

POWER PURCHASE AGREEMENT WITH CAMINO SOLAR, LLC FOR PHOTOVOLTAIC AND BATTERY ENERGY STORAGE PROJECT FOR A 15-YEAR TERM AND AN AVERAGE ANNUAL COST OF \$4,780,000

Riverside Public Utilities

City Council
December 17, 2019

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LEGISLATIVE HISTORY

- 1. SB X1-2 "California Renewable Energy Resources Act" (2011)**
 - 33% Renewable Portfolio Standard (RPS) Target by 2020
- 2. SB 350 "Clean Energy and Pollution Reduction Act" (2015)**
 - Amends RPS target to 50% by 2030
- 3. SB 32 "Global Warming Solutions Act" (2016)**
 - Greenhouse gas emissions reduced to 40% below the 1990 level by 2030
- 4. SB 100 "100 Percent Clean Energy Act" (2018)**
 - Amends RPS target to 60% by 2030
- 5. AB 2514 "Energy Storage Systems" (2010)**
 - Requires utilities to adopt an Energy Storage Procurement Target (ESPT)

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RPU 2018 POWER SOURCE DISCLOSURE

	Net Purchases (MWh)	Percent of Total Retail Sales (MWh)
Specific Purchases		
Renewable	738,680	34%
Biomass & Biowaste	2,023	0%
Geothermal	399,457	18%
Eligible hydroelectric	-	0%
Solar	256,577	12%
Wind	80,623	4%
Coal	678,174	29%
Large Hydroelectric	29,527	1%
Natural Gas	101,933	4%
Nuclear	99,020	4%
Other	-	0%
Total Specific Purchases	1,647,334	73%
Unspecified Power (MWh)	645,363	27%
Total	2,292,697	100%
Total Retail Sales (MWh)	2,165,453	

Board and Council have approved over 230 MW of renewable contracts/extensions:

- Geothermal – 86 MW
- Wind- 46 MW
- Solar- > 100 MW

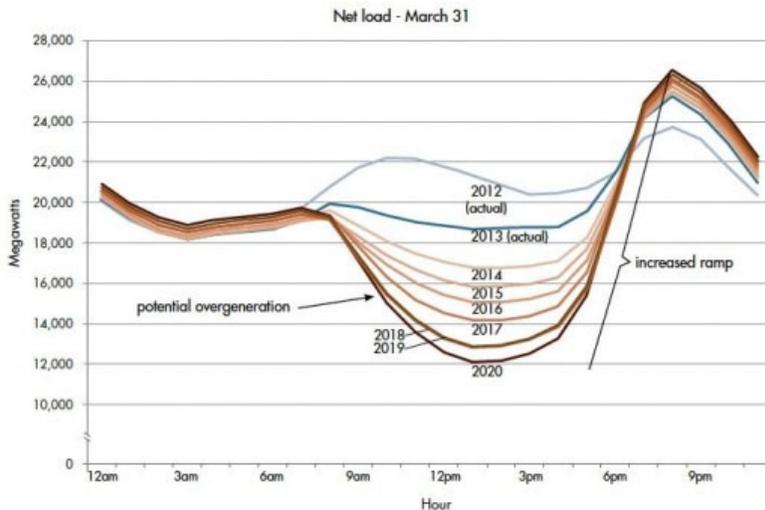
Riverside reached 34% renewables in 2018 – exceeding the 33% by 2020 RPS mandate.

BACKGROUND

1. Solar penetration has greatly impacted the CAISO grid operation
 - a. Mid-day net load has reduced
 - b. Evening ramping has increased
2. Negative energy pricing
3. Undesirable generation curtailments



CAISO "DUCK CURVE"



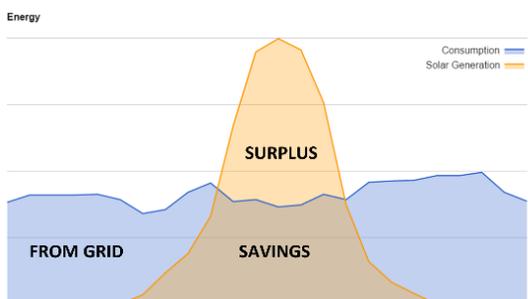
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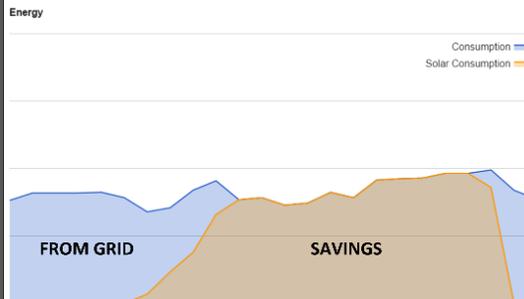
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DISCUSSION

SOLAR SYSTEM **WITHOUT** BATTERY



SOLAR SYSTEM **WITH** BATTERY



Battery Energy Storage Benefits

- a) Load Shifting
- b) Reduce overproduction impacts on the grid

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CAMINO SOLAR + STORAGE PPA

1. 15 year term – anticipated to start May of 2022
2. Solar Capacity and Price
 - 44 MW at \$27.70 per MWh
3. Battery Energy Storage Capacity Price
 - 11 MW – 4 hour duration at \$6.48 per kW-month (includes replenishment in years 5 and 10)
4. All-In System Price
 - \$33.75 per MWh

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ADDITIONAL PPA CHARACTERISTICS

1. Performance Guarantees for both Solar and Battery
2. Mitigation for development delays - \$14,850 per day
3. Development and Performance Security
4. Scheduling Coordinator Fee
5. Generation Limit

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ECONOMIC ANALYSIS

1. Analysis based on detailed production cost modeling simulation analysis of the project
 - a. Using CAISO market pricing
 - b. Revenue assumptions consistent with the 2018 Integrated Resource Planning (IRP) process.
2. Camino Solar PV + BESS project should generate a positive net revenue stream of \$36.74 Million dollars over the 15-year contract term

RECOMENDATIONS

That the City Council:

1. Approve the Power Purchase Agreement with Camino Solar, LLC for a Photovoltaic and Battery Energy Storage Project to provide renewable solar photovoltaic energy, battery energy storage, associated environmental attributes and capacity rights to the City for a term of 15 years at an estimated average annual cost of \$4,780,000; and
2. Authorize the City Manager, or designee, to execute the Power Purchase Agreement and all documents necessary to administer the Agreement including the ability to make non substantive changes, as well as to execute future amendments to the Power Purchase Agreement under terms and conditions substantially similar or superior to the Power Purchase Agreement or, if needed, to terminate the Power Purchase Agreement in accordance with Agreement terms and conditions.