



CAC Item C6
Staff Report Item 12

TO: East Bay Community Energy Board of Directors

FROM: Stefanie Tanenhaus, Principal Regulatory Analyst, Public Policy

SUBJECT: Integrated Resource Plan Results (Action Item)

DATE: December 16, 2020

Recommendation

Establish a clean energy goal (percentage of clean energy) for 2030 as supported by EBCE's Integrated Resource Plan (IRP) analysis; adopt a Resolution approving the Board's clean energy goal.

Background and Discussion

The IRP is a long-term planning proceeding intending to evaluate all of the CPUC's electric procurement policies and programs and the reliability and cost-effectiveness of the CPUC-jurisdictional entities'¹ electric supply with the goal of reducing the cost of achieving GHG reductions and other CPUC policy goals. The IRP proceeding looks 10 years forward to determine the least-cost resource mix required to meet these goals while maintaining system reliability.

The IRP also evaluates the contribution of individual entities' resource portfolios to the State's greenhouse gas (GHG) emissions. This IRP cycle, the CPUC required each entity to submit distinct portfolios that achieve their proportional share of two different statewide electric sector GHG targets. On September 1, 2020, EBCE submitted IRPs that provide the desired portfolios of resources based on a statewide electric sector goal of 46 million metric tons (MMT) and a maximum of 38 MMT of GHG emissions by 2030. In July, these portfolios were shared with the Community Advisory Committee and the Board. At that time, the Board also authorized the CEO to approve the final IRP reports and file the two compliance portfolios with the CPUC.

The CPUC permitted entities to submit an alternative portfolio that used different assumptions, provided they were identified and justification for the discrepancies described. EBCE elected not to file an alternative portfolio and instead has focused its efforts on analysis

¹ In context of IRP requirements, includes Investor Owned Utilities (IOUs), Energy Service Providers (ESPs), and Community Choice Aggregators (CCAs).

to develop a portfolio of resources that will contribute to more aggressive GHG emission reductions and organizational goal-setting related to achieving those reductions.

This supplemental analysis includes evaluating a 30 MMT scenario, which corresponds to the lowest statewide electric sector goal that the CPUC has explored. In addition, EBCE quantified the costs of procuring additional GHG-free energy to offset the emissions associated with market purchases. Under this scenario, EBCE would be “net GHG-free”, that is over the course of the year the amount of clean energy generated from our portfolio and purchased through short-term transactions would equal EBCE’s load.

Discussion

EBCE evaluated a range of four different GHG targets for its complete IRP analysis. The GHG targets selected were informed by the three primary state-wide electric sector GHG targets that the CPUC explored in its system-wide IRP modeling- 46 MMT, 38 MMT and 30 MMT. 30 MMT corresponds to the low end of the GHG planning target range for the electric sector established by the California Air Resource Board (CARB). CARB, in coordination with the CPUC and CEC, determined a range of 30-53 MMT by 2030 was required by the electric sector for the state to meet its economy-wide GHG reduction goals of 40% below 1990 levels by 2030. The fourth scenario represents a net 0 MMT target.

Methodology

EBCE’s 46 MMT and 38 MMT compliance scenarios were based on the CPUC’s system-level resource portfolios. The 46 MMT and 38 MMT compliance portfolios submitted to the CPUC in September 2020 were updated to reflect current EBCE preferences and to allow for direct comparison with the lower GHG scenarios examined. For the development of the long-term resource portfolio, EBCE relied on its consultant Ascend Analytics’ modeling tools to provide an optimized build-out of resources over time. The portfolio selection was subject to a constraint on the over-all amount of energy provided by long-term contracts to align with EBCE’s procurement and risk management strategies. The remaining energy needed to meet EBCE’s load is filled with short-term transactions. EBCE’s short-term transactions are assumed to be made up of RPS and carbon-free purchases from existing resources. Short-term carbon-free transactions are assumed to provide up to 10% of load on an annual basis. Short-term RPS transactions are assumed to provide the remaining GHG-free energy required to meet GHG targets of 1.22, 0.98, 0.73 MMT, which correspond to EBCE’s load-weighted share of statewide electric sector targets of 46, 38 and 30 MMT, respectively. Any remaining energy need is assumed to be filled with short-term brown power purchases, which have emissions associated. As the annual GHG target decreases however, the amount of these purchases is reduced. By 2030, approximately 20% of EBCE’s load can be met with brown purchases in order to meet a 0.73 MMT GHG target.

After creating the portfolio, Ascend performed production cost modeling to simulate the hourly performance and evaluate the estimated range of incremental costs required to achieve the 46 MMT, 38 MMT, 30 MMT and a net 0 MMT portfolio by purchasing additional carbon-free energy.

Results of Analysis

Using the approach described herein, EBCE developed a resource portfolio to achieve a range of emissions targets. A summary of results follows; additional details and visual aids are included as Attachment 1, “IRP Results and Recommendation” PowerPoint.

- Resource Mix
 - Total long-term contracted nameplate capacity 3,488 MW by 2030, including 1,600 MW of energy storage (590 MW paired with solar). New renewable resources (primarily solar) make up 1,220 MW. Remaining need is met by short-term contracts with existing resources and market purchases.
- Risk Management associated with Portfolios
 - Long-term contracts provide 62% of EBCE's total energy need, or around 4,800 GWh in 2030.²
 - EBCE staff intends to enter into Short Term Contracts in the form of fixed-price energy transactions to fill a portion of its un-hedged position to ensure EBCE is not overly relying on the CAISO system, providing negative contribution to system reliability and as a means of insurance, to protect its customers from volatility in Spot Market prices. It is assumed short-term RPS and carbon-free purchases are used to meet EBCE's GHG target. Under a 30 MMT target, approximately 20% of EBCE's energy purchases come from the spot market by 2030. Under a net 0 MMT target, all short-term brown power purchases are offset by incremental short-term RPS and carbon-free purchases.
- Reliability of Portfolios
 - Resource Adequacy: The long-term contracts anticipated in this portfolio represent sufficient capacity to meet around 70% of EBCE's RA obligations. Additional RA procurement will be necessary for each year from 2021 to 2030 to fulfill the remaining need.
 - Market exposure: While forecasted market exposure decreases over time, EBCE's portfolio is designed such that there will be some amount of market power purchased to serve load in the majority of hours. By 2030, the number of market exposure hours are accounted for is 6,374 hours per year. However, the volume of market purchases provides a better measure of the degree of market exposure. In 2030 when short-term purchases are accounted for, the average position of EBCE's portfolio over all hours compared to load is around 8% (34% without short-term transactions). During the evening, when market prices tend to be highest, the average portfolio position over all hours compared to load is 1% (19% without short-term transactions).
- Costs³
 - The estimated total portfolio cost of providing 64% of EBCE's energy needs with clean⁴ generation, which corresponds to EBCE's share of the CPUC-adopted reference target of 46 MMT, for the period of 2021 through 2030 is approximately \$3.6 billion. The estimated total portfolio cost of achieving the 46 MMT scenario in 2030 is approximately \$608 million.
 - The estimated incremental cost of achieving 80% clean by 2030 (which corresponds to EBCE's share of a 30 MMT statewide target) relative to 64% clean is approximately \$34 million in 2030 (NPV of \$88 million from 2021-2030).

² Note that since the last Board presentation on this item on 10/21/20, staff has updated the load forecast used in the analysis to better align with current forecasts. The percent of EBCE's total energy need covered by long-term contracts and market exposure hours have therefore also been updated.

³ Costs are in real 2020\$.

⁴ "Clean" refers to carbon free energy from renewable, hydro or other non-emitting resources

- The estimated incremental cost of achieving 100% clean by 2030 relative to 64% clean is approximately \$85 million in 2030 (NPV of \$220 million from 2021-2030).

Staff presented a summary of these results at the December 4, 2020 Special Executive Committee Meeting. The Executive Committee unanimously supported the adoption of a net 0 MMT by 2030 goal. EBCE staff encourages maintaining optionality under any target and refreshing assumptions and revisiting the trade-offs related to EBCE's emissions trajectory on a regular basis in the coming years.

Financial Impacts

The financial impact depends on the GHG goal selected, the strategy to achieve it and a number of other factors. As described above, the estimated incremental cost of achieving 80% clean by 2030 relative to 64% clean (which corresponds to the CPUC-adopted reference target of 46 MMT) is approximately \$34 million in 2030 (NPV of \$88 million from 2021-2030) and the estimated incremental cost of achieving 100% clean by 2030 relative to 64% clean is approximately \$85 million in 2030 (NPV of \$220 million from 2021-2030). However, there is considerable uncertainty related to the assumptions around future resource costs, market prices, and the costs of incremental RECs and carbon free attributes. Actual procurement authorization will be brought forth to the Board in accordance with EBCE's risk management policies.

Next Steps

The analysis may inform procurement criteria and decisions in EBCE's current renewable solicitation and future solicitations. The clean energy goal will help guide EBCE's future procurement decisions.

Attachments

- A. Resolution
- B. IRP Results and Recommendation PPT

RESOLUTION NO. ____

A RESOLUTION OF THE BOARD OF DIRECTORS
OF THE EAST BAY COMMUNITY ENERGY AUTHORITY APPROVING A 2030 CLEAN ENERGY
GOAL

WHEREAS The East Bay Community Energy Authority (“EBCE”) was formed as a community choice aggregation agency (“CCA”) on December 1, 2016, Under the Joint Exercise of Power Act, California Government Code sections 6500 *et seq.*, among the County of Alameda, and the Cities of Albany, Berkeley, Dublin, Emeryville, Fremont, Hayward, Livermore, Piedmont, Oakland, San Leandro, and Union City to study, promote, develop, conduct, operate, and manage energy-related climate change programs in all of the member jurisdictions. The cities of Newark and Pleasanton, located in Alameda County, along with the City of Tracy, located in San Joaquin County, were added as members of EBCE and parties to the JPA in March of 2020.

WHEREAS EBCE filed its 2020 Integrated Resource Plan (IRP) with the California Public Utilities Commission (CPUC) on September 1, 2020, as required by Decisions 18-02-018, 19-11-016 and 20-03-028; and

WHEREAS EBCE staff worked with Ascend Analytics to perform analysis and develop IRP portfolios to meet the CPUC’s requirements; and

WHEREAS EBCE staff and Ascend Analytics further examined the costs and trade-offs of additional IRP portfolios to meet a range of greenhouse gas emissions targets; and

WHEREAS EBCE staff presented the results of the additional IRP analysis performed by Ascend Analytics and EBCE staff to the Executive Committee on December 4, 2020 and the Executive Committee unanimously supported a net 0 MMT by 2030 goal.

WHEREAS EBCE staff has presented the results of the additional IRP analysis and the trade-offs and limitations surrounding the different emissions scenarios to the Board.

NOW, THEREFORE, THE BOARD OF DIRECTORS OF THE EAST BAY COMMUNITY ENERGY AUTHORITY DOES HEREBY RESOLVE AS FOLLOWS:

Section 1. The Board hereby approves a clean energy goal of XX% by the year 2030, as discussed and voted on at this Board meeting.

ADOPTED AND APPROVED this 16th day of December, 2020.

Dan Kalb, Chair

ATTEST:

Stephanie Cabrera, Clerk of the Board



Integrated Resource Plan Results

PRESENTED BY: Stefanie Tanenhaus

DATE: December 16, 2020



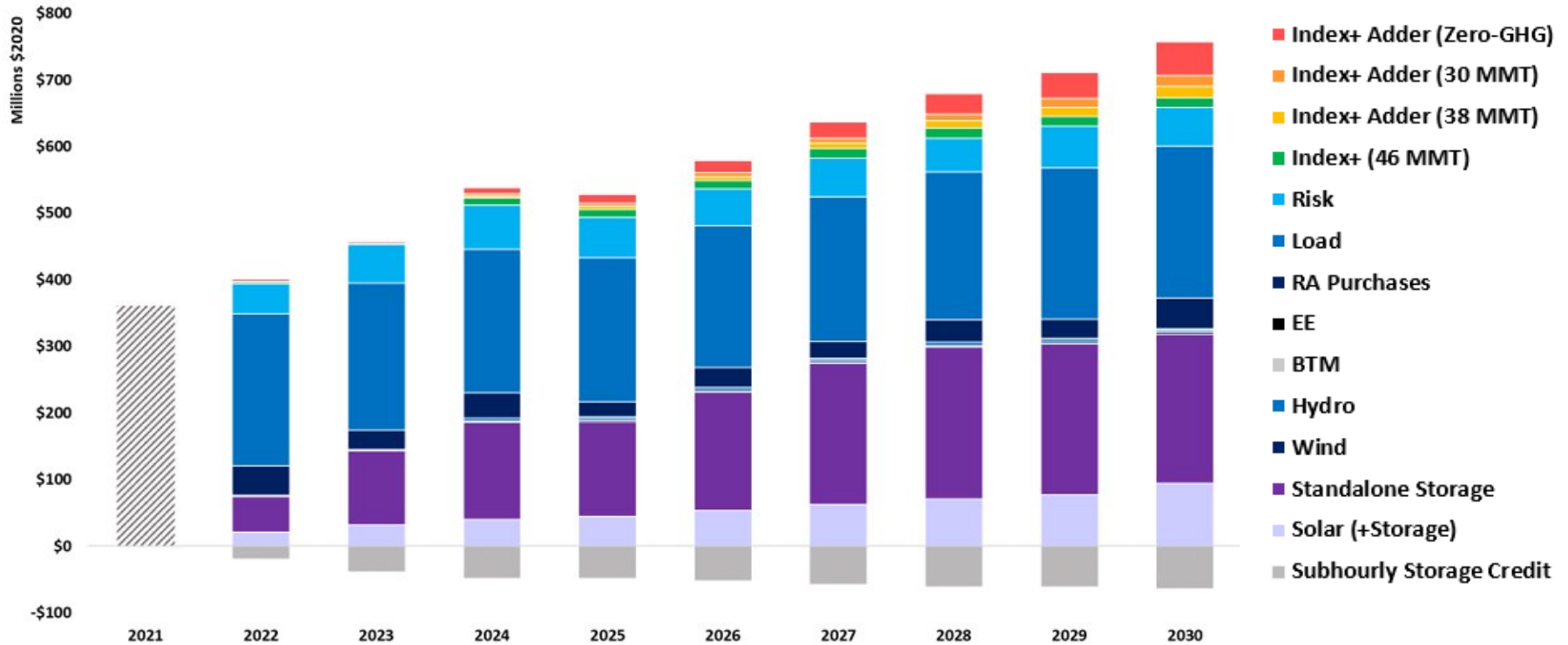
Agenda

- Summary of IRP Scenario Results
- Scenario Comparison
- Discussion of Clean Energy Goal

Summary of Scenario Results

Key Evaluation Metrics	Scenario 1: EBCE 46 MMT i.e. 1.22 MMT	Scenario 2: EBCE 38 MMT i.e. 0.98 MMT	Scenario 3: EBCE 30 MMT i.e. 0.73 MMT	Scenario 4: EBCE net 0 MMT
Carbon Free (by 2030)	64%	72%	80%	100%
Affordability (2030 cost in 2020\$)	\$608 MM (2020\$)	+3% (+\$17 MM)	+6% (+\$34 MM)	+14% (+\$85 MM)
Resource Mix (2030) (incl. New build vs existing)	1.2 GW new RE PPAs (includes 100 MW BTM S+S) 1.5 GW/ 6 GWh new energy storage 100 MW existing NW hydro			
Risk Mgmt: Short-term vs Long-term Contracts	62% long-term in 2030 (~50% by 2025; ~55% avg. 2021-2030), remaining short-term			
Reliability	~70% of RA need met by long-term portfolio			

Total Portfolio Costs



2030 Clean Energy Goal

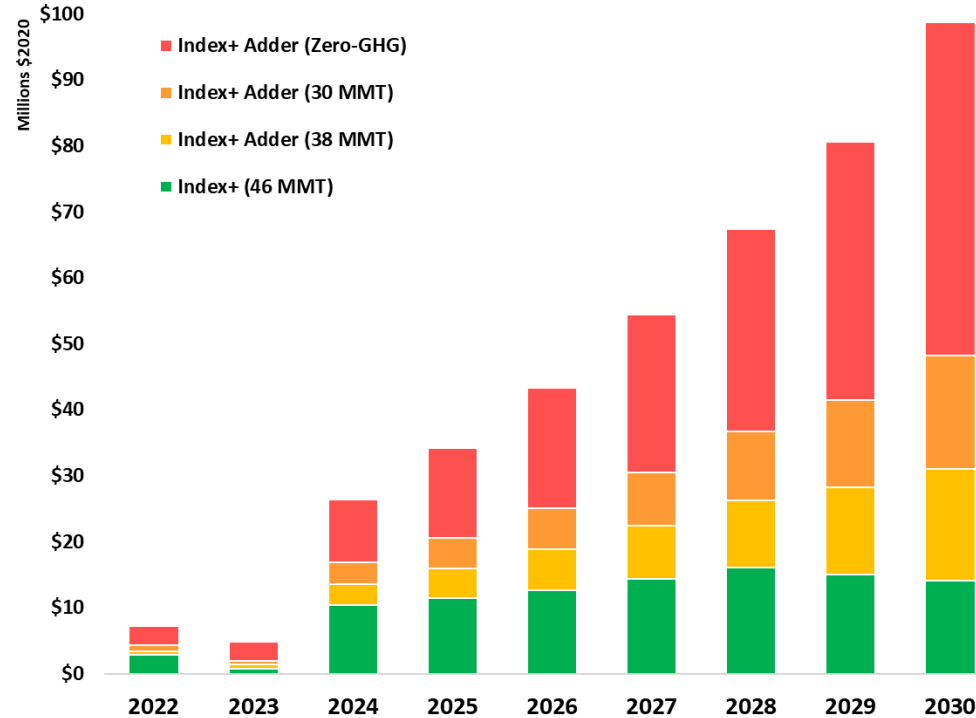
- Under all GHG scenarios evaluated, EBCE's long-term portfolio is the same
- Short-term transactions fill the remaining balance to meet load
 - The make-up of short-term transactions determines the emissions amounts associated with EBCE's portfolio
- At forecasted loads, achieving 80% clean energy is consistent with EBCE's proportional share of a 30 MMT statewide electric sector target
- Achieving 100% clean energy on a net annual basis requires incremental short-term purchases of carbon free energy, primarily in the late 2020s
- Trade-offs between achieving higher percent clean and other environmental, programmatic and community-oriented goals
- Goal will be revisited to maintain optionality and protect against EBCE's exposure to uncertainty around costs of achieving GHG reductions

APPENDIX



GHG Trajectory Cost Comparison

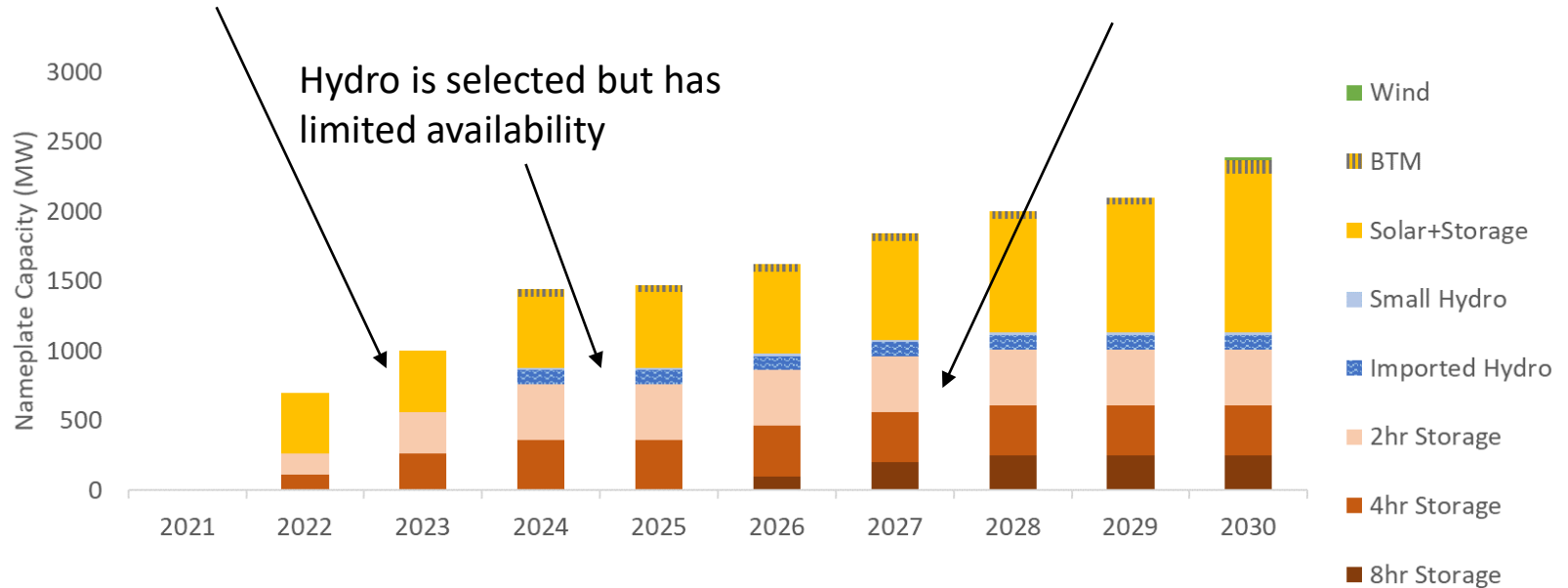
- Incremental short-term clean energy procurement costs increase as GHG target becomes more stringent
- Assumes maximum short-term carbon free purchases of 10% of load, remaining short-term RPS purchases



Resource Build (new)

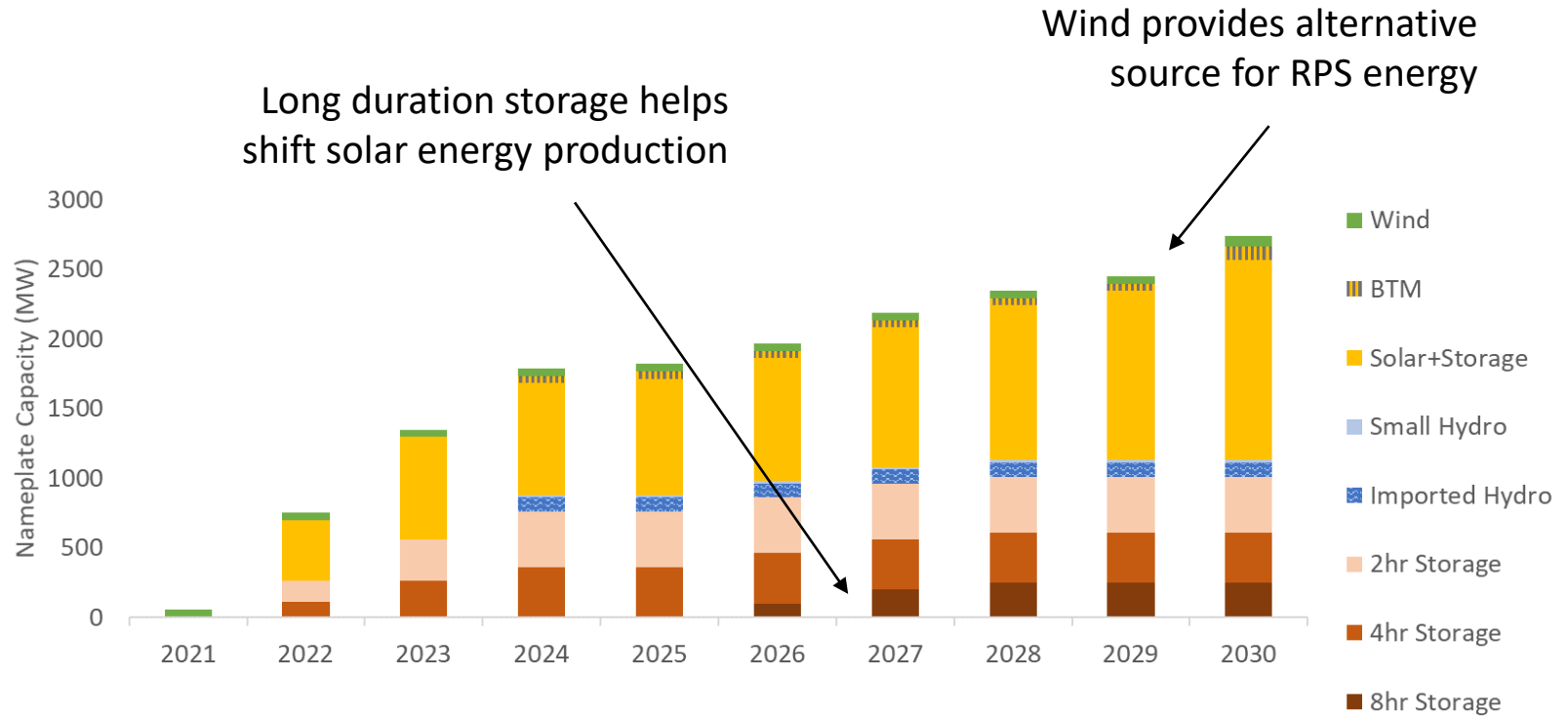
Solar + storage provides economical energy paired with RA value

Stand-alone storage provides RA and energy arbitrage value



Solar + storage shown as solar nameplate capacity. Storage assumed to be 40% of solar nameplate

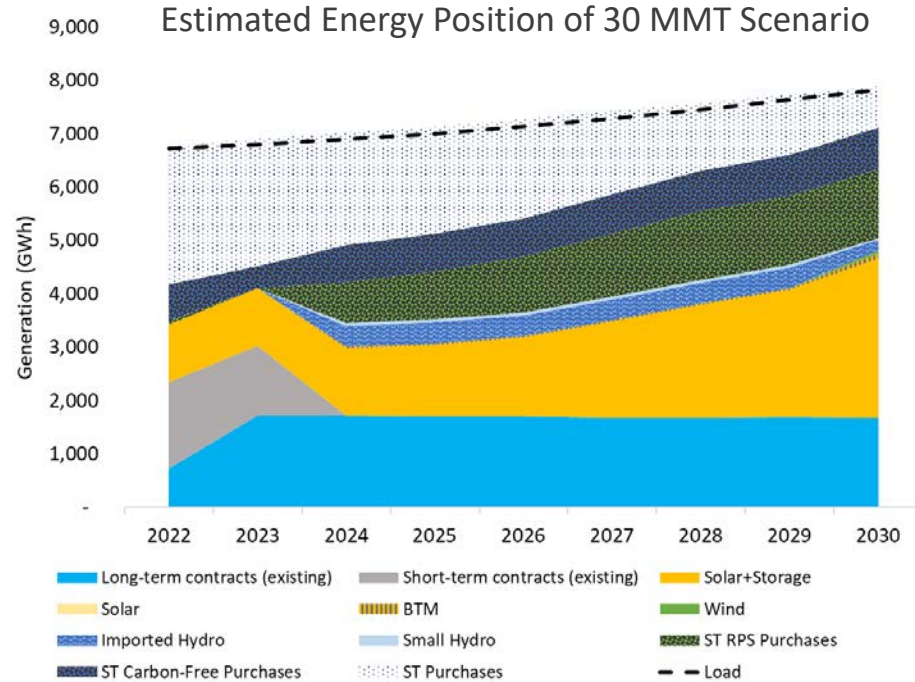
Resource Build (total)



Solar + storage shown as solar nameplate capacity. Storage assumed to be 40% of solar nameplate

Energy Position

- Existing resources and solar + storage provide majority of long-term PPA energy
 - Long-term PPA energy sufficient to exceed RPS requirement in each year
- Short-term purchases are illustrative
 - Short-term carbon-free purchases assumed to fill remaining emissions requirements, up to 10% of load
 - Short-term RPS purchases assumed to fill remaining emissions requirements
 - Short-term brown purchases assumed to fill remaining need



RA Position

