

San Juan Replacement-25 MW Power Purchase Agreement

Board of Public Utilities

December 15, 2021

Introduction

- The Power Pool is losing San Juan as a resource (36 MW Capacity)
- Power Operations would like to replace San Juan with a 25 MW Power Purchase Agreement (PPA) from UNIPER.
 - By leveraging the 15MW PPA first right of refusal, Power Operations has firmed the supplemental renewable resources and fixed the price.
- Power Operations would also like to take this opportunity to address some of the issues and discussions points that were raised last month.

Why now?

- With the impending IRP
 - The Energy is needed next year and term will end in June of 2025
 - This resources is made available to the Power Pool because of the original 15MW agreement with UNIPER
 - There is currently no more wind available and our Solar has already been delayed to supply chain constraints. The power pool will not be able to build resources in time for the energy needs over the next three years.
 - Market based renewables are not readily available products.
 - IRP proposes longer term resources
 - Financing for Renewable Resources requires contracts that range from 12-25 years

Electric Coordination Agreement (ECA)

- This 25MW PPA is for the existing ECA contract period.
 - Current ECA Expires on June 30, 2025
- The Power Pool Operating Committee has approved this resources as a San Juan Replacement

PPA Size- 25 MWs

- Considerations:

- LANL Combustion Turbine (CT) Operations: Due to contractual obligations the CT needs to run.
- Future Load Growth: Because of the nature and type of load growth a more tailored purchase should be used in the future.
 - When will new load hit the line. How long will it affect the load?
 - Project development

- Block Sizing

- 20 MWs- May not let us take advantage of all the Supplemental Resources
 - Additional Cost of \$1.50 for Non-standard block premium
- 30MWs-May cause a curtailment in the shoulder months of the CT
 - Additional Cost of \$2.50 for Non-standard block premium and on the shape as less hours are covered by excess renewables.

PPA Renewable Attributes

- Power Operations is leveraging the 15MW PPA first right of refusal. Power Operations has firmed the supplemental renewable resources and fixed the price at \$34.50.
- The projected residual renewable output is roughly 62,000 MWh or 28% of the proposed contract Annually.
 - Solar development is currently delayed until mid-2023, however UNIPER is confident they can meet if not exceed the projected output.

PPA Price

- This PPA has two cost components
 - Firmed Renewable-\$34.50/MW
 - Planned to be approx. 28% of the entire contract with the possibility to be more depending on the output of the resources
 - Power Ops is leveraging the 15MW PPA first right of refusal.
 - Power Operations has firming the supplemental renewable resources and fixed the price. Whereas independent of this contract the option to take supplemental energy was priced at the PaloVerde Index plus \$.75
 - Market Component
 - On-Peak-\$72.75/MW
 - On-Peak-refers to hours 06:00-22:00 on days that are not designated Off-Peak
 - Off-Peak-\$51.00/MW
 - Off-Peak-refers to hours 00:00-06:00 and 22:00-24:00, Major Holidays, and Sundays
 - FY2021 Costs
 - Market Purchase- \$62.16
 - Blended Pool Rate-\$55.66

Period	WECC							
	NP15		SP15		Mid-C		PV	
	Peak	Off Peak	Peak	Off Peak	Peak	Off Peak	Peak	Off Peak
Jan-22	\$69.80	\$60.25	\$66.50	\$59.95	\$66.50	\$50.50	\$57.60	\$55.20
Feb-22	\$63.20	\$58.80	\$60.00	\$56.95	\$57.15	\$46.70	\$52.65	\$52.60
Mar-22	\$51.80	\$50.10	\$44.25	\$47.00	\$39.00	\$31.95	\$37.90	\$40.95
Q1 2022	\$61.32	\$56.46	\$56.54	\$54.76	\$53.78	\$43.22	\$49.04	\$49.71
Q2 2022	\$50.21	\$47.83	\$43.01	\$43.52	\$33.29	\$19.00	\$62.89	\$46.82
Q3 2022	\$98.31	\$61.20	\$105.00	\$63.05	\$105.01	\$47.55	\$230.10	\$81.18
Q4 2022	\$68.23	\$59.83	\$65.26	\$58.39	\$61.56	\$52.32	\$57.34	\$51.61
Cal 2022	\$69.54	\$56.38	\$67.49	\$55.00	\$63.44	\$40.64	\$100.01	\$57.46
Cal 2023	\$59.35	\$54.68	\$57.99	\$51.99	\$55.52	\$42.04	\$80.67	\$53.29
Cal 2024	\$50.55	\$55.21	\$49.55	\$53.53	\$49.72	\$44.51	\$63.39	\$54.84
Cal 2025	\$44.70	\$53.54	\$43.99	\$52.65	\$47.02	\$44.25	\$63.47	\$54.28

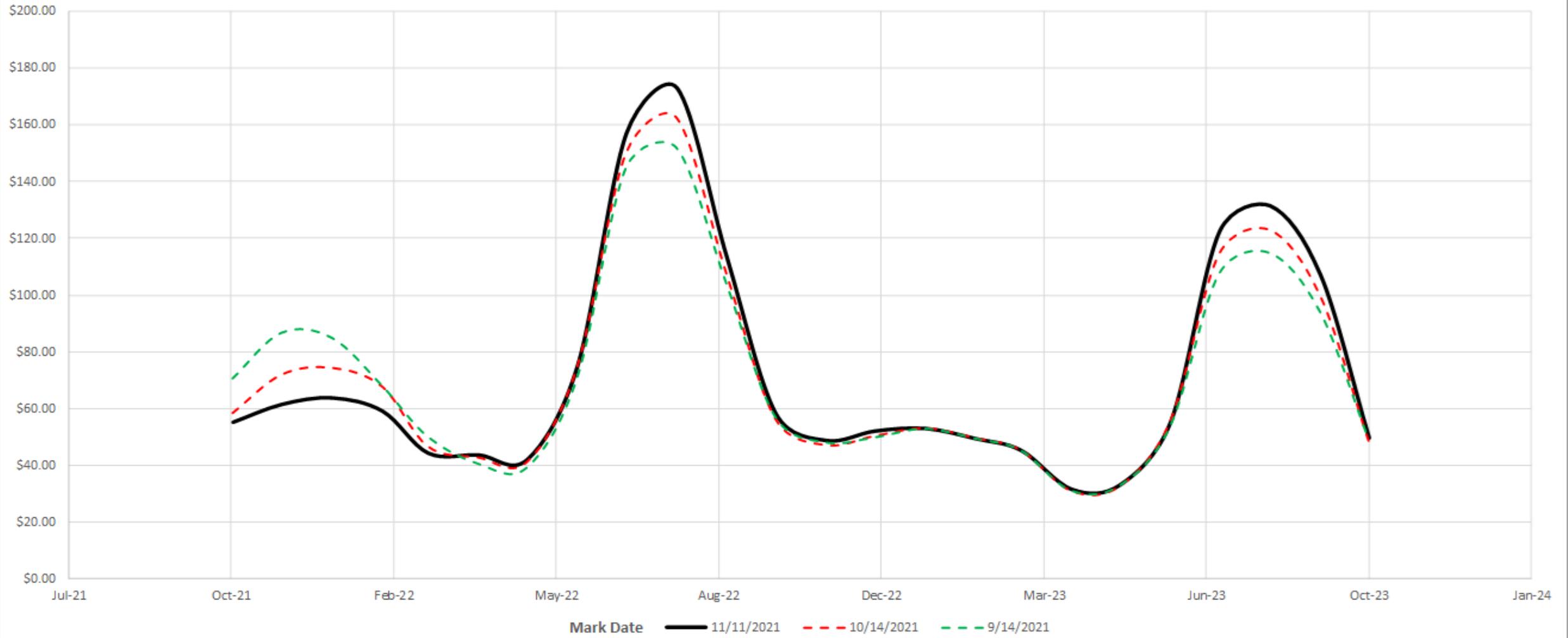
Period	MISO							
	Indy		Minn		TX		Mich	
	Peak	Off Peak	Peak	Off Peak	Peak	Off Peak	Peak	Off P
Jan-22	\$79.60	\$64.05	\$73.10	\$56.65	\$80.50	\$63.85	\$75.50	\$63.00
Feb-22	\$76.30	\$57.85	\$70.05	\$51.00	\$77.45	\$57.65	\$72.40	\$57.00
Mar-22	\$56.45	\$46.10	\$47.75	\$39.80	\$58.50	\$45.85	\$56.10	\$45.00
Q1 2022	\$70.25	\$56.20	\$63.04	\$49.33	\$71.64	\$55.98	\$67.56	\$55.00
Q2 2022	\$48.57	\$36.85	\$41.94	\$31.65	\$49.27	\$36.88	\$48.16	\$38.00
Q3 2022	\$53.54	\$38.86	\$46.77	\$34.36	\$54.83	\$38.64	\$53.19	\$38.00
Q4 2022	\$48.95	\$39.19	\$42.93	\$34.07	\$50.37	\$38.99	\$48.60	\$39.00
Cal 2022	\$55.35	\$42.65	\$48.69	\$37.25	\$56.55	\$42.50	\$54.40	\$42.00
Cal 2023	\$47.20	\$33.59	\$41.40	\$28.87	\$48.59	\$35.04	\$46.70	\$34.00
Cal 2024	\$47.39	\$35.17	\$41.75	\$30.67	\$48.39	\$34.70	\$45.10	\$35.00
Cal 2025	\$47.74	\$35.69	\$40.38	\$29.80	\$46.94	\$33.73	\$45.00	\$37.00

Period	SPP			
	North		South	
	Peak	Off Peak	Peak	Off Peak
Jan-22	\$64.35	\$48.15	\$70.90	\$53.05
Feb-22	\$62.55	\$43.15	\$68.55	\$47.75
Mar-22	\$43.90	\$31.05	\$47.30	\$33.80
Q1 2022	\$56.44	\$40.95	\$61.68	\$45.05
Q2 2022	\$39.61	\$23.95	\$41.15	\$26.36
Q3 2022	\$47.82	\$28.60	\$49.97	\$31.03
Q4 2022	\$38.35	\$28.04	\$40.20	\$30.21
Cal 2022	\$45.58	\$30.30	\$48.28	\$33.06
Cal 2023	\$39.85	\$26.55	\$41.84	\$27.79
Cal 2024	\$36.59	\$26.45	\$38.54	\$27.67
Cal 2025	\$36.54	\$23.97	\$38.05	\$25.22

Period	PJM					
	West		AD		NI	
	Peak	Off Peak	Peak	Off Peak	Peak	Off P
Jan-22	\$84.45	\$69.20	\$78.10	\$62.35	\$61.85	\$46.00
Feb-22	\$80.95	\$63.20	\$73.70	\$56.10	\$60.55	\$40.00
Mar-22	\$60.25	\$50.50	\$56.15	\$46.50	\$49.00	\$39.00
Q1 2022	\$74.66	\$61.16	\$68.84	\$55.17	\$56.83	\$42.00
Q2 2022	\$47.61	\$35.88	\$47.36	\$35.93	\$42.63	\$30.00
Q3 2022	\$52.44	\$37.61	\$52.29	\$37.41	\$48.94	\$34.00
Q4 2022	\$49.00	\$38.79	\$47.47	\$37.13	\$43.12	\$32.00
Cal 2022	\$55.95	\$43.20	\$54.01	\$41.28	\$47.90	\$35.00
Cal 2023	\$47.50	\$34.40	\$45.31	\$32.64	\$40.90	\$28.00
Cal 2024	\$46.15	\$33.97	\$44.33	\$32.29	\$39.99	\$28.00
Cal 2025	\$45.65	\$33.89	\$43.59	\$32.21	\$40.20	\$29.00

Period	ERCOT							
	North		South		Houston		West	
	Peak	Off Peak						
Jan-22	\$65.50	\$48.07	\$63.80	\$47.94	\$66.57	\$54.69	\$63.30	\$46.20
Feb-22	\$67.55	\$43.66	\$65.78	\$43.39	\$68.62	\$50.23	\$65.14	\$41.73
Mar-22	\$46.79	\$29.47	\$44.55	\$29.16	\$50.07	\$32.55	\$38.29	\$25.06
Q1 2022	\$59.42	\$40.56	\$57.50	\$40.32	\$61.28	\$45.99	\$54.89	\$37.83
Q2 2022	\$45.88	\$29.72	\$44.04	\$28.80	\$49.88	\$30.87	\$36.43	\$24.81
Q3 2022	\$71.60	\$37.87	\$68.39	\$37.70	\$74.09	\$40.22	\$67.26	\$36.41
Q4 2022	\$43.99	\$31.00	\$41.55	\$30.92	\$47.72	\$31.82	\$33.58	\$24.52
Cal 2022	\$55.27	\$34.74	\$52.92	\$34.39	\$58.28	\$37.15	\$48.09	\$30.83
Cal 2023	\$45.73	\$30.28	\$43.56	\$28.61	\$48.94	\$33.06	\$38.30	\$25.12
Cal 2024	\$38.94	\$27.04	\$36.42	\$25.03	\$42.46	\$30.12	\$31.48	\$22.09
Cal 2025	\$36.90	\$25.60	\$33.46	\$24.15	\$40.66	\$27.92	\$30.54	\$21.23

ATC WECC PV Futures Evolution (Prompt 24 Months)



Mark Date	Nov-21	Dec-21	Jan-22	Feb-22	Mar-22	Apr-22	May-22	Jun-22	Jul-22	Aug-22	Sep-22	Oct-22	Nov-22	Dec-22	Jan-23	Feb-23	Mar-23	Apr-23	May-23	Jun-23	Jul-23	Aug-23	Sep-23	Oct-23
11/11/2021	\$55.03	\$61.34	\$63.61	\$58.91	\$44.07	\$43.45	\$41.83	\$75.10	\$157.16	\$173.24	\$112.92	\$57.99	\$48.55	\$51.90	\$52.81	\$49.19	\$45.04	\$31.31	\$32.96	\$55.29	\$122.47	\$131.53	\$107.19	\$49.46
10/14/2021	\$58.28	\$71.78	\$74.21	\$67.59	\$46.53	\$42.62	\$41.00	\$74.55	\$149.81	\$162.50	\$107.09	\$56.22	\$46.97	\$50.18	\$52.95	\$49.41	\$45.22	\$30.84	\$32.57	\$55.52	\$114.32	\$122.86	\$99.83	\$48.39
9/14/2021	\$70.54	\$86.65	\$84.91	\$67.93	\$49.97	\$40.43	\$39.03	\$70.79	\$144.90	\$152.08	\$103.75	\$56.89	\$47.92	\$49.70	\$52.79	\$49.30	\$45.13	\$30.90	\$32.78	\$53.81	\$107.54	\$114.92	\$94.20	\$48.93

Summary: 25 MW PPA

10/13/2021

In Thousands (\$000s)

Energy	Costs-In \$K	MWhs Supplied	Price per MW
Market Purchase On-Peak	\$ 24,589.50	338,000	\$ 72.75
Market Purchase Off-Peak	\$ 13,484.40	264,400	\$ 51.00
Total	\$ 38,073.90	602,400.00	
Renewable On-Peak	\$ 3,045.49	88,275	\$ 34.50
Renewable Off-peak	\$ 2,844.92	82,462	\$ 34.50
Total	\$ 5,890.41	170,736.50	
Savings/Mwh On-Peak	\$ (3,376.52)	88,275	\$ (38.25)
Savings/Mwh Off-peak	\$ (1,360.62)	82,462	\$ (16.50)
Total	\$ (4,737.13)	170,736.50	
Total Projected Price	\$ 21,212.98	338,000	\$ 62.76
Total Projected Price	\$ 12,123.79	264,400	\$ 45.85
Total	\$ 33,336.77	602,400.00	\$ 55.34

% Renewable

28.34%

NOTE: On-Peak Pricing 06:00-22:00

NOTE: Off-Peak Pricing 00:00-06:00 and 22:00-24:00, Major Holidays, and Sundays

Issues and Discussion from Prior Meeting- Resource Planning

- 2017 IRP
 - Recommendations
 - Portfolio S9 –See next slide

2017-Recommended Portfolio

Portfolio	San Juan 4 Exit Date	LRS Exit	LAPP New Builds	Reserve Margin (2017-2036)
S8: Solar Firmed with RICE Short Capacity	2022	No Exit	Large RICE: <ul style="list-style-type: none"> • 2017- 18 MW; 2025- 18 MW; 2030- 18 MW Solar PV: <ul style="list-style-type: none"> • 2017- 25 MW; 2025- 25 MW; 2030- 25 MW 	LAPP Summer: 9% LAPP Winter: -5%
S9: Solar with Storage Short Capacity	2022	No Exit	Solar with Storage (onsite): <ul style="list-style-type: none"> • 2017- 13 MW; 2025- 8 MW • 2030- 6 MW 	LAPP Summer: -11% LAPP Winter: -26%
S10: SMR, Solar with Storage Short Capacity	2022	No Exit	Solar with Storage (onsite): <ul style="list-style-type: none"> • 2017- 13 MW; 2025- 4 MW Nuclear (offsite): <ul style="list-style-type: none"> • 2026- 16 MW 	LAPP Summer: -9% LAPP Winter: -23%

Key Recommendations-From 2017 IRP

- The County needs not to be in any rush to commit to new resources until several uncertainties regarding SMRs, solar and storage are resolved.
- San Juan cannot compete in the current market and should be retired early. Laramie River is an economic plant throughout the planning horizon.
- There are benefits to the partnership post 2025 that can create a win-win situation for LANL and LAC. But the current sharing arrangement would need to change to benefit both parties to the contract.
- The most balanced portfolio that meets renewable goals and carbon reduction targets is a portfolio that relies on solar and storage (based on current indicative bids).
- A portfolio with SMRs could be competitive, if risk mitigation measures to protect ratepayers from cost overruns and schedule delays are in place.
- Hence, the optimal approach is to preserve optionality by continuing to pursue SMR risk mitigation measures and preserve the ability to take advantage of declining solar and storage costs.
- Beyond building new renewable/ clean energy capacities to meet the carbon neutral goal and renewable objectives, additional gas-fired generation capacity (CC or RICE) involves upfront capital investment in a soft market, and is not advised unless control of resources is a priority to LAPP.
- However, RICE could be considered for firming or balancing purposes.

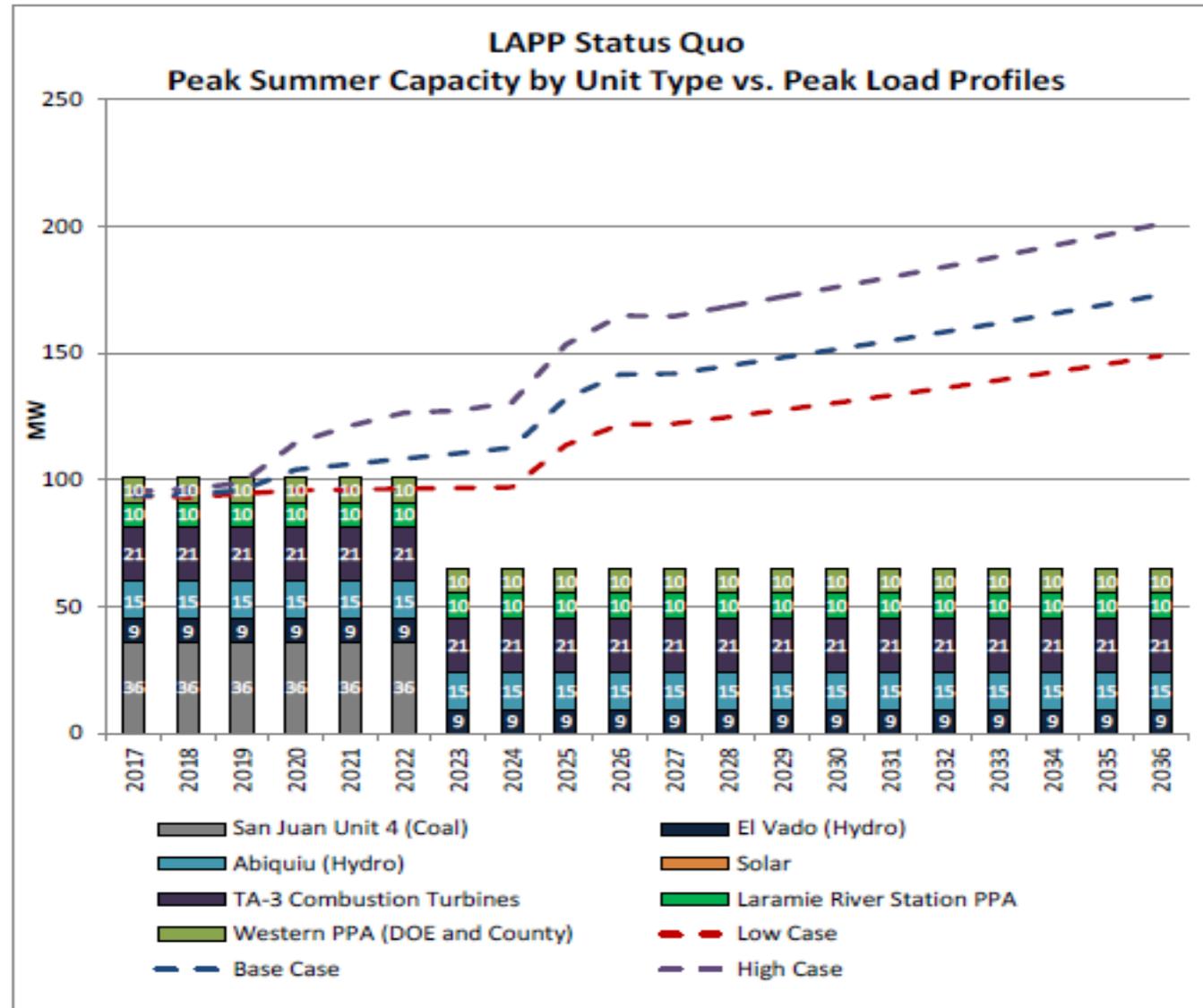
Key Findings of 2017 IRP

- **Capital Investments:** The current market outlook does not reward building portfolios with excess capacity above load that would be sold into the market. A phased approach to purchasing some share of its needs in the market and add smaller and incremental capacity resources on an as needed basis provides overall lower cost benefits for LAC and preserves the flexibility in the face of future uncertainties. Beyond building new renewable/ clean energy capacities to meet the carbon neutral goal and renewable objectives, additional gas-fired generation capacity (Combined Cycle or RICE) involves upfront capital investment in a soft market and is not advised unless control of resources is a priority to LAPP. For an operational perspective, RICE could be considered for firming or balancing purposes.
- **What's Changed?**
 - Introduction of two new Imbalance Markets in 2021, high gas prices, global pandemic
 - A new IRP is being conducted and will evaluate and make recommendations, based on the most current information available to the industry.

Resource Investigation- Post 2017 IRP

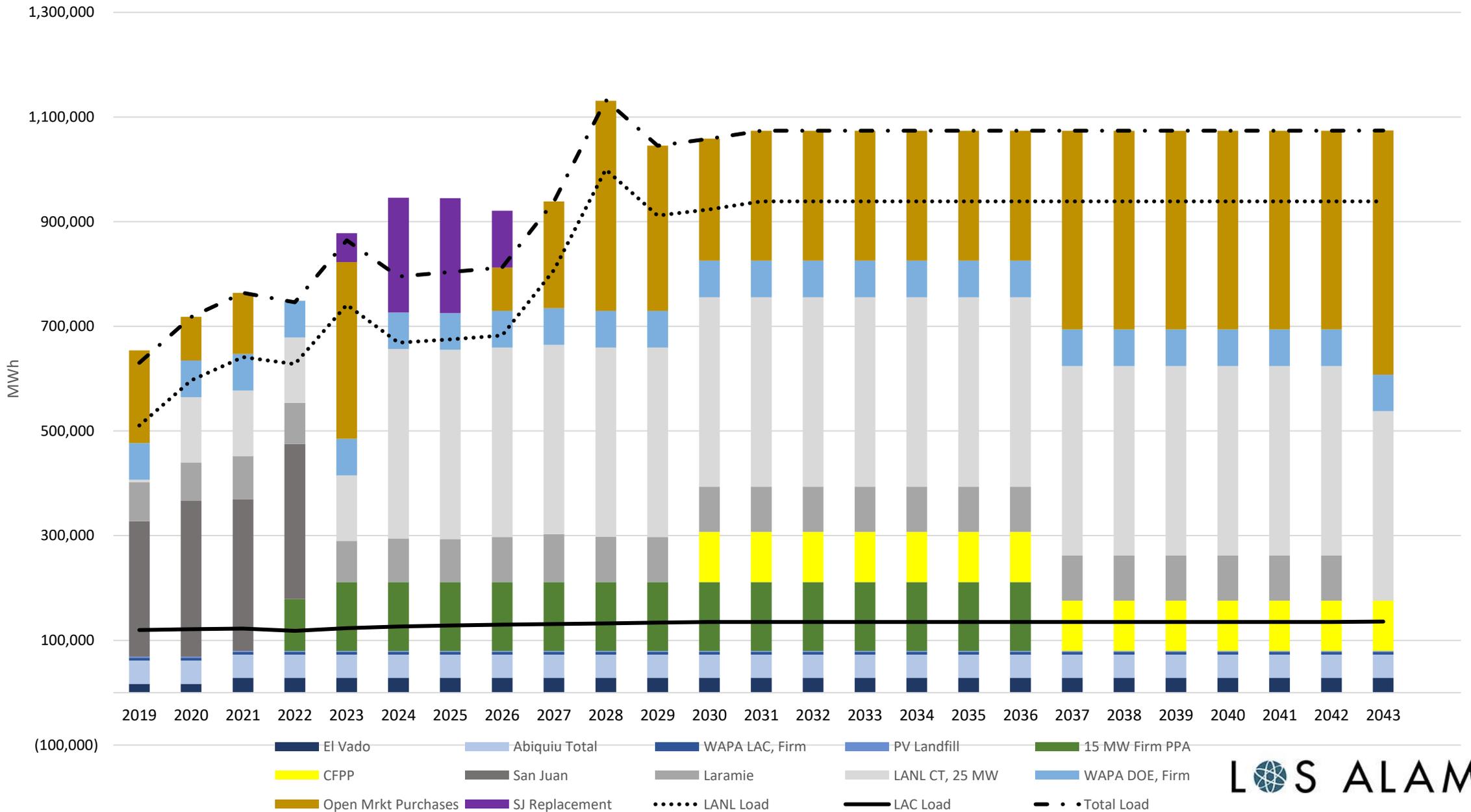
- Started looking in 2018, Solar site will not hit the line until mid 2023
 - Loss of available land, limited on-site solar options
 - Inability of MAXX Solar to meet Solar and Battery pricing
- On-site solar option for Landfill and other sites was not approved by BPU in 2019 as alternatives were more economical
- Still involved in SMR Project with 2030 COD as an option
 - Identified as a viable resource especially if we needed a pivot strategy
- UNIPER 15MW Wind and Solar Contract with 76% Renewable Attributes-Signed 2020
- Load hasn't developed in line with 2017 IRP Projections

Exhibit 19: LAPP Existing Resources Summer Capacity vs. Peak Load



Note: This chart assumes San Juan Unit 4 retirement after 2022 and LAC holds onto the Laramie River Station PPA for the plant of life.

LAPP Future Load and Generation Resources



Summary

- The 25 MW PPA is projected to be delivered below the market prices.
- Energy is needed to satisfy the current ECA
- Staff's perspective- Power Operations has been acting in accordance with the Board adopted policies and findings of the 2017 IRP
- Per the IRP, Power Operations has adjusted to current load and available renewable generation sources.