Ava Community Energy

Integrated Resource Planning - 2026

Marie Fontenot | July 1, 2026

Agenda

- **Introduction & Overview**
- **Required Materials**
- **Timeline & Process**
- **Description of Modeling**
- **Compliance Requirements**
- **Next Steps & Conclusion**
- **Appendix**
  - Description of Model Assumptions
  - Overview of Preliminary Results

Overview of Integrated Resource Planning (IRP)

- Staff have reviewed the details of the current Integrated Resource Planning (IRP) process and analysis in 2026 at the January and May Board and CAC meetings
  - This presentation is intended to refresh details on the IRP process and provide an update leading into the July board IRP approval
- The California Public Utility Commission's (CPUC) IRP program is a long-term planning process to ensure enough generation capacity is built to:
  - Reliability meet customer demand
  - Meet greenhouse gas reduction targets
- CPUC staff use capacity expansion modeling to determine the optimal mix of resources needed to meet requirements 1 and 2
- To inform their modeling, the CPUC requires Load Serving Entities (LSEs) to submit our own IRP portfolios identifying least-cost, GHG-compliant resource mix to meet our customer demand
- Ava's IRP Portfolio submission is both a compliance requirement and an opportunity to express our procurement preferences

Submission of Ava's IRP

- On a schedule defined by the CPUC, Ava is required to submit an IRP that meets CPUC-determined reliability and decarbonization metrics
  - Previous IRPs: 2018,2020, 2022.
  - 2024 IRP delayed; functionally evolved into 2026 IRP. Due August 10.
- Specifically, Ava must submit:
  - Resource Data Template (RDT): Summary of current and planned procurement
  - Clean System Power (CSP) Calculator: Evaluation of portfolio emissions
  - Narrative Template (NT): Description of portfolio and modeling process
- GenX modeling *informs*, but does not directly translate into, these deliverables
- Per CA statute, Ava must submit its IRP Plan to its governing board for approval
- Ava will complete additional IRP modeling utilizing different market assumptions, constraints, and modeling parameters purely for internal analysis following this exercise

The Filing – Required Materials & Examples

Narrative Template (NT)

- Executive Summary
- Study Design
- Study Results
- Action Plan
- Lessons Learned
- Note: each section has required, defined subsections
- Ava's 2022 IRP Narrative Template: https://res.cloudinary.com/diactiwk7/image/upload/v1667342459/2022_IRP_EBCE_LSE_Plan_xj6yzo.pdf

Resource Data Template (RDT)

- Excel workbook; many, many tabs
- Contract list w/ details
- Confirm contracts / resources are assumed to have "right' capacity factors based on when they come online & other details
- Summarize capacity value of resource
- Summarize types of resources in portfolio
- Ava's 2022 IRP RDT for 25 MMT portfolio: https://cdn.sanity.io/files/pc49kbjr/production/b06053ae09b11af066a291fa70d00d9653186e0b.xlsm

Clean System Power Calculator (CSP)

- Tool to estimate GHG & criteria pollutant emissions in portfolios
- Requirement to use this tool & method for emission accounting in IRP filing
- Only relevant to forecasting emissions, not calculating actual emissions
- Excel workbook; many, many tabs
- Ava's 2022 IRP CSP for 25 MMT portfolio: https://drive.google.com/file/d/1Dib2bFk5wLpibytxlLyxFxSjLM4Kr2qp/view?usp=share_link

Above links as well as Ava's 2018, 2020, 2022 IRPs can be found online at: https://avaenergy.org/about-ava/key-documents/integrated-resource-plan/

Timeline & Process

Date	Event
February 10, 2026	Final IRP modeling & filing requirements provided by CPUC
March 10, 2026	IRP filing deadline of Aug 10 was set by CPUC
April – May, 2026	Preliminary GenX modeling
May – July, 2026	Final GenX modeling & document preparation
July 15, 2026	Ava Board July meeting seeking board approval
July 16 – Aug 5, 2026	Final updates & edits to formal submissions
Aug 5-10, 2026	Regulatory team works with outside counsel on redactions and final submission
August 10, 2026	IRP filing deadline to CPUC
September 16, 2026	Officially filed IRP materials will be added to the Consent agenda in Board meeting and later posted on Ava website

IRP Modeling

- **GenX model**
  - Open-source tool to support investment planning
  - Developed by the MIT Energy Initiative and Princeton University's Zero-carbon Energy systems Research and Optimization (ZERO) Lab[1]
  - A least-cost optimization model, acts as central planner to determine cost-optimal generation portfolio, energy storage, and transmission investment needed to meet defined system demand while adhering to various grid constraints and market design constraints
  - Contains thousands of lines of data, each "successful" model runs takes ~3-4 hours
- **Need for compliance between GenX and filing materials…**
  - Calculations are slightly different btw GenX and the CSP calculator. "Translation" is tricky.
  - GenX could appear compliant with CPUC requirements, then calculation in CSP could demonstrate different emissions or RDT calculation could demonstrate an RA-lack of compliance. Results in need for re-runs and corrections.
  - Materials that Ava Board approves in July may require slight revision to align different modeling calculations, to accurately represent the GenX modeled portfolio in required CPUC templates, and to remove "errors" in cells.

[1] https://energy.mit.edu/genx/

IRP Approval & Compliance

Ava must submit its IRP Plan to its governing board for approval and provide its IRP Plan to the CPUC for certification per Public Utilities Code Section 454.52(b)(3)

Ava's IRP Plan must meet Reliability and Renewable Procurement Requirements with a diverse resource mix, avoid energy shortfalls, minimize ratepayer costs, minimize GHG and local air pollutants

Required Areas	Where / how it appears
Economic, reliability, security & other benefits	• NT, RDT, CSP describe RPS content, forecast annual emissions; estimate portfolio costs under different market conditions
Diverse resource portfolio	• Compliance portfolio will include short- & long-term procurement; variety of generation resources (not all solar!) • NT describes Ava's customer programs (e.g. Resilient Home and VPP products)
Resource adequacy requirements	• NT, RDT will describe how portfolio satisfies near-term and forecasted long-term RA requirements

Next Steps

Now
- Model “clean ups”
- Complete full drafts of NT, RDT, CSP

7/16/26
- Ava Board approves compliance materials

Ongoing
- Ava staff available to provide 1:1 Q&A or Ad Hoc review of filing to Board members

8/10/26
- Compliance submission to CPUC

9/16/26
- Final, compliance materials on Ava Board Consent Agenda

Later 2026
- Staff present supplemental Ava analysis

Conclusion

- This presentation is intended to refresh details on the IRP process and provide an update leading into the July board IRP approval
- In light of a tight timeframe to finalize GenX modeling and the IRP submission documents, staff is seeking any clarifying questions or requests regarding the upcoming approval process with the board

Appendix – Model Assumptions & Preliminary GenX Results

CPUC Requirements

Required Inputs

- Load forecast & GHG benchmark for each LSE
- CAISO zonal topology
- Resource regions align with CAISO study areas
- Rules on candidate resources; i.e. ***x*** much natural gas for whole system, ***x*** much geothermal, ***x*** much in-state wind, ***x*** much out-of-state wind, etc)
  - Includes rules for different resource capacity factors
  - Resource cost assumptions
  - Restrictions on how much of a resource type can be developed in different areas
  - Resource generation profiles
- Planning reserve margin and resource capacity factors (effective load carrying capability ELCC)
- 2024 dollar year

CPUC Candidate Resources (2030)

Resource	Levelized Cost of Energy ($/MWh)	Levelized Fixed Cost (2024 $/MW-yr)
Geothermal_-_CA	$97.13	$680.70
NF_EGS_-_NV_to_SCE_-_Control	$142.34	$997.48
NF_EGS_-_NV_to_SCE_-_Eldorado	$138.40	$969.88
NF_EGS_-_OR_to_PGE_-_Malin	$134.77	$944.48
Onshore_Wind_-_NE_CA_to_PGE_-_Malin	$102.76	$234.42
Onshore_Wind_-_NM_to_SCE_-_Lugo_-_Tranche_5	$77.52	$255.56
Onshore_Wind_-_NM_to_SCE_-_Palo_Verde_-_Tranche_1	$69.64	$229.59
Onshore_Wind_-_NM_to_SCE_-_Palo_Verde_-_Tranche_2	$79.65	$262.58
Onshore_Wind_-_NM_to_SCE_-_Palo_Verde_-_Tranche_3	$84.37	$278.15
Onshore_Wind_-_NM_to_SCE_-_Palo_Verde_-_Tranche_4	$87.77	$289.36

Resource	Levelized Cost of Energy ($/MWh)	Levelized Fixed Cost (2024 $/MW-yr)
Onshore_Wind_-_WY_to_PGE_-_Tesla_-_Tranche_1	$102.93	$360.70
Onshore_Wind_-_WY_to_PGE_-_Tesla_-_Tranche_2	$102.93	$360.70
PGE_Fresno_Solar	$51.89	$139.03
PGE_GBA_Solar	$52.01	$139.03
PGE_GBA_Wind	$68.99	$174.16
PGE_Kern_Solar	$49.49	$139.03
PGE_Kern_Wind	$68.99	$174.16
PGE_NGBA_Solar	$52.56	$139.03
PGE_NGBA_Wind	$76.35	$174.16
SCE_Arizona_Solar	$42.71	$119.84

CPUC Candidate Resources (2030)

Resource	Levelized Cost of Energy ($/MWh)	Levelized Fixed Cost (2024 $/MW-yr)
SCE_Eastern_Solar	$47.60	$139.03
SCE_Eastern_Wind	$61.87	$174.16
SCE_EOP_Wind	$59.78	$159.44
SCE_Metro_Solar	$49.58	$139.03
SCE_NOL_Solar	$45.56	$139.03
SCE_NOL_Wind	$79.28	$174.16
SCE_Northern_Solar	$45.91	$139.03
SCE_Northern_Wind	$79.28	$174.16
SDGE_Arizona_Solar	$42.71	$119.84
SDGE_Baja_California_Wind	$61.87	$174.16
LDES_-_Generic_100-hr	$3,166.62	$569.99

Resource	Levelized Cost of Energy ($/MWh)	Levelized Fixed Cost (2024 $/MW-yr)
SDGE_Imperial_Solar	$49.79	$139.03
SDGE_Imperial_Wind	$61.87	$174.16
Li-ion_Battery_4-hr_-_CA	$121.36	$135.54
Li-ion_Battery_8-hr_-_CA	$101.47	$226.66
Gas_CCGT	$55.95	$184.22
Gas_CT_-_Frame	$234.90	$173.72
Reciprocating_Engine	$421.40	$341.34
Morro_Bay_Offshore_Wind	$338.64	$1,377.01
Humboldt_Bay_Offshore_Wind	$319.32	$1,377.01
LDES_-_Generic_12-hr	$192.28	$403.79
LDES_-_Generic_24-hr	$350.36	$504.52

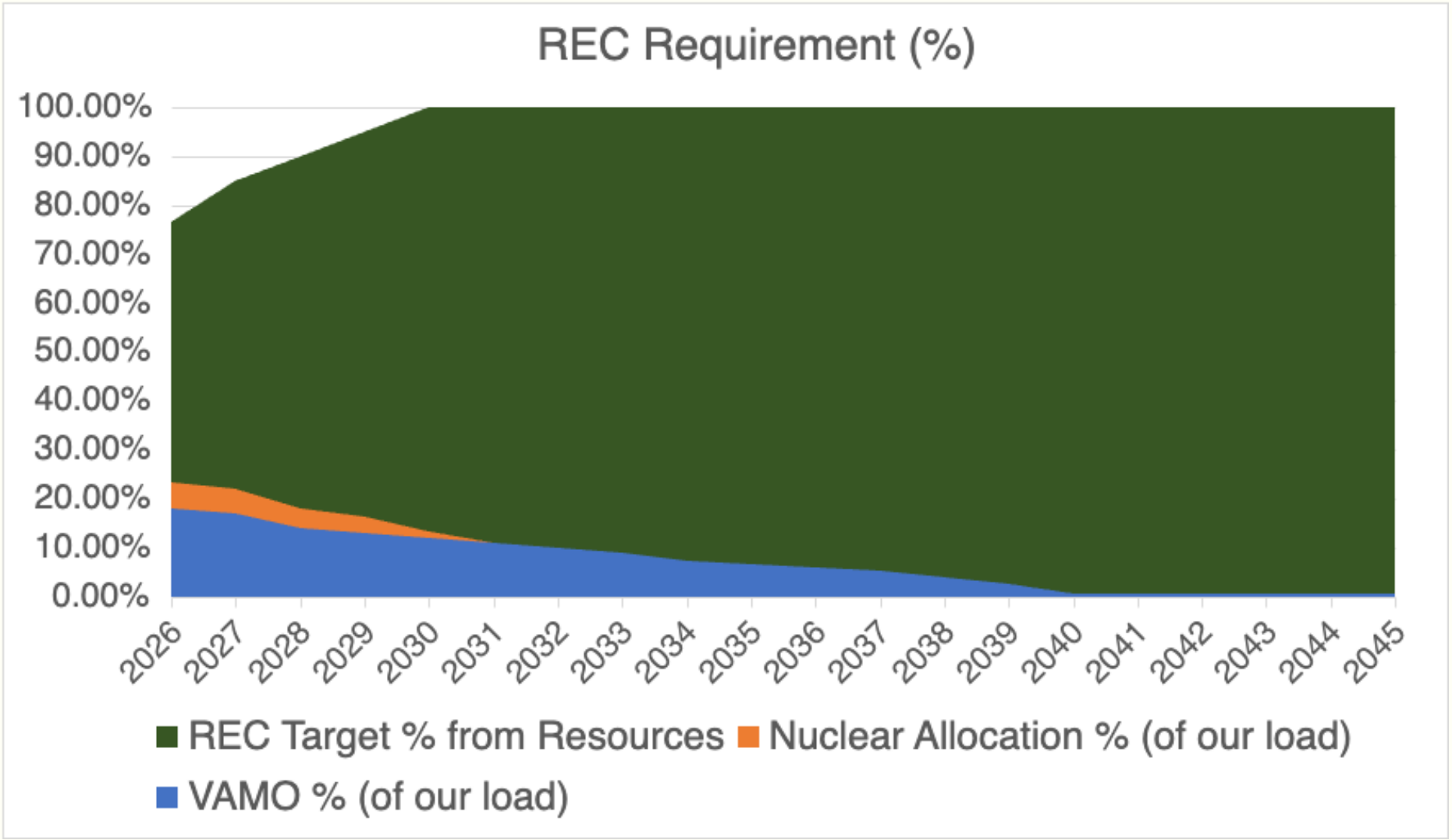
Strategy Assumptions

Category	Constraint
Maximum Available Capacity	0MW in 2026, No limit beyond 2028
Maximum Market Purchase	1000MW per hour
Maximum Market Sale	1000MW per hour
Maximum Out of State Wind Available Capacity	N/A (New Mexico Wind starts in 2028, Wyoming Wind starts in 2030)
PCIA Hedging Strategy	Incorporated
Minimum Annual Available Capacity	70MW mandated Geothermal/Long-Duration Storage by 2032
Market Buy-Sell Spread	$1 per MWh
Maximum In-State Wind Available Capacity	250MW per year until 2030, 1000MW per year between 2031-2035
Production Tax Credit & Investment Tax Credit	PTC is available in 2026-2030; ITC is incorporated in the levelized fixed cost (From TPP)

REC Requirements

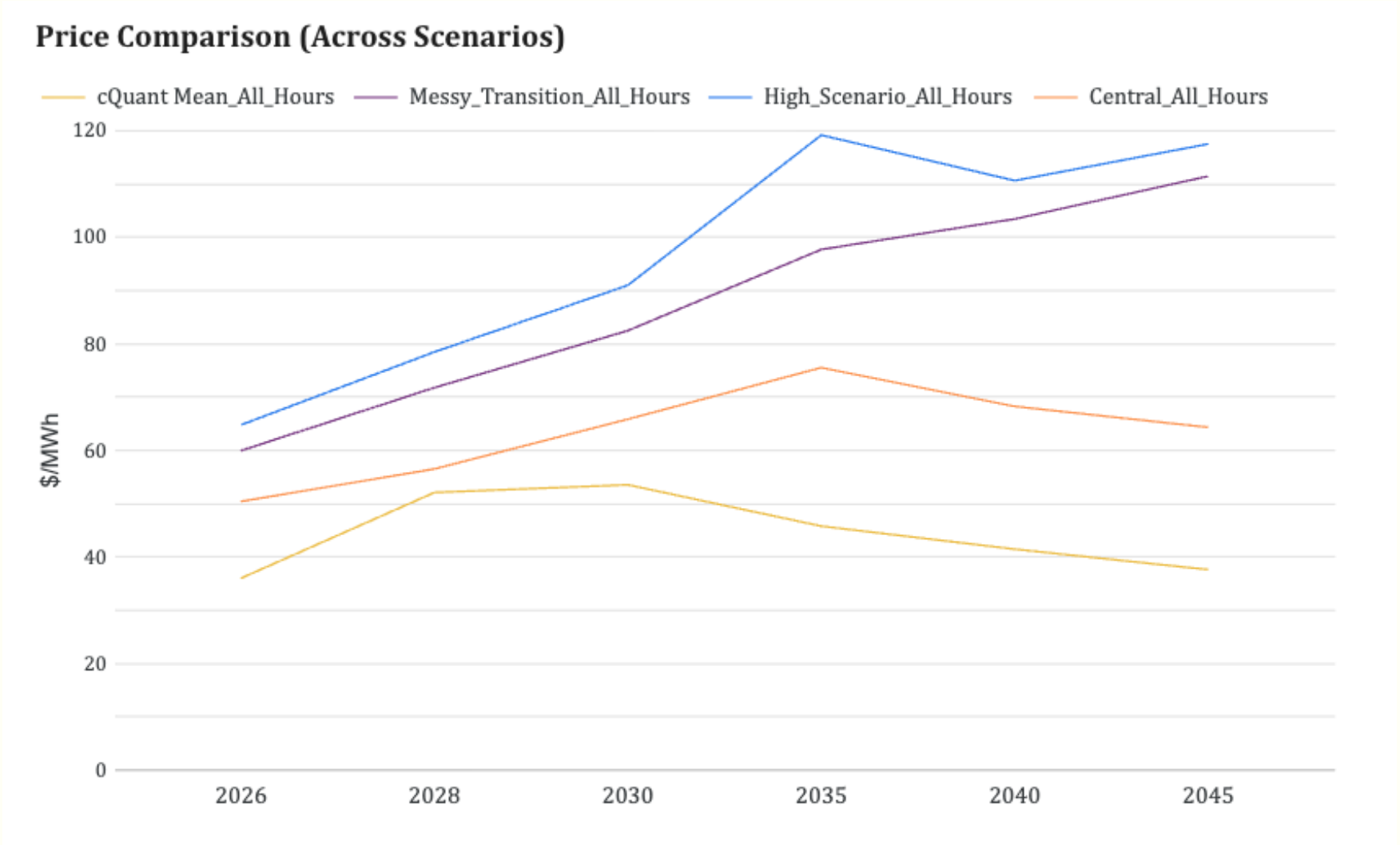
Year	State-level RPS Requirements (%)	Ava Internal Clean Energy Requirements			GHG Emissions Benchmark (MMT)
		Ava VAMO Allocation (%)	Ava Nuclear Allocation (%)	Total (%)	
2026	49.2%	17.96%	5.43%	76.6%	1.106
2028	54.6%	13.84%	4.27%	90.0%	1.106
2030	60.0%	11.84%	1.37%	100.0%	1.106
2035	60.0%	6.49%	0%	100.0%	0.917
2040	60.0%	0.70%	0%	100.0%	0.767
2045	60.0%	0.46%	0%	100.0%	0.391

REC Requirements



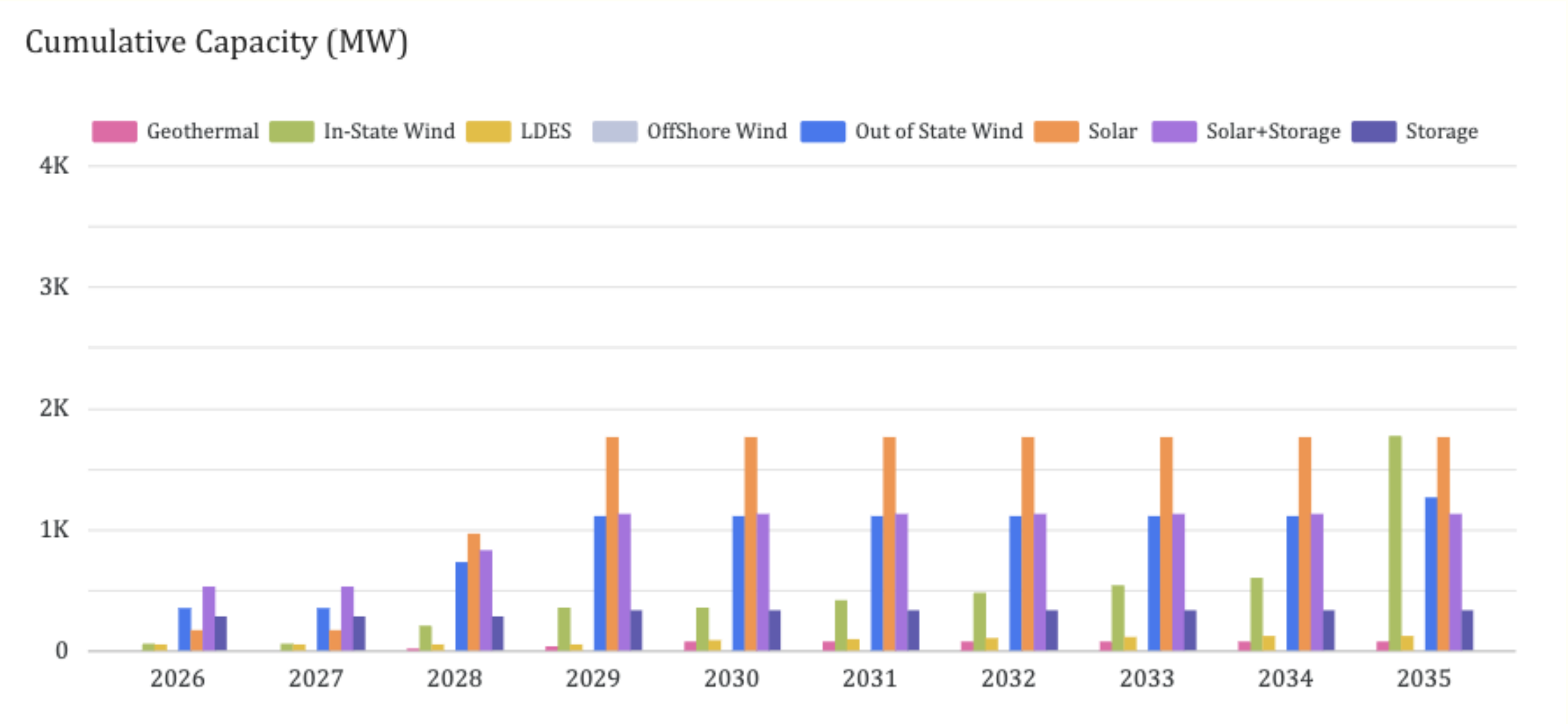
Updated Market Prices

Average DLAP prices from Ava Internal modeling vs. Aurora Price Forecast Curves

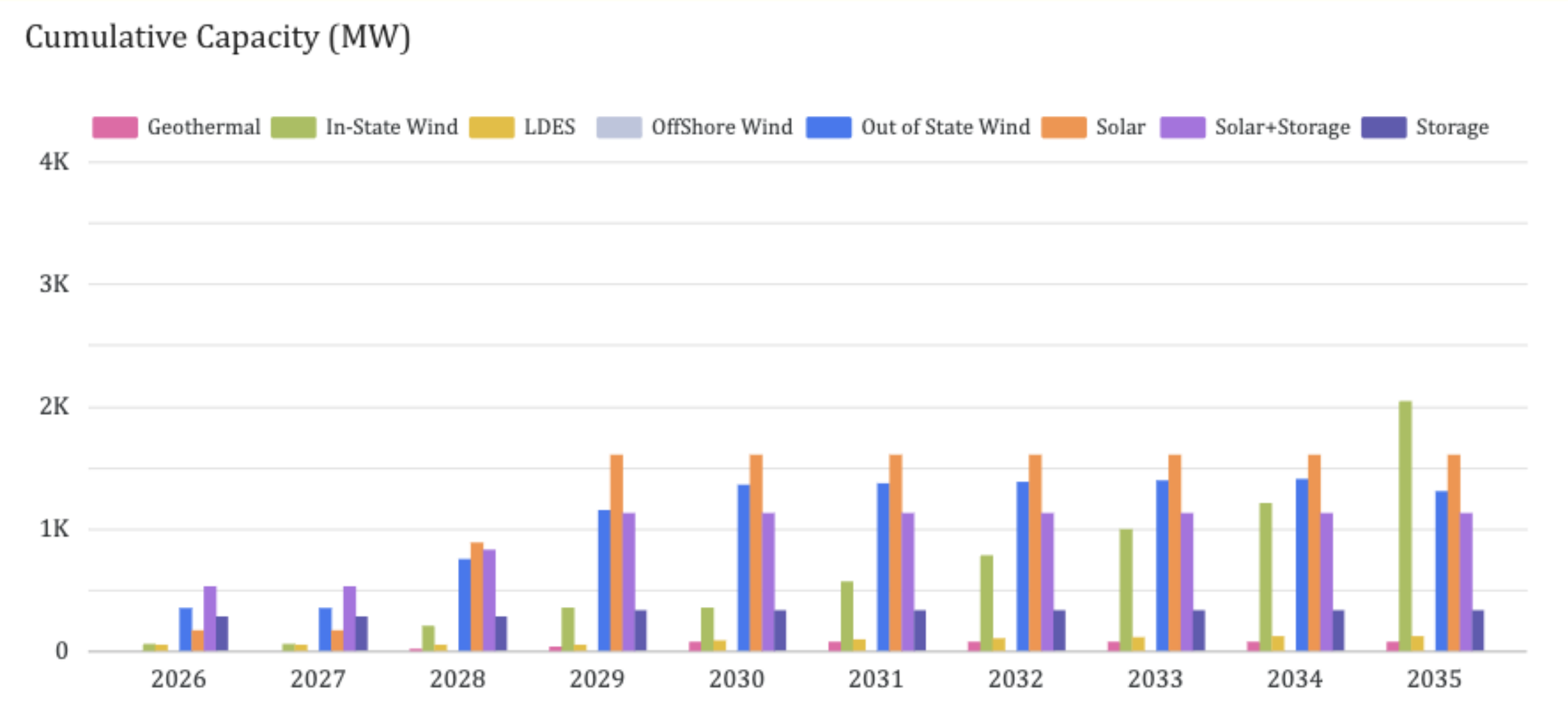


Updated GenX Model Results

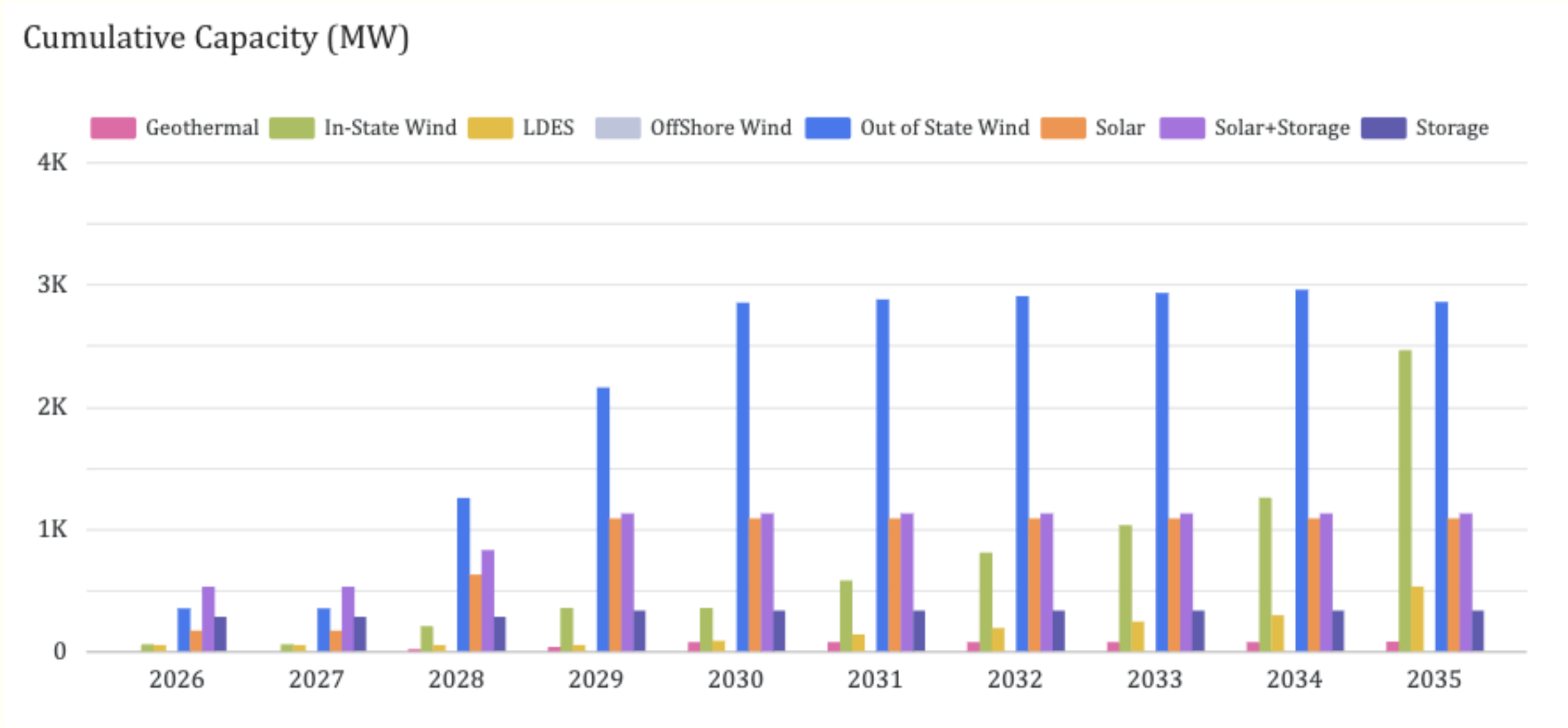
Cumulative Capacity Results - “cQuant Mean”



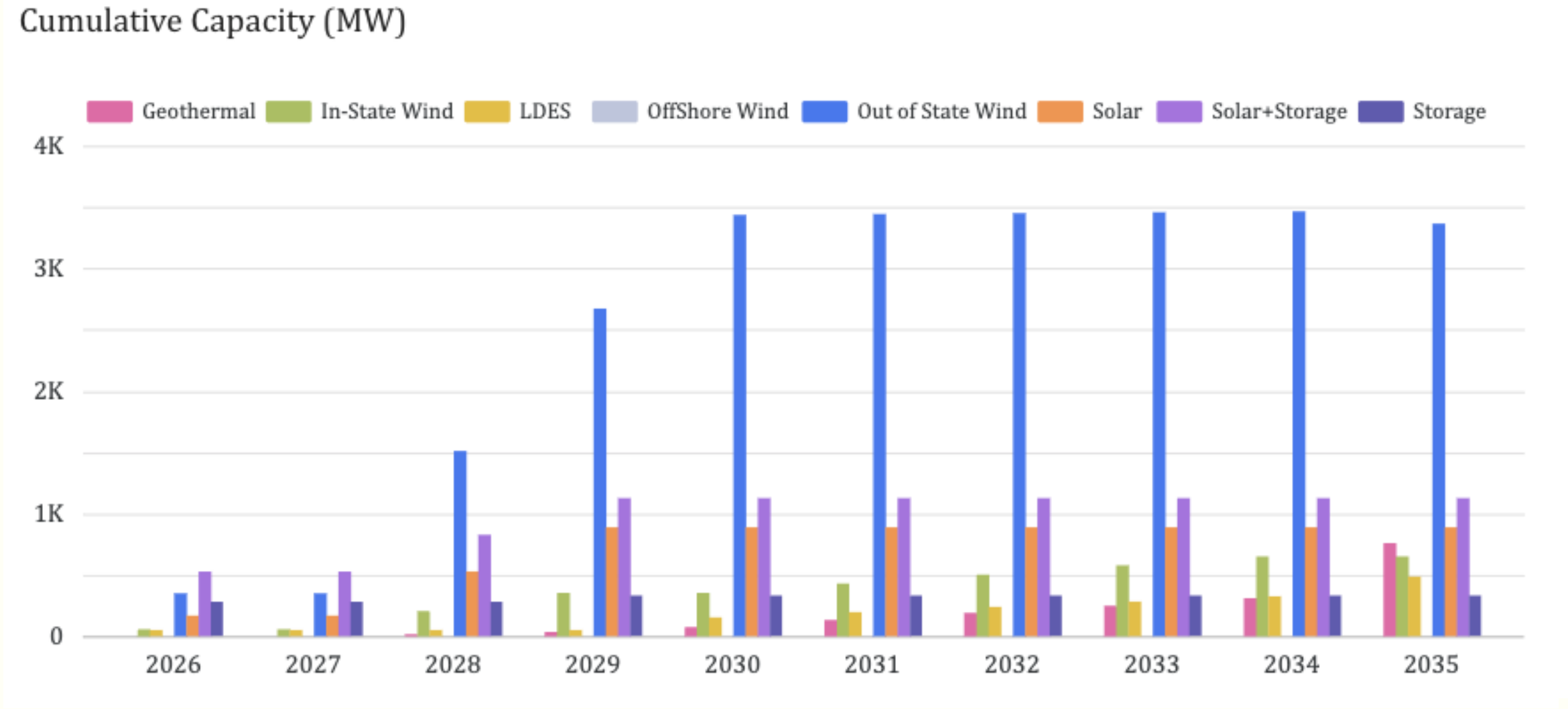
Cumulative Capacity Results - “Central”



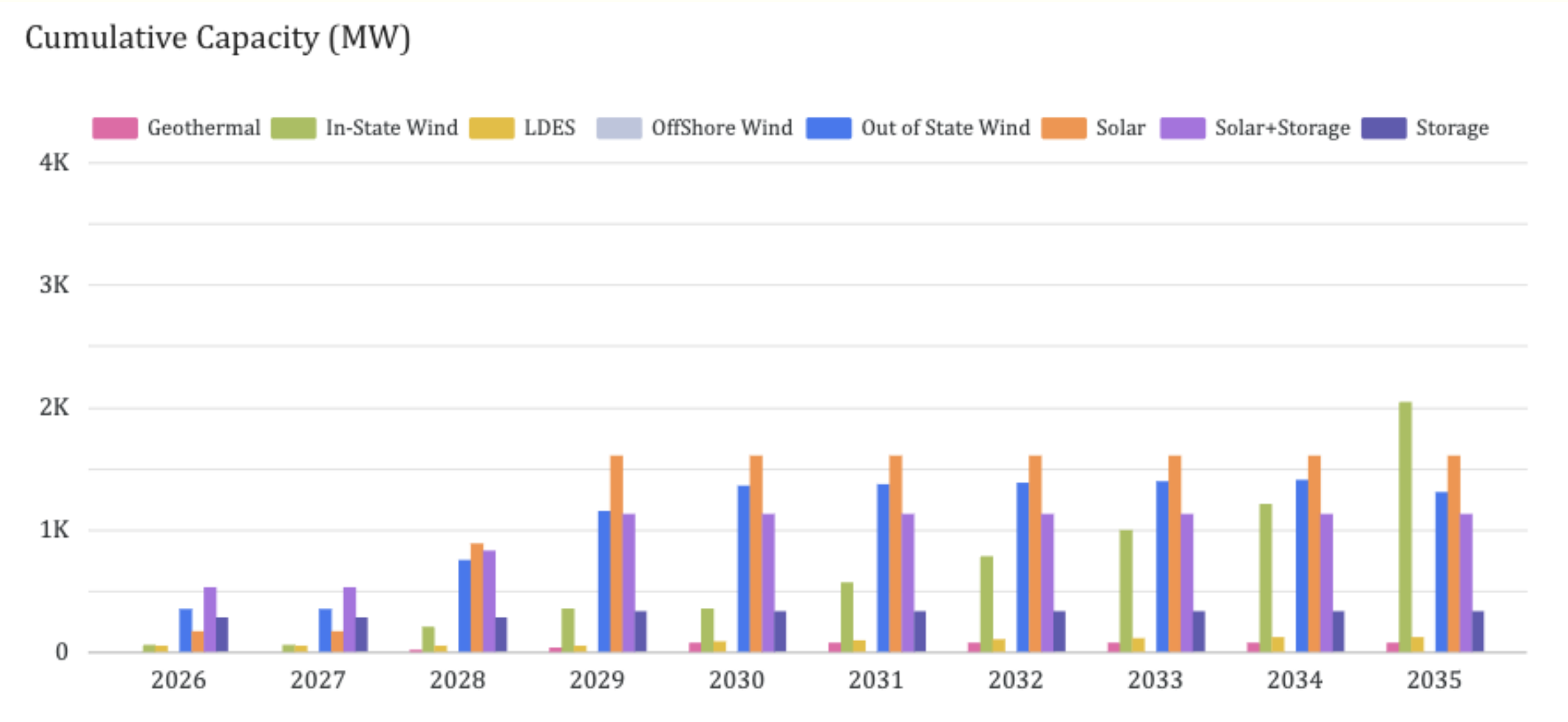
Cumulative Capacity Results - “Messy Transition”



Cumulative Capacity Results - “High Scenario”



Conforming Portfolio for CPUC - "Central"



Additional Elements of Compliance Filing

- Estimated cost & revenues of portfolio
- Estimation of Ava's compliance portfolio emissions and portfolio contribution to state-wide emissions
- Estimation of annual generation from Ava's compliance portfolio and value/ability of portfolio to contribute to hedging
- Portfolio contribution to system reliability
- CAISO market exposure associated with the portfolio
- Ability of portfolio to meet RPS compliance obligations