 IRP on September 1, 2020, which included two required portfolios; one to meet its proportional share of a 46 MMT by 2030 target and one portfolio to meet its proportional share of a 38 MMT by 2030 target. SJCE selected the 38 MMT by 2030 portfolio to be its preferred portfolio. SJCE indicated to City Council that it would also use a 30 MMT by 2030 resource portfolio to further guide procurement.

After the August 2020 California Independent System Operator (CAISO) rotating power outages, the Newsom Administration directed California energy regulatory agencies, including the CPUC, to take policy actions to prevent energy supply gaps in the summer of 2021 and

⁵ D. 18-02-018 Decision Setting Requirements for Load Serving Entities Filing Integrated Resource Plans.

D. 19-11-016 Decision Requiring Electric System Reliability Procurement For 2021-2023.

D. 22-02-004. Retrieved from CPUC website:

<https://docs.cpuc.ca.gov/PublishedDocs/Published/G000/M451/K412/451412947.PDF>

beyond. In response to this mandate, in June of 2021, CPUC ordered all LSEs to procure a combined total of 11,500 MW of new resources during the 2023-2026 timeframe to address midterm reliability needs. This order is referred to as the Mid-Term Reliability procurement order. CPUC ordered SJCE to procure a total of 248 MW of new resources during this timeframe, the majority of which will be zero-emission energy and storage resources. These resources will count toward the SJCE 2022 IRP portfolio requirement and help SJCE meet the City's carbon-neutral goals.

In 2022, CPUC prepared a Preferred System Portfolio to guide individual LSE IRP development along with documentation providing further instructions that prescribe how LSEs should prepare and file their 2022 IRPs with the CPUC.⁶

As part of its IRP guidance, CPUC adopted carbon emission reduction planning targets for the electric sector to meet State climate goals and required LSEs to demonstrate how their planned portfolios will meet their share of those targets. The IRP carbon emission planning targets align with incremental progress towards an ultimate zero-carbon goal for the electric sector in 2045, as established in Senate Bill 100 (Stats. 2018, Ch. 213).⁷

For the 2022 IRP planning cycle, LSEs were asked to develop at least:

1. One portfolio that achieves or goes below the LSE's proportional share of California electric sector carbon emissions assuming the total electric sector will reduce emissions to 38 MMT in 2030 and 30 MMT in 2035 (referred to as a 30 MMT preferred conforming portfolio)
2. A second portfolio that achieves or goes below the LSE's proportional share of California electric sector carbon emissions assuming the total electric sector will reduce emissions to 30 MMT in 2030 and 25 MMT in 2035 (referred to as a 25 MMT preferred conforming portfolio).

The guidance also notes that "if the LSE intends to present a portfolio that goes below its proportional share of both the 30 MMT target and the 25 MMT emission targets, then that LSE will only be required to submit one 'Preferred Conforming Portfolio' as part of its individual IRP filing."⁸

⁶ D. 22-02-044 Adopting 2021 Preferred System Portfolio. Available at:

<https://docs.cpuc.ca.gov/PublishedDocs/Published/G000/M451/K412/451412947.PDF>

⁷[https://www.energy.ca.gov/sb100#:~:text=Senate%20Bill%20\(SB\)%20100%20established.end%2Duse%20customers%20by%202045](https://www.energy.ca.gov/sb100#:~:text=Senate%20Bill%20(SB)%20100%20established.end%2Duse%20customers%20by%202045)

⁸ Instructions provided on p. 4 of the 2022 Standard LSE Plan Narrative Template. Available at:

<https://www.cpuc.ca.gov/-/media/cpuc-website/divisions/energy-division/documents/integrated-resource-plan-and-long-term-procurement-plan-irp-ltpp/2022-irp-cycle-events-and-materials/narrative-template.docx>

ANALYSIS

California IRP Framework

California State law requires all LSEs, (CCAs, investor-owned utilities, and electric service providers) to prepare and submit an IRP to the CPUC every two years.⁹ Publicly owned utilities are exempt from this CPUC requirement and instead file their IRP equivalent with the California Energy Commission. CPUC's IRP proceeding is intended to consider all of CPUC's electric procurement policies and programs, and ensure California has a safe, reliable, low-carbon, and cost-effective electricity supply.¹⁰ The proceeding is intended to ensure CPUC jurisdictional LSEs meet certain targets that enable the overall electric sector to contribute to California's economy-wide greenhouse gas emissions reduction goals.

CPUC increased the LSE planning horizon from a 10-year to a 12-year look ahead at system needs in individual IRPs. Planning considerations include the reliability of the overall electric system and identification of specific areas with transmission limitations and added flexibility needs to best integrate renewable generation.¹¹ In the 2022 IRP process, CPUC requires LSEs to present their supply plans through 2035 and to demonstrate they meet their proportionate share of carbon emissions to achieve state-wide electric sector carbon emission reduction targets.¹² To achieve compliance, CPUC requires LSEs to complete and submit three documents: the IRP Narrative Template, the Resource Data Template, and the Clean System Power Calculator.¹³ A detailed description of the compliance documents is provided in the Attachment.

CPUC IRP Assessment Process

LSEs can present either the 30 MMT by 2035 or the 25 MMT by 2035 carbon emission portfolio as their Preferred IRP Plan; that is, the plan they intend to implement to comply with CPUC IRP requirements. If an LSE submits a Preferred Plan that achieves carbon emissions lower than the 25 MMT case, the LSE must explain how it will ensure reliability given the larger proportion of intermittent renewables, and hence the need for more flexible, dispatchable resources.

CPUC will review the IRPs submitted by all LSEs according to required criteria, conduct modeling to aggregate all the IRPs, and evaluate LSE achievement of applicable carbon reduction requirements at a statewide system level, Renewable Portfolio Standard requirements, and reliability requirements. CPUC may use the IRP process to provide further LSE policy

⁹ [Senate Bill \(SB\) 350](#). Public Utilities Code Sections 454.51 and 454.52.

¹⁰ CPUC IRP Webpage. Available at: <https://www.cpuc.ca.gov/irp/>

¹¹ D. 18-02-018 p. 3. D. 22-02-004. Available at:

<https://docs.cpuc.ca.gov/PublishedDocs/Published/G000/M451/K412/451412947.PDF>

¹² CPUC Ruling Finalizing Load Forecasts and GHG Benchmarks" provided each LSE an emissions benchmark for 2030 and 2035 to meet State greenhouse gas emission planning targets.

Available at: <https://docs.cpuc.ca.gov/PublishedDocs/Efile/G000/M485/K625/485625915.PDF>

¹³ IRP documentation available at: <https://www.cpuc.ca.gov/industries-and-topics/electrical-energy/electric-power-procurement/long-term-procurement-planning/2022-irp-cycle-events-and-materials>

guidance and potentially require additional LSE resource procurement if the CPUC finds that the combined LSE IRP plans are insufficient to meet California's long-term reliability requirements.

SJCE IRP Methodology

LSEs may use their own methodology and modeling tools to develop 2022 IRP portfolios, but the CPUC requires all LSEs to use prescribed modeling input assumptions to develop compliant 2022 IRP portfolios. These include LSE load forecasts, energy resource prices, and carbon emission benchmarks. CPUC required all LSEs to adopt the California Energy Commission Integrated Energy Resource Policy Report load forecast for the 2022 IRP which reflects a statewide average of expected electrification load growth based on a mid-demand, high transportation electrification scenario.¹⁴

SJCE utilizes the CPUC modeling assumptions as well as incorporated modeling objectives and assumptions into its modeling methodology.¹⁵

SJCE modeling objectives:

- Model a compliant portfolio that complies with State requirements for renewable energy and carbon emissions.
- Model a portfolio that meets City of San José carbon neutral by 2030 objectives to power the community with 100 percent carbon neutral electricity.¹⁶
- Consider the adopted 2020 IRP Criteria in developing the modeling; model a portfolio that achieves the goal of being carbon neutral by 2030 (SJCE will evaluate the need for future updates to the 2020 IRP criteria once the City finalizes a plan to meet the carbon-neutral by 2030 goal).
- Incorporate and account for the impact of Mid-Term Reliability procurement in IRP portfolio planning.

Additional modeling assumptions:

- Consider a feasible pace of adding renewable capacity to the portfolio. For example, SJCE assumed it would not be feasible to add resources beyond those already required by the Mid-Term Reliability procurement order in 2022-2024 timeframe since most projects capable of achieving commercial operation in this time frame are already contracted.
- Select a renewable resource mix, including a balance of wind and solar, to meet Renewable Portfolio Standard deliveries throughout the year to provide more stable energy supply.

¹⁴ As directed in the "ALJ Ruling Finalizing Load Forecasts and Greenhouse Gas Emission Benchmarks for 2022 Integrated Resource Plan Filings", LSEs are to use the CEC's 2021 IEPR forecast (Mid Baseline – [Additional Achievable Energy Efficiency] AAEE Scenario 3, [Additional Achievable Fuel Substitution] AAFS Scenario 3), adopted on January 26, 2022. Ruling available at:

<https://docs.cpuc.ca.gov/PublishedDocs/Efile/G000/M485/K625/485625915.PDF>

¹⁵ See Attachment for IRP assumptions.

¹⁶ Climate Smart: Pathway to Carbon Neutrality by 2030. Available at:

<https://www.sanjoseca.gov/home/showpublisheddocument/87955/637939063485330000>

- Assume a smaller share of hydroelectric resources are available to meet zero emission goals as these resources are becoming less available due to the drought and the Pacific Northwest is retaining these resources due to their own carbon reduction goals.

Consistent with CPUC requirements, SJCE prepared an IRP portfolio to achieve SJCE’s proportional share of the CPUC’s lowest emission planning target: 30 MMT carbon emissions by 2030 and 25 MMT carbon emissions by 2035. In addition, SJCE prepared an IRP portfolio to achieve the City’s goal of being carbon neutral by 2030.

The analysis made use of a capacity expansion model to create two SJCE IRP portfolios that optimize the buildout of resources over time to minimize costs while meeting reliability and emissions benchmarks. The analysis used a stochastic model, running hundreds of iterations to optimize the portfolio of resources needed. The portfolio emissions were calculated using the emissions assumptions prescribed by the CPUC-required Clean System Power calculator. The Clean System Power calculator calculates a carbon emission factor that results from a LSE’s total annual power resources.

Modeling Results

Table 1 shows the cumulative capacity buildout for both SJCE’s modeled resource portfolios. The second column represents the expected resources needed to meet the 2021 CPUC Mid-Term Reliability requirements and are required resource additions in both portfolios. The 25 MMT CPUC Compliant Portfolio column defines the additional resources that are needed to achieve the 25 MMT carbon emission target. The City Carbon Neutral Portfolio column defines the additional resources that are needed to achieve the City’s carbon neutrality goals. The model results show the primary strategy to reduce SJCE’s contribution to California electric sector emissions is to add significantly more wind, solar, and storage resources to the SJCE portfolio.

Table 1: 2022 SJCE IRP Model Results

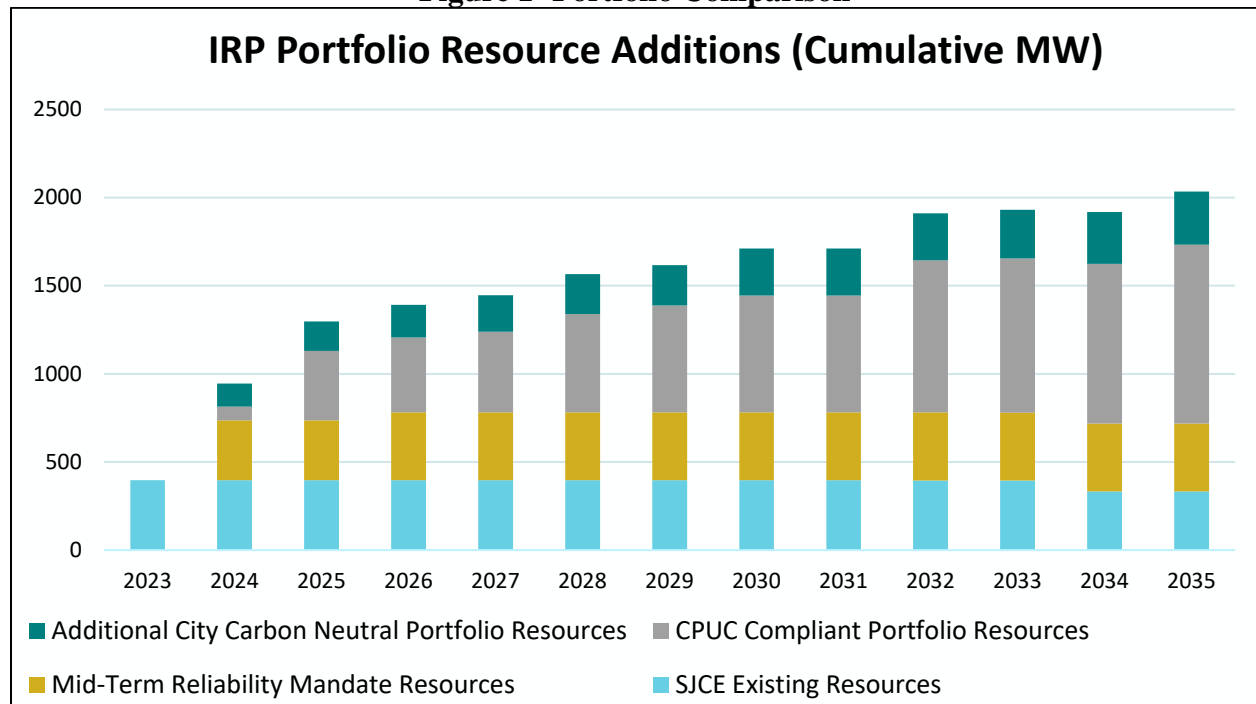
2022 IRP Planned New Resource Additions by 2035			
Resource	Mid-Term Reliability procurement (2023 -2026)	25 MMT CPUC Compliant Portfolio	City Carbon Neutral Portfolio
Solar + storage	140 MW + 70 MW	104 MW+ 52 MW	202 MW+ 101 MW
Stand-alone Storage (4hr)	130 MW	420 MW	420 MW
Stand-alone Long Duration Storage (8hr)	22 MW	-	-
Wind	-	180 MW	300 MW
Offshore Wind	-	15 MW	25 MW
Geothermal	23 MW	36 MW	60 MW
Dispatchable Natural Gas plus storage	-	208 MW	208 MW

The model results show adding storage to a portfolio of intermittent renewable resources like solar and wind helps ensure renewable, carbon-free energy is delivered during the hours needed to meet evening customer demand. As the grid transitions to more renewable resources, stand-alone storage also will provide cleaner energy and reliability by charging during times of day with high renewable load and discharging when the grid is constrained. In addition, the model results show that some natural gas paired with batteries is needed to cost-effectively maintain reliability to allow SJCE to meet its Resource Adequacy requirements. Natural gas is particularly important given the transition to a requirement to secure capacity for each hour of the day (the 24-hour slice approach recently adopted by the CPUC) and will help SJCE meet large weather-driven afternoon demand on hot days. Depending on the size of the battery, the addition of storage to a natural gas plant has the potential to reduce local and statewide emissions by reducing the amount of time the gas unit must run.

SJCE also conducted a sensitivity analysis on the two 2022 IRP portfolios to assess the appropriate balance of wind and solar resources considering the challenges related to obtaining these resources. This sensitivity analysis indicates that more wind in the portfolio can reduce risks of high costs in evening hours. While SJCE will seek to procure the resources in its preferred portfolio, the sensitivity analysis provides additional information to guide SJCE as it undertakes its procurement. Ultimately, the exact proportion of wind and solar will depend on specific bids and opportunities from SJCE procurement activities.

The following three charts offer a graphic representation of the two portfolios' resource mix and build out the IRP planning horizon. Figure 1 compares the long-term resource additions needed to meet the two modeled portfolios. Existing contracts and expected Mid-Term Reliability procurement order contracts are shown alongside the resource additions.

Figure 1- Portfolio Comparison



Figures 2 and 3 show the cumulative nameplate capacity of existing and new resource buildout by resource type for each portfolio. These charts show the cumulative long-term resource mix of each portfolio, including contracted and planned resources to be procured by SJCE.

Figure 2 – CPUC Compliant Portfolio Cumulative Nameplate Capacity

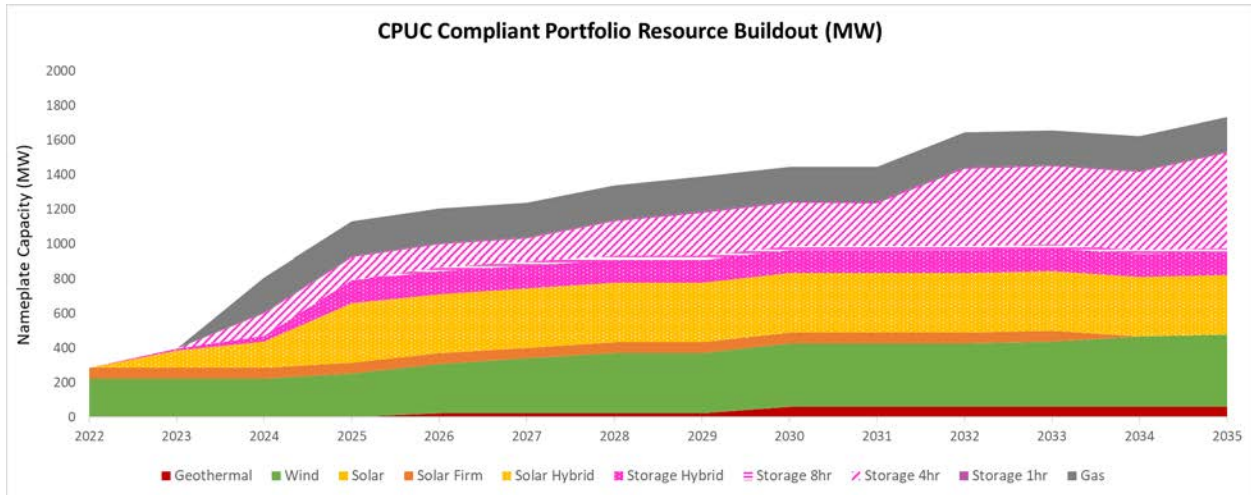
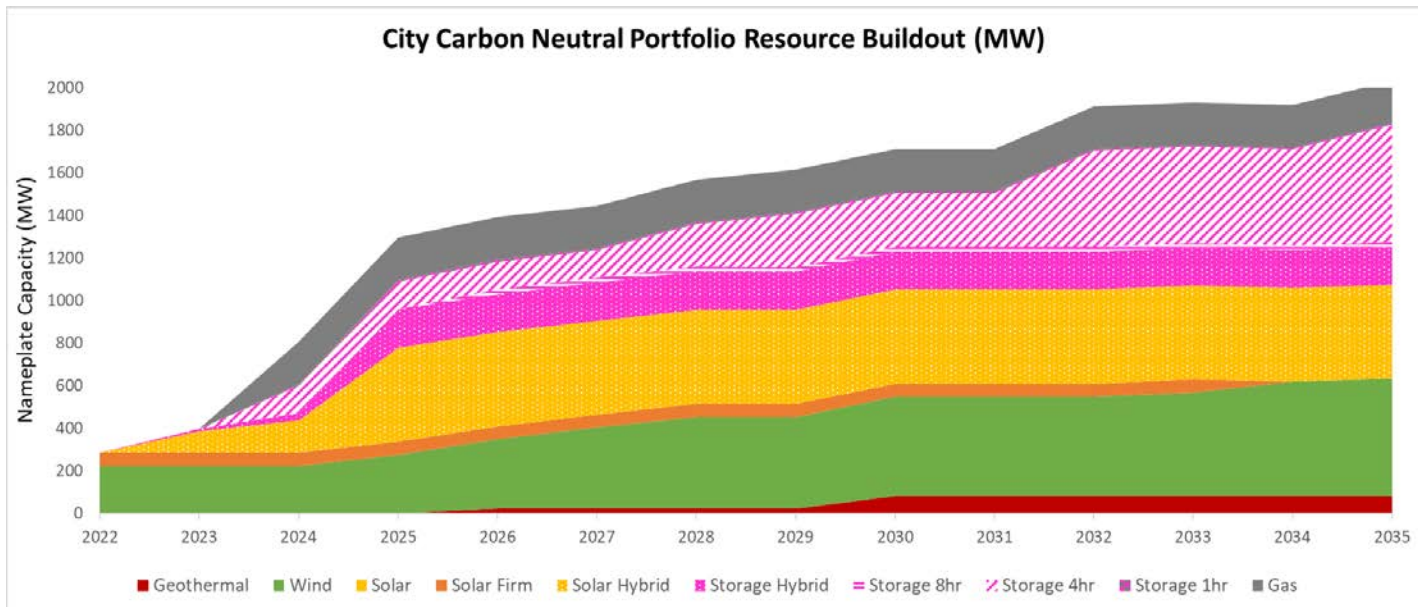


Figure 3- City Carbon Neutral Portfolio Cumulative Nameplate Capacity

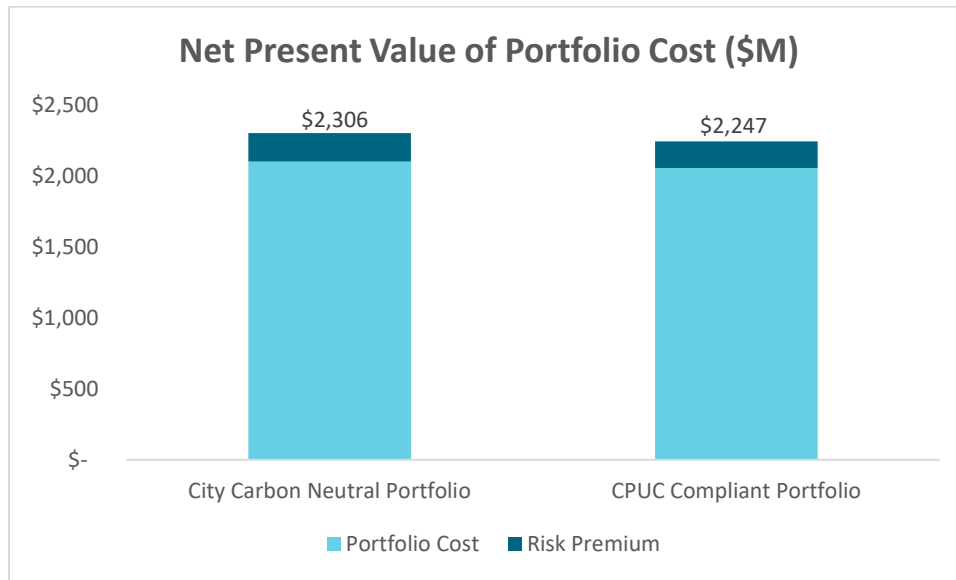


Estimated Portfolio Costs

Using a net present value over the 12 compliance years (2024 – 2035), the CPUC Compliant Portfolio is slightly less costly than the City Carbon Neutral Portfolio (Figure 4). This is an expected outcome given the more aggressive build out targets for the City Carbon Neutral Portfolio. However, the additional cost of the City Carbon Neutral Portfolio is moderate, approximately three percent higher in total. Both the City Carbon Neutral Portfolio and CPUC

Compliant portfolio have similar “cost at risk” premiums, which indicate how much the portfolio is exposed to additional costs from market prices.

Figure 4 - Portfolio Cost Comparison



Changes from 2020 SJCE IRP

Many of SJCE’s IRP planning assumptions have changed in the last two years because of market and regulatory changes. CPUC made changes to modeling assumptions and the capacity value of resources for system reliability. In addition, it required massive LSE procurement as part of the Mid-Term Reliability procurement order with specific requirements in years 2023-2026. Market changes include increasing energy prices due to natural gas disruptions, supply chain constraints, power plant interconnection delays, and limited hydroelectric resource availability due to persistent Western Region drought and the Pacific Northwest retaining these resources to meet their own carbon reduction targets.

SJCE’s 2022 IRP portfolios reflect some of these changes in regulatory, environmental, and market conditions, including a near-term focus on certain types of resources to meet reliability challenges. The 2022 IRP portfolios include more wind and solar resource additions in part because of changes in their contribution to grid reliability. The 2022 modeled portfolios also select a higher ratio of wind to solar as compared to the 2020 IRP, in part to provide more carbon-free energy during peak and net peak demand and overnight periods.

Recommended 2022 SJCE IRP Portfolios

SJCE proposes to submit the CPUC Compliant portfolio as SJCE’s Preferred Conforming Portfolio to the CPUC. SJCE recommends using the more aggressive City Carbon Neutral portfolio as the Community Energy Department’s procurement guide to meet the City of San José’s accelerated carbon emission reduction goals to reach carbon neutrality by 2030.

SJCE has made significant progress in adding long-term renewable resources to the portfolio in its first three years of operation from 2019 to 2022. SJCE has contracted with nearly 500 MW of new renewable resources and storage, which is enough energy to power over 300,000 San José homes per year. SJCE's 2022 IRP portfolios are designed to meet the additional reliable, carbon-free procurement necessary to comply with near and mid-term CPUC procurement orders balanced against a measured approach to resource procurement to take advantage of market and technology changes. Nonetheless, the IRP modeling demonstrates that going forward to achieve the City's goals for carbon neutrality by 2030, SJCE will have to significantly increase the pace of renewable resource procurement over the next ten years.

Market Challenges

Current and ongoing market challenges may impact SJCE's ability to procure sufficient resources to meet its aggressive goals. For example, ongoing supply chain issues from the pandemic continue to impact solar and storage project development, causing both project delays and increases in cost. Further, interconnection challenges continue to result in in-service date delays. Similarly, the development of wind resources is challenging due to the escalating cost of raw materials and limited opportunities for additional wind in California. There is significant potential for new out-of-state wind development, but transmission constraints may limit California's ability to import significant resources. In addition, out-of-state wind development is currently being undertaken by a limited number of firms. SJCE must make sure it does not have a large proportion of its long-term contracts with a few suppliers. Therefore, SJCE may be limited in its ability to pursue some of these projects. SJCE will work with other stakeholders and policymakers to seek solutions to these market challenges.

2022 SJCE IRP Impacts on Disadvantaged Communities

SJCE continues to believe that the most important and influential strategy to benefit San José's disadvantaged communities is by keeping the cost of electricity affordable and by providing rate discounts and programs to SJCE's lowest income customers. SJCE's procurement is guided by this objective, taking into account that disadvantaged communities are most directly affected by the environmental impacts of pollution and climate change.

There are now eight census tracts in San José that meet the definition of a disadvantaged community, scoring within the top 25 percent of communities with the highest pollution burden using the CalEnviroScreen 4.0 tool.¹⁷ Those eight tracts have a customer count of 38,798, which represents 11 percent of the approximately 350,000 accounts that SJCE currently serves. An additional 53 census tracts in San José are designated as low-income.¹⁸

¹⁷ Disadvantaged communities in California are specifically targeted for investment of proceeds from the State's Cap-and-Trade Program. These investments are aimed at improving public health, quality of life and economic opportunity in California's most burdened communities, and at the same time, reducing pollution that causes climate change. <https://oehha.ca.gov/calenviroscreen/sb535>

¹⁸ Assembly Bill 1550 passed on August 31, 2016 which amended California Health and Safety Code section 3971314 designates

Customers enrolled in State electricity discount programs – California Alternate Rates for Energy (CARE) or Family Electric Rate Assistance (FERA) – receive an extra five percent off generation rates through SJCE’s SJ Cares program.¹⁹ This means CARE and FERA customers with SJCE pay the lowest electricity rates in San José. In addition, over 800 CARE and FERA customers living in disadvantaged communities are enrolled in SJCE’s Solar Access program²⁰ where they receive 100 percent solar energy at a 20 percent discount.

In addition to keeping the cost of energy affordable for its customers, SJCE considers the environmental impact of its long-term forward procurement on affected communities. SJCE has worked with Peninsula Clean Energy and the Nature Conservancy to better assess the environmental and ecological impacts of projects bid into solicitations. SJCE’s 2022 IRP portfolios transition toward a low-carbon portfolio by adding hundreds of MWs of renewable energy generation and storage. During this transition and build out, SJCE plans to procure some existing natural gas-fired generation coupled with new energy storage and clean fuels to stabilize costs and meet reliability needs. Lower, stabilized costs and reduced local and systemwide emissions provide a direct benefit for disadvantaged communities as SJCE and the State accelerate the transition to renewably powered and carbon-free electric generation.

CONCLUSION

SJCE seeks authority to submit the 2022 SJCE IRP to the CPUC which will consist of one portfolio that achieves emissions that are less than SJCE’s proportional share of both a 30 MMT carbon emission target and the 25 MMT emission target.

EVALUATION AND FOLLOW-UP

Staff will finalize and file the 2022 SJCE IRP with the CPUC consistent with the input of City Council. Staff will submit the final 2022 SJCE IRP to City Council in an informational memorandum within 30 days of filing the 2022 SJCE IRP plan with the CPUC as expected on November 1, 2022.

CLIMATE SMART SAN JOSÉ

The recommendations in this memorandum are consistent with one or more Climate Smart San José energy, water, or mobility goals.

¹⁹ <https://sanjosecleanenergy.org/sj-cares/>

²⁰ <https://sanjosecleanenergy.org/solar-access/>

PUBLIC OUTREACH

SJCE has collaborated with other CCAs to update California environmental advocates on IRP progress through bi-weekly conference calls between CCAs and the environmental community.

This memorandum will be posted on the City's website for the October 25, 2022 City Council meeting.

COORDINATION

This memorandum has been coordinated with the City Attorney's Office and the City Manager's Budget Office.

COMMISSION RECOMMENDATION/INPUT

SJCE staff presented an update on progress toward the 2022 SJCE IRP and related modeling and resource portfolio results to the Clean Energy Community Advisory Commission (Commission) on April 21, 2022.

At the September 29, 2022 Commission meeting, commissioners were presented the 2022 SJCE IRP modeling results and preferred portfolio procurement plans and gave comment on staff recommendations. Specifically, the following input was provided:

The Commission agrees with the staff recommendation to file the CPUC Compliant Portfolio that achieves slightly lower emissions than SJCE's proportional share of 25 MMT by 2035. The Commission also agrees with staff recommendation to use the more aggressive City Carbon Neutral Portfolio as a procurement guide to meet the City's goal to be carbon neutral by 2030. The Commission appreciates that SJCE staff has undertaken aggressive procurement of cost-effective long-term renewable resources from 2019-2022 and encourages staff to seek innovative solutions to overcome any current and ongoing market challenges that may impact SJCE's ability to meet the aggressive goal of carbon neutrality by 2030.

The Commission recommends that new resource procurements of 10 years or longer should be approved by City Council and public presentations to City Council should include the expected annual cost of the contract and the expected lifetime cost of the contract.

The Commission notes that commissioners reviewed staff's presentation but did not review the complete IRP. The Commission also notes that staff has indicated that the federal savings from the Inflation Reduction Act are not yet included in this plan.

HONORABLE MAYOR AND CITY COUNCIL

October 3, 2022

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FISCAL/POLICY ALIGNMENT

The recommended actions support Climate Smart San José (action 1.1 Transition to a Renewable Energy Future) and the Envision San José 2040 General Plan (Goal MS-2 and Appendix 8: GHG Reduction Strategy).

CEQA

Not a Project, File No. PP17-003, Agreements/Contracts (New or Amended) resulting in no physical changes to the environment.

The approval requested is not a “project” subject to CEQA because it involves the administrative activity of purchasing power that will result in no physical changes to the environment. Even if this approval were a “project” subject to CEQA, the approval requested would be exempt because the activity of purchasing power is purely a financial transaction, and any construction that may occur by a private party in the future in reliance on this approval would be subject to CEQA review by a governmental agency at that time when actual details of any physical proposal would be more than speculative.

/s/

LORI MITCHELL

Director, Community Energy

For questions, please contact Lori Mitchell, Director of Community Energy Department, at (408) 535-4880.

Attachment – Description of Integrated Resource Plan Templates

Attachment: Description of Integrated Resource Plan Templates

Required Integrated Resource Plan Templates

Narrative Template: This document should provide a written description of the Load Serving Entity (LSE) approach to fulfilling detailed California Public Utilities Commission (CPUC) Integrated Resource Plan (IRP) requirements, including a description of the methodological approach and analysis, results of the analysis, and plan of action.

Resource Data Template (RDT): This document is an Excel workbook used to report existing LSE energy and capacity contracts and identify the volumes of planned energy and capacity contracts that are indicated from the LSE's IRP analysis as necessary to contribute to the 30 MMT carbon emissions and 25 million metric tons (MMT) carbon emissions energy resource portfolios. The workbook also checks the system reliability of the LSE's portfolios. The CPUC uses this document to analyze and aggregate all individual LSE IRP portfolios submitted.

Clean System Power (CSP) Calculator: This document is an Excel workbook that is tied to the Resource Data Template results. The CSP is used to calculate the estimated carbon and criteria air pollutant emissions associated with the 30 MMT and 25 MMT carbon emission resource portfolios detailed in the Resource Data Template. This workbook calculates the CPUC-determined implied emission values associated with each type of energy-generating resource. The CPUC uses this document to check that each LSE meets the required carbon emission targets identified through the IRP process.

Required IRP Input Assumptions

The CPUC requires LSEs to use certain standardized inputs and assumptions each two-year planning cycle to develop a compliant IRP. The 2022 IRP required assumptions include:

LSE Load Forecast: Each LSE is required to use one of the CPUC-approved load forecast scenarios from the 2021 Integrated Energy Policy Report (IEPR) demand forecast developed by the California Energy Commission (CEC) with input from market participants. The 2021 IEPR load forecast identified expected annual retail sales for each LSE from 2021 to 2035.

Baseline Resources: These represent electric generating resources that are currently online or are contracted to come online during the IRP's planning timeframe. This list includes generating resources inside and outside California, but within the Western Electricity Coordinating Council (WECC).

Candidate resources: These represent energy resources that have not yet been built or contracted. The CPUC provides the types of future generating resources that may be included in LSE portfolios and when those resources may be counted toward IRP compliance. IRP eligible resource types include natural gas generation, nuclear, renewables (biomass, geothermal, solar photovoltaics, onshore wind, offshore wind), energy storage and demand response. Eligible resources may be in California or out of state with eligible regions tied to the existence or planned expansion of necessary transmission lines needed to deliver power to system.

Attachment: Description of Integrated Resource Plan Templates (Cont'd.)

Procurement Costs: The CPUC uses its own pro-forma financial model to create levelized fixed costs for each candidate resource type to regulate IOU procurement. These costs are then used as inputs to model to establish the least-cost portfolio. Community Choice Aggregators have their own Commission or Council approved pro-forma financial models used to regulate city energy procurement but report their procurement cost considerations and cost mitigation measures to the CPUC for informational purposes as part of their IRP filings.

Operating Costs: The CPUC inputs resource-specific operating costs as part of their pro-forma financial model used to determine compliant IRP portfolios. Components of their assumed operational costs include aggregated costs for classes of generation resources, unit commitment costs, costs associated with dispatching resources for energy or ancillary services, and transmission costs based on zones (i.e., costs to move electricity over the transmission system in WECC).

Resource Adequacy: The CPUC determines how much capacity value or Resource Adequacy (RA) value different energy resources contribute when measuring their contribution to the electric grid's local and system reliability. CPUC RA valuations apply to renewable and non-renewable energy resources and influence total LSE RA procurement amounts and compliance requirements.

Renewable Portfolio Standard and statewide carbon emission reduction goals: The 2022 IRP 30 MMT and 25 MMT carbon emission scenarios represent two different 2035 statewide electric sector carbon emission targets used by the CPUC to model least-cost energy resource portfolios. These "conforming" LSE resource portfolios are intended to ensure LSEs and California make progress towards the Senate Bill 350 (Stats. 2015, Ch. 547) law requiring 60 percent renewable portfolio target by 2030 and the Senate Bill 100 (Stats. 2018, Ch. 312) electric sector zero carbon emissions goal by 2045 target.