2022 INTEGRATED RESOURCE PLAN UPDATE

Community Energy Advisory Commission

April 21, 2022

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SAN JOSE CLEAN ENERGY

A Program of the City of San José

AGENDA

- Review of San Jose Clean Energy (SJCE) Progress
- Renewable Portfolio Standard (RPS)
- Integrated Resource Plan (IRP)
- Climate Smart and Carbon Neutral
- 2020 IRP
- 2022 IRP

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SJCE PROGRESS

- Addressing the climate emergency
  - Contracted for 487MW long-term agreements to build new wind, solar and storage
  - Increasingly aggressive renewable targets: 70% renewable and climate neutral by 2030

- Promoting equity and access
  - Targeted programs: Electric Vehicle, Solar Access and Energy Efficiency programs with disadvantaged customer focus
  - Building customer partnerships and education: demand response partnership, alerts for extreme weather days and Public Safety Power Shutoff events
  - Ensuring affordable products: GreenValue, SJ Cares discount

- Ensuring Reliability
  - Mid- and long-term agreements

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AFFORDABILITY AND FINANCIAL MANAGEMENT

- Building operating reserve to 180 days
- SJCE creates service options to serve all customer levels:
  - GreenSource
  - TotalGreen
  - Green Value
- Programs leverage external funds
  - Customer education/information
  - Partially state funded EV program
  - CPUC funded Energy Efficiency and Solar Access

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2020 INTEGRATED RESOURCE PLAN (IRP)

IRP is the long-term planning process for electric utilities ensure state emission reductions, renewable integration and reliability needs.

SJCE's 2020 IRP Plan

- Committed to meet our share of 38 Million Metric Tons (MMT) scenario
- Use 30 MMT emissions scenario to guide procurement
- Cumulative resource selection in MW by 2030:

By 2030	38MMT	30MMT	Progress
Solar	320	475	25
Wind	100	100	Complete
Storage	200	350	50

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RENEWABLE AND CARBON GOALS

- Strengthened SJCE RPS target
  - GreenSource is 60% Renewable & 95% Carbon Free
  - San Jose has the cleanest power of the 10 top largest cities in the United States

- Modeling:
  - 70% RPS & Carbon Neutral by 2030
  - RPS is10% higher than the state goal
  - Options available to customers to mitigate cost impacts

- City of San Jose pledges to go Carbon Neutral by 2030

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CPUC REQUIRES ADDITIONAL PROCUREMENT

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

- SJCE to buy 247 MW of clean capacity by 2026, including:
  - 21.5 MW of long-duration storage (LDS)
  - 21.5 MW of firm clean energy resources (FCR), e.g. geothermal

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2022 IRP – CPUC PROCESS

- 38MMT is the Reference System Plan

- LSEs will be required to submit plans for:
  - 38MMT
  - 30MMT

- IRP Modeling Advisory Group has begun Input & Assumption updates

- CPUC final guidance yet to be released (June 15)

- Individual LSE IRP Plans are due **November 1, 2022**

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2022 IRP - SJCE SCHEDULE UPDATE

- CECAC Briefing – April
- Initial runs April – May
- CPUC final assumptions and templates expected June 15
- 2022 RPS Procurement plan due July 1
- Additional Modeling June & July
- Present to ROC in September
- Present to Council in October
- Plans filed by November 1

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2022 IRP – INITIAL MODELING

- Initial modeling underway to inform update to Climate Smart San Jose and RPS Procurement plan
  - Focus on achieving City goal of carbon neutrality by 2030

- Additional modeling will be undertaken once CPUC assumptions are available

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2022 IRP – INITIAL MODELING

- **Initial Runs of Capacity Expansion model**
  - Optimizes buildout of resources over time, minimizes costs while meeting specified constraints (i.e. energy, RPS, capacity)

  - Co-optimizes long-term resources and short-term contracts (Capacity, RPS, GHG-free attributes)

- **Next step:** run production cost modeling on the selected portfolio to determine costs

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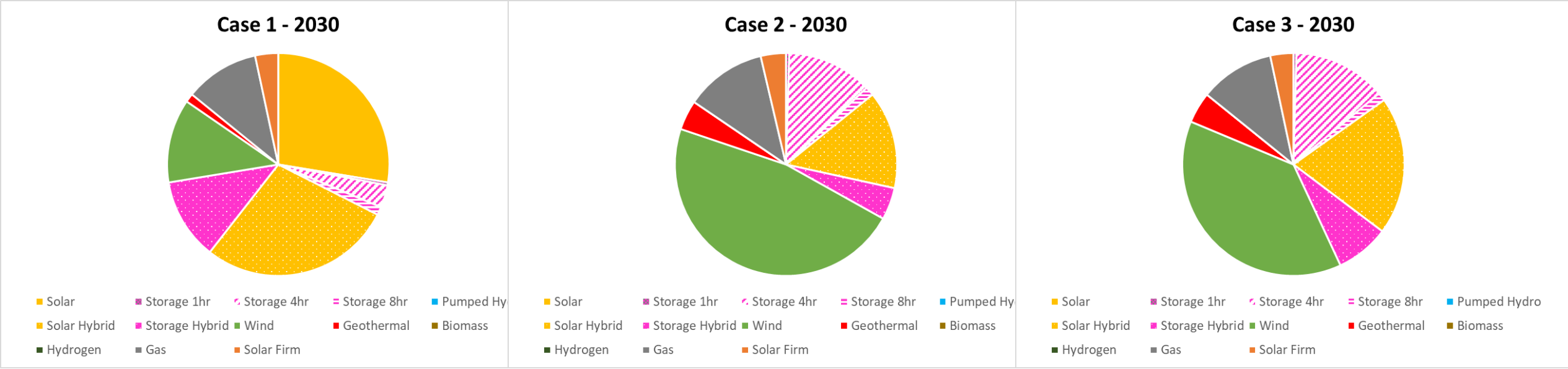
2022 IRP – INITIAL MODELING

Case 1 = Summer RPS constraint, solar heavy portfolio
Case 2 = Winter RPS constraint, wind heavy portfolio
Case 3 = Winter RPS constraint + wind constraint (balanced)



Note: These preliminary modeling results meant for discussion only

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2022 IRP – INITIAL MODELING

Cumulative resource selection in MW by 2030

By 2030	Case 1	Case 2	Case 3
Stand alone solar	110	0	50
Stand alone storage	60	210	200
Hybrid solar + storage	420	15	195
Wind	0	570	400
Geothermal	0	50	60
Gas +Storage	208	208	208

Case 1 = Summer RPS constraint, solar heavy portfolio
Case 2 = Winter RPS constraint, wind heavy portfolio
Case 3 = Winter RPS constraint + wind constraint

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RELIABILITY

Upcoming CPUC RA Reform (as early as 2024)

- Significant support for 24-hour slice approach
- Could impact value of renewables
  - Solar becomes valuable to charge batteries
  - Storage is valuable to meet evening hours

Role of Natural Gas and Green Hydrogen in a clean energy future

- Modeling suggests a significant ongoing role for natural gas plants
- Alternatives to reduce GHG impact of natural gas plants would be to blend with green hydrogen
  - SJCE is exploring a number of opportunities to support retrofit of existing natural gas plants to burn blend
- Carbon neutrality goals may require offsetting carbon emissions

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CC POWER UPDATE

CC Power is a Joint Powers Authority comprised of 10 CCAs formed to buy large scale clean energy and reliability resources

- Through CC Power, SJCE is on track to meet its LDS requirement
  - One project already approved, 2nd project to Council on May 16
  - FCR solicitation underway; shortlisting complete

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2022 CHALLENGES

Planning with Challenges

- Supply Chain issues are affecting compliance and raising costs
  - Unlikely to resolve in near-term

- Transmission is critical:
  - Most moderately priced geothermal is in Nevada
  - Wind resources in New Mexico and Idaho
  - Additional transmission to reduce solar congestion

- Department of Commerce anti-circumvention case could compound delays and price increases

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QUESTIONS?

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