

2022 INTEGRATED RESOURCE PLAN

Clean Energy Community Advisory
Commission

September 29, 2022

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AGENDA

- Background
- Regulatory requirements and local policy goals
- IRP modeling and comparison of portfolios
- Summary of findings and considerations
- Recommendations
- Discussion

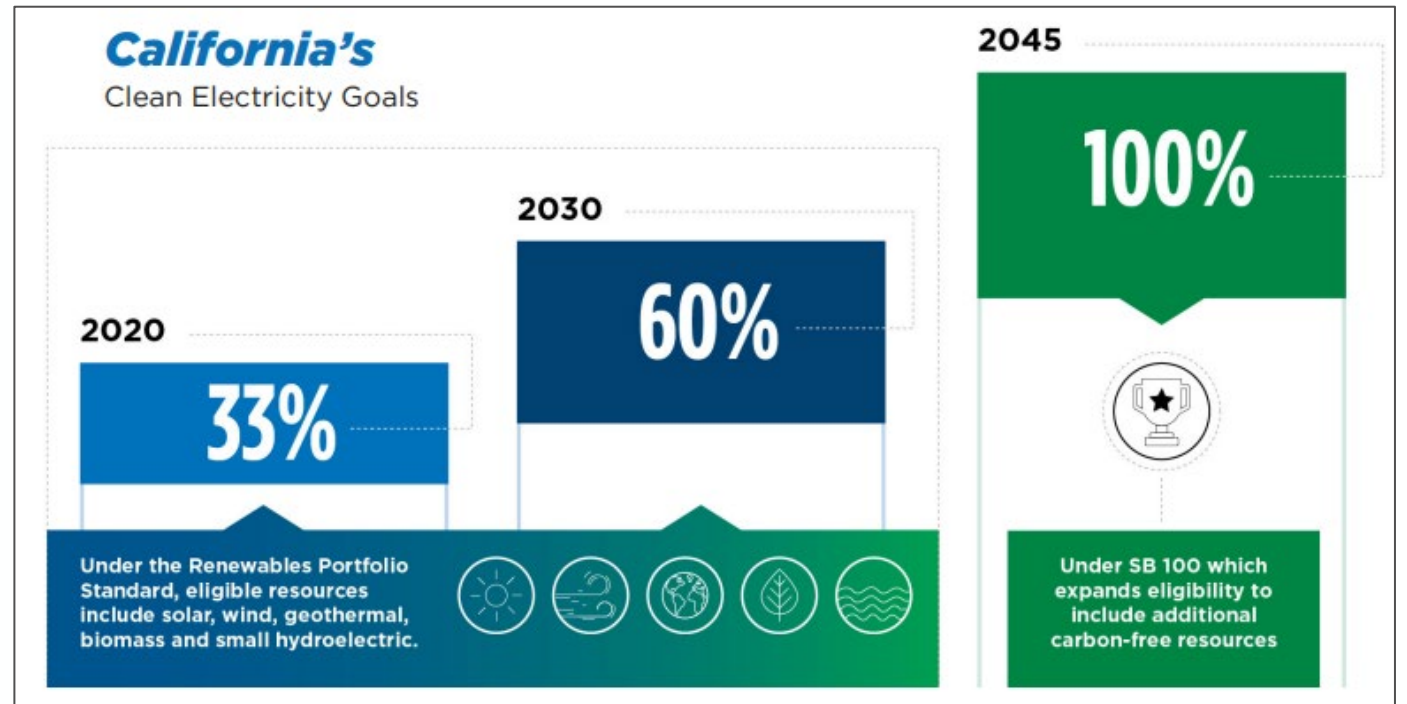
WHAT IS AN INTEGRATED RESOURCE PLAN (IRP)?

- Long-term planning tool to meet regulatory requirements
 - Can also help achieve local policy goals
- Evaluates electricity supply and demand and identifies resource options to deliver low carbon, reliable and cost-effective energy to customers
- IRP must be filed every two years with CPUC
 - Requires City Council approval



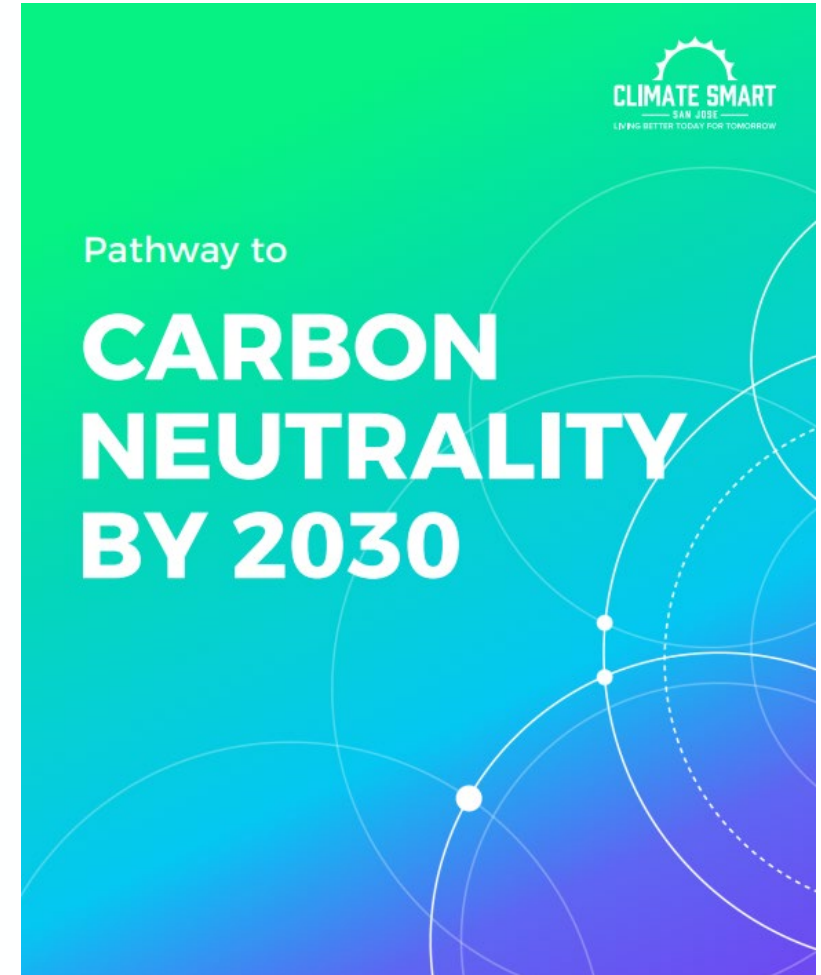
REGULATORY REQUIREMENTS

- IRPs outline how to meet
 - State emission targets
 - State Renewable Portfolio Standards
 - System reliability
- IRPs also
 - Guide statewide procurement decisions, policy making, and transmission planning



LOCAL CLEAN ENERGY POLICIES

- CCAs are locally-controlled
 - Decisions are made to benefit our community and advance access to clean energy
- IRP process helps SJCE achieve the City's clean energy goals
 - Carbon neutral by 2030
 - SJCE supplies the clean energy to support Climate Smart electrification efforts and pathway to carbon neutrality



SJCE RENEWABLE INVESTMENTS

Since 2019, SJCE has contracted for nearly 500 MW of new renewable energy and storage resources

- 62 MW solar + storage in Kern County; fixed delivery from 6 a.m.-10 p.m. every day (online)
- 225 MW wind in New Mexico (online)

★ Up to 45 MW of long-duration storage and up to 34 MW of geothermal through joint projects with other CCAs (coming soon)



2022 IRP SCHEDULE



2022 CPUC IRP REQUIREMENTS

- CPUC requires electricity suppliers to submit at least two portfolios to meet 2035 statewide carbon emission targets: 30 MMT and 25 MMT
 - SJCE is committed to meeting its proportional share of emission targets
- One portfolio can be submitted if emissions are below the 25 MMT target
- Both portfolios are below its proportional share of the 25 MMT target
 - SJCE recommends submitting one portfolio to the CPUC

2022 IRP MODELING – HOW DOES IT WORK?

- Forecasts customer demand through 2035
 - Includes rooftop solar and electric vehicle adoption
- Develops portfolios to meet renewable energy and carbon emission targets
 - Selects resources based on cost, availability, timeframe, and needs
- Co-optimizes long-term resources and short-term contracts
 - Capacity, RPS, carbon-free attributes

2022 IRP PORTFOLIOS

Three portfolios were developed:



1. CPUC Compliant Portfolio: SJCE is submitting one CPUC Compliant Portfolio to meet requirements of IRP
 - Proportional share of 30 MMT of carbon emissions by 2030 and 25 MMT by 2035
2. City Carbon Neutral Portfolio: guidance to meet City carbon neutral by 2030 goal
3. Portfolio sensitivity analysis: guidance to potentially adjust the amount of solar and storage vs wind based on economics and availability

MTR SUMMARY

CPUC ordered all large “mid-term reliability” procurement of new, zero emitting resources between 2023- 2026 for system reliability

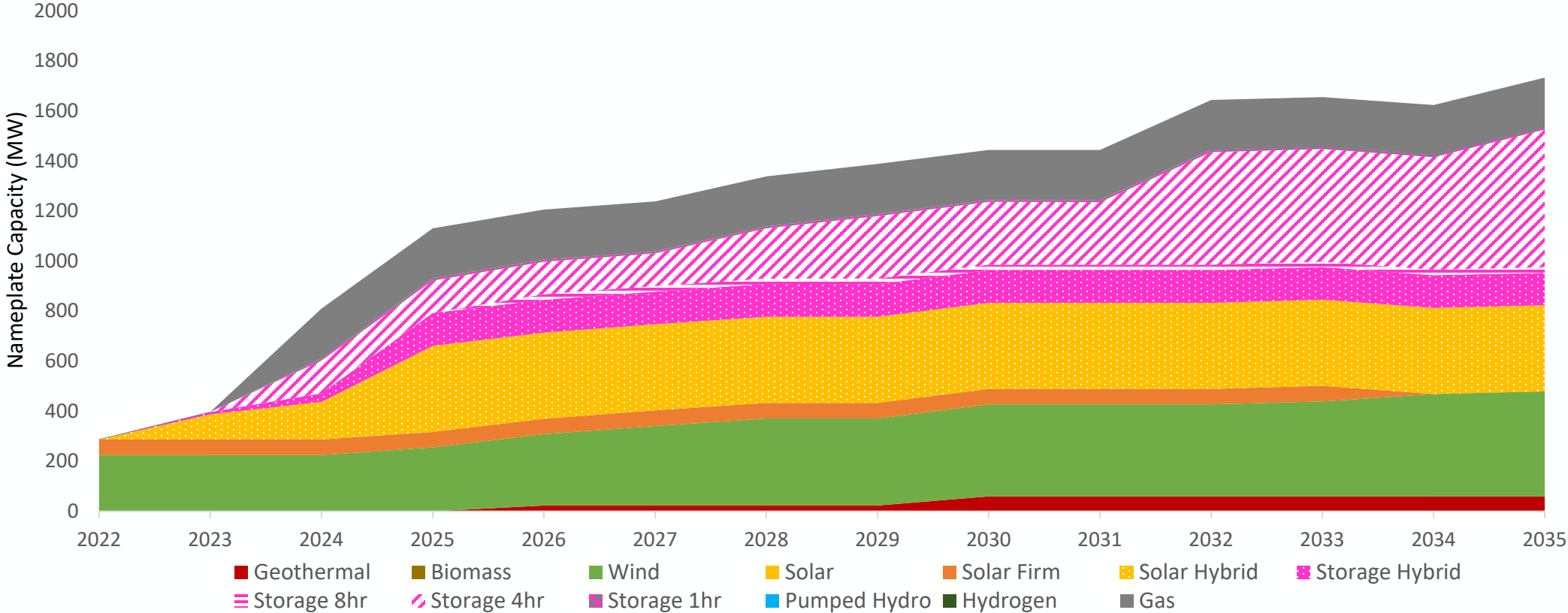
- SJCE is required to buy 247 MW of new capacity by 2026
- SJCE has already procured:
 - 22 MW of long-duration storage (LDS)
 - 23 MW of geothermal

MODELING FINDINGS

- Both portfolios require substantial new resource procurement additional to the mid-term reliability (MTR) mandate by 2035
 - 104 - 202 MW Solar
 - 427 - 521 MW Storage
 - 195 - 325 MW Wind
- In total, including the MTR, 966 – 1,288 MW of new clean resources
- City Carbon Neutral Portfolio is slightly more expensive (~3%)
 - Includes more wind

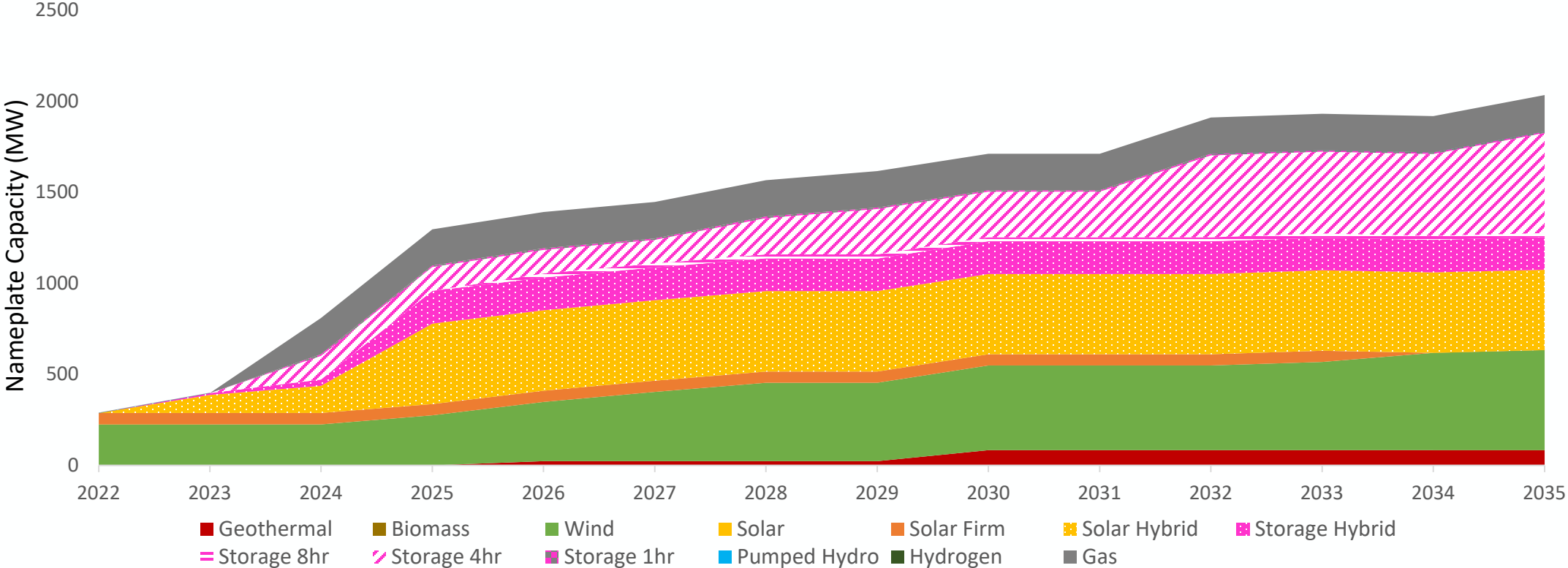
SJCE RESOURCE BUILDOUT (CUMULATIVE)

Compliant Portfolio Resources



SJCE RESOURCE BUILDOUT (CUMULATIVE)

City Carbon Neutral Portfolio Resources



IRP PORTFOLIO CONSIDERATIONS

CPUC Compliant Portfolio and City Carbon Neutral Portfolio

- Both portfolios balance a mix of wind, solar and storage

Sensitivity Analysis

- Reviewed balance of solar and storage on the one hand with wind on the other, more wind is challenging to obtain but shifts market purchases to lower cost mid-day solar hours

RELIABILITY CONSIDERATIONS

- Modeling identifies 200 MW of natural gas + 8 MW of storage to meet reliability requirements through 2035
 - These plants cost-effectively meet SJCE's reliability needs with limited operation
- Opportunities to reduce portfolio emissions from natural gas
 - Pair with storage to meet load peaks
 - Retrofit to burn green hydrogen
 - Consider carbon offsets for additional benefit

2022 IRP RECOMMENDATIONS

1. Submit the ***CPUC Compliant Portfolio*** to the CPUC
2. Use ***City Carbon Neutral Portfolio*** as a guide to meet City's carbon neutral by 2030 goal
3. Continue to work with other City departments to achieve Climate Smart goals and pathway to carbon neutrality by 2030

DRAFT CECAC RECOMMENDATION FOR DISCUSSION

1. CECAC agrees with staff recommendation to file the CPUC Compliant Portfolio that achieves slightly lower emissions than SJCE's proportional share of 25 MMT by 2035.
2. CECAC 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.
3. CECAC appreciates that SJCE has contracted with a significant amount of 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.



APPENDIX

IRP INPUTS AND ASSUMPTIONS

CPUC Requirements

- Annual retail sales forecast through 2035 from Integrated Energy Policy Report (IEPR)
- Load modifiers (i.e., demand-side changes to load like electrification, energy efficiency, behind-the-meter solar)
- New and existing resource availability and costs
- Emissions accounting methodology

SJCE specific requirements

- SJCE will meet carbon emission reductions largely with utility-scale solar, wind, and storage resources
- Access to carbon-free resources such as hydro and nuclear are limited
- Energy storage, geothermal, and natural gas contributes to reliability

KEY TERMS

- Portfolio: collection of generation resources used to serve electricity demand
- Scenario: variations on a future state or objective that may influence the resources included in a portfolio
- Sensitivity analysis: an analysis that involves changing one assumption to understand its influence on the portfolio