
ENGIE
UNITED ENERGY
ERCOT Market Analysis: Battery Energy Storage Systems (2023-24)
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Purpose of the Analysis

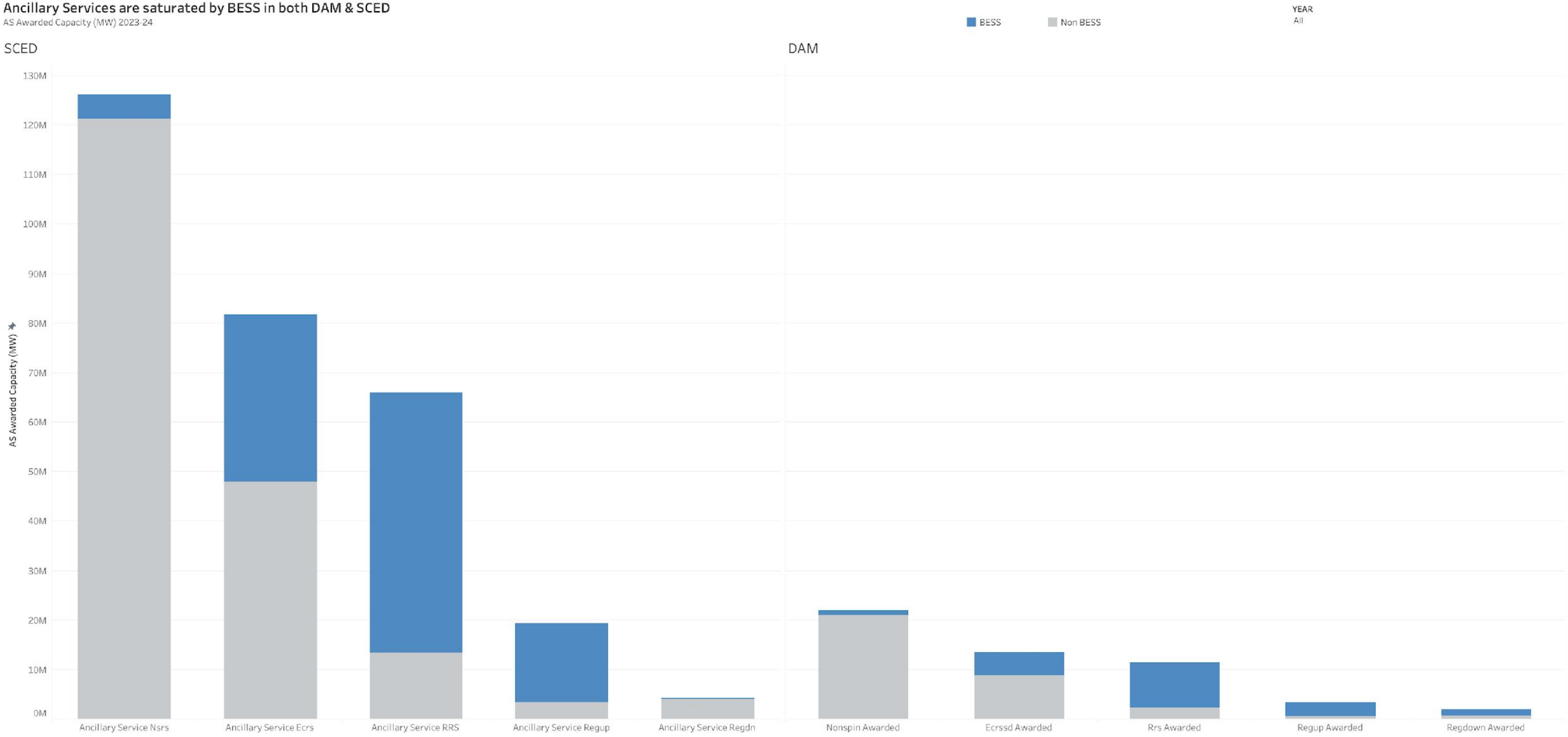
Assess Battery Capacity Utilization and Optimize Strategies for Engie

Agenda

- Compare DAM and SCED market
- Analyze market capacity, revenue and settlement point price in DAM
- Analyze BESS capacity allocation, revenue, pricing and Energy market strategy
- Summary & Recommendation

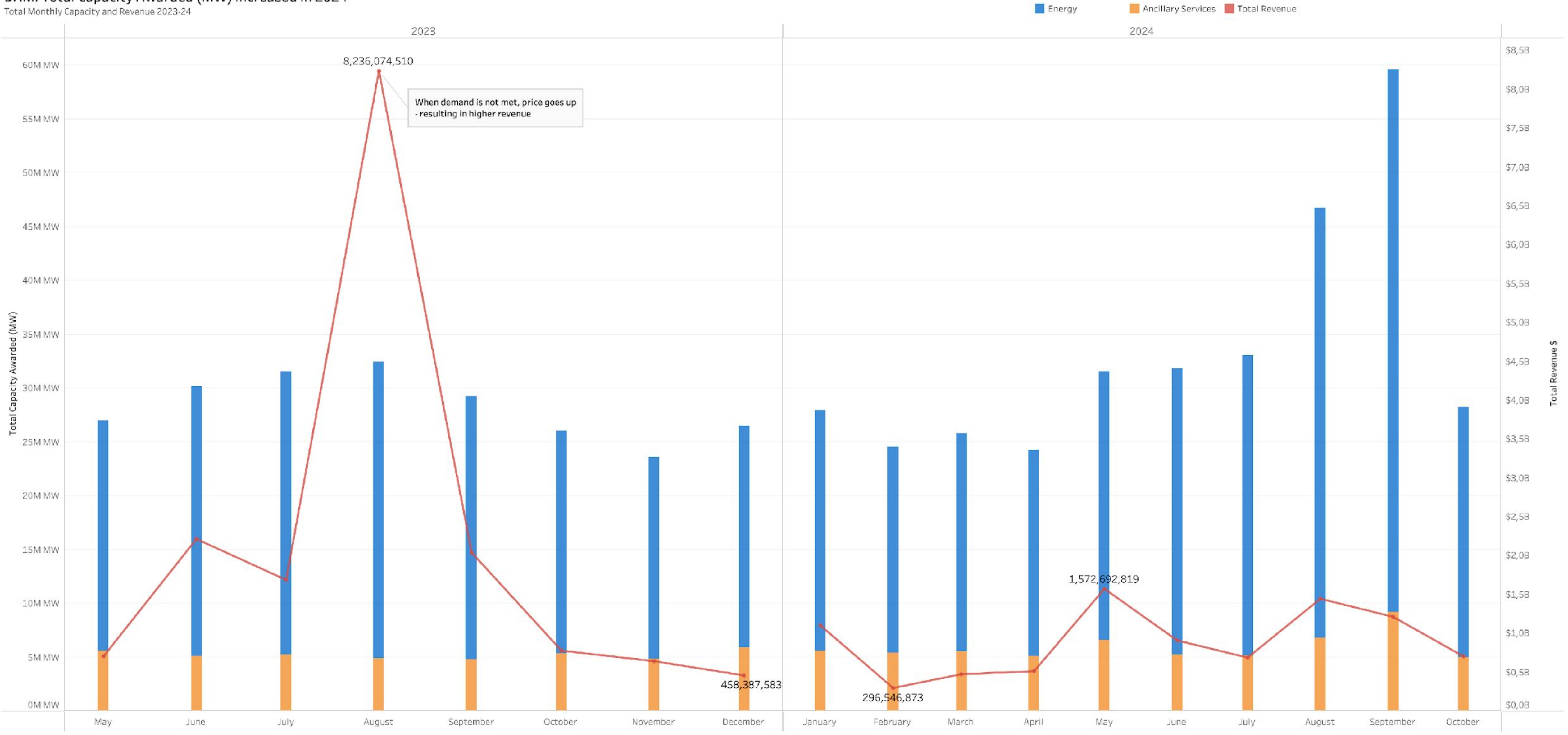
Ancillary Services are saturated by BESS in both DAM & SCED

AS Awarded Capacity (MW) 2023-24



DAM: Total Capacity Awarded (MW) increased in 2024

Total Monthly Capacity and Revenue 2023-24



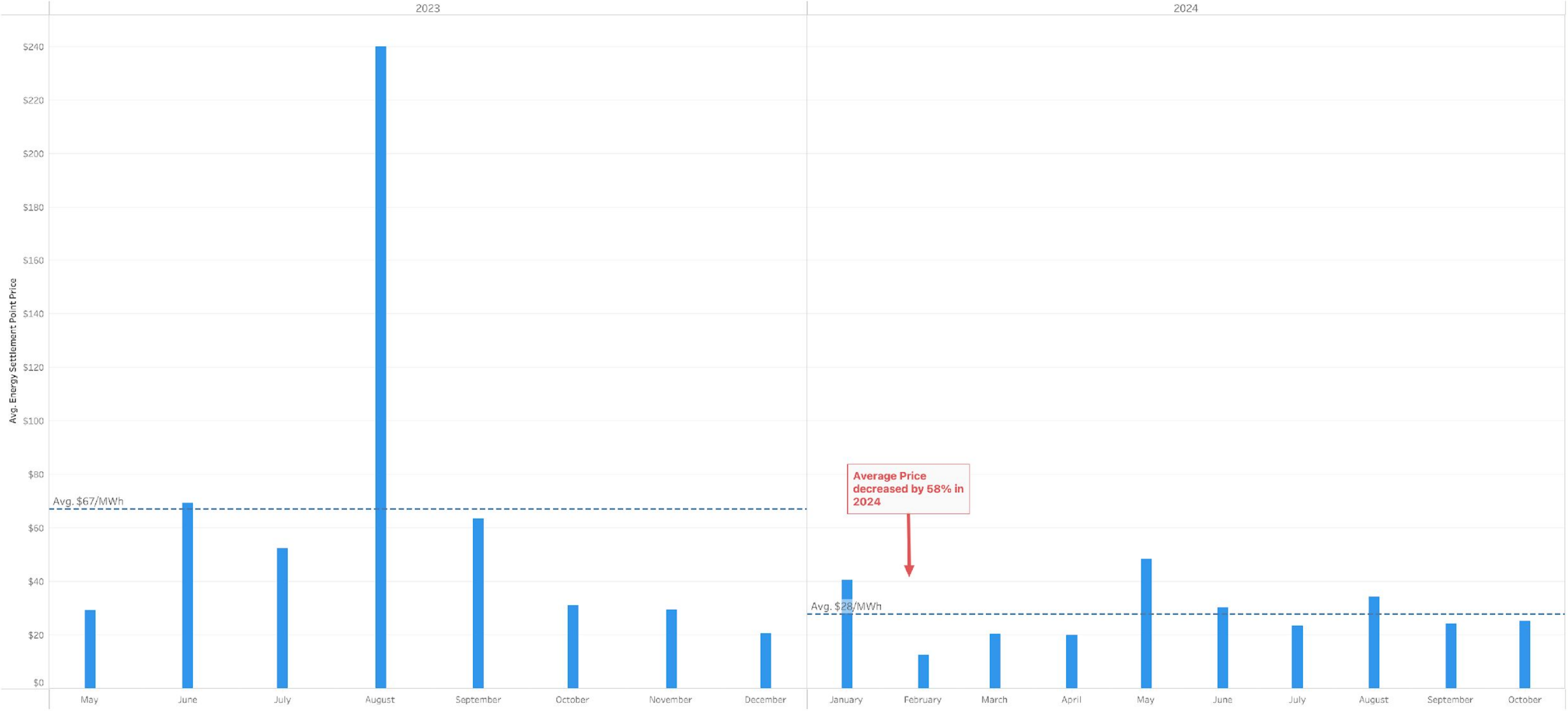
DAM: Energy makes over 80% of MW Capacity and Revenue

Total Monthly Capacity and Revenue 2023-24

Market	Capacity (MW)	Revenue ($)	Average Price per MW ($)	Share of Total Capacity	Share of Total Revenue
Energy	466,644,256	$23,860,095,393	$51	81.89%	92.19%
Ancillary	103,223,644	$2,020,627,204	$20	18.11%	7.81%
Total	*569,867,900*	*$25,880,722,597*	*$45*	-	-

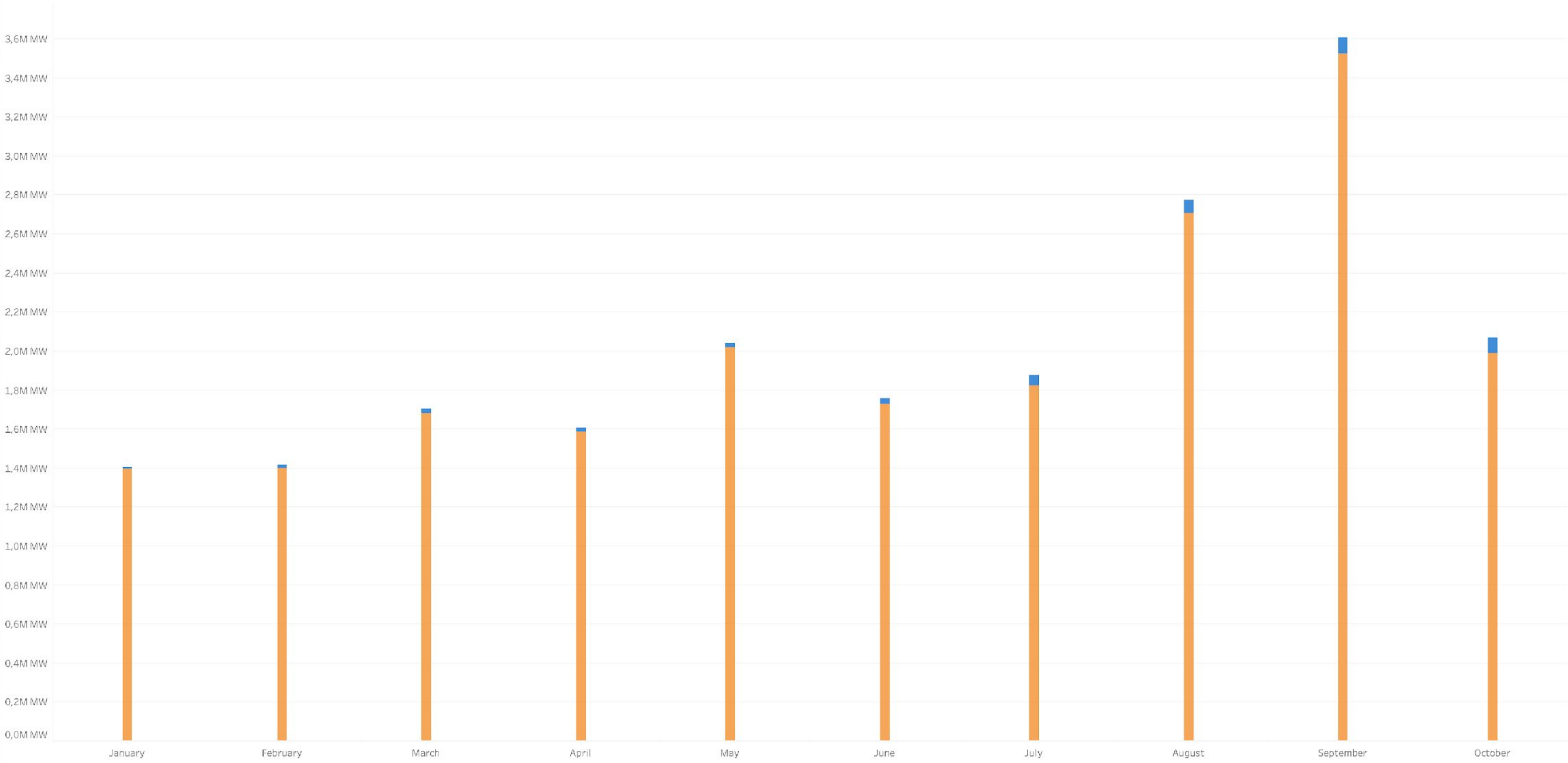
DAM: Monthly average Energy Price (SPP) decreased in 2024

Avg. 1-hour Energy Settlement Point Price by highest and lowest hours



Majority of Battery Capacity is allocated in Ancillary Services

BESS: Total Monthly Capacity 2024

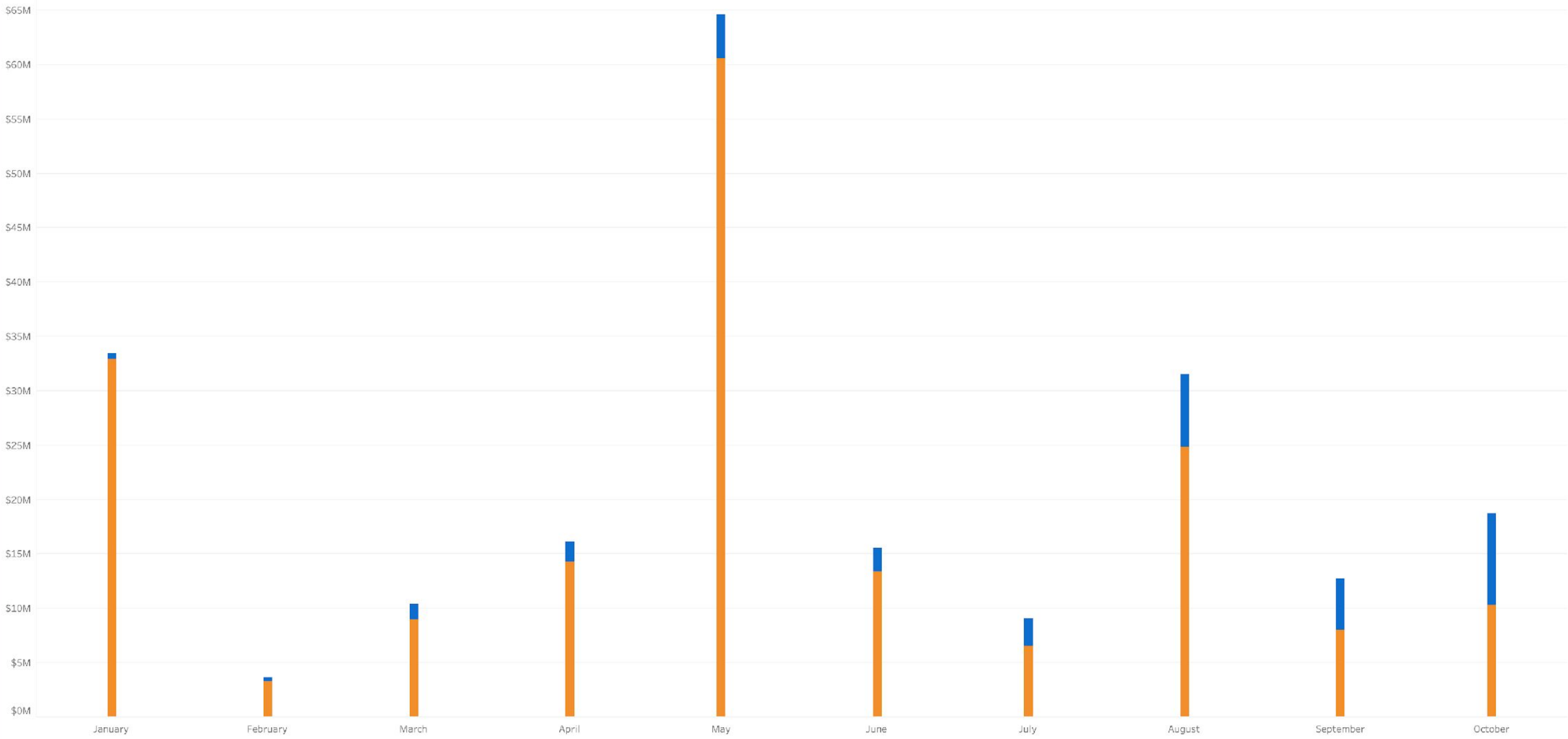


As Type
All

Resource Type
- [x] BESS
- [ ] CCGT90
- [ ] CCLE90
- [ ] CLLIG
- [ ] DSL
- [ ] GSNONR
- [ ] GSREH
- [ ] GSSUP
- [ ] HYDRO
- [ ] NON-BESS
- [ ] NUC
- [ ] PVGR
- [x] PWRSTR
- [ ] RENEW
- [ ] SCGT90
- [ ] SCLE90
- [ ] WIND

Increase in Monthly Revenue for Batteries with more allocation in Energy

BESS: Total Monthly Revenue 2024



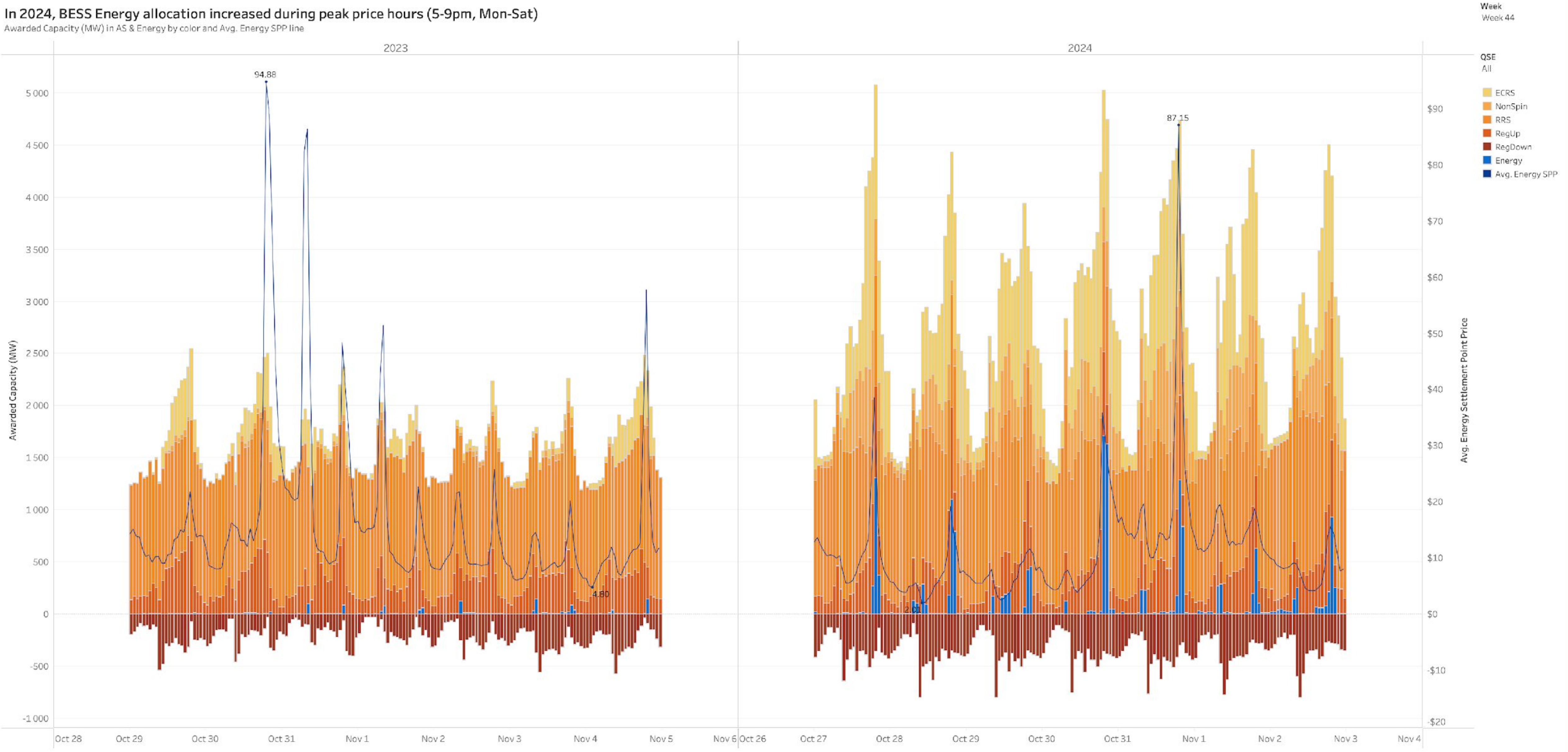
Energy
Ancillary Service

As Type
All

Resource Type
- [x] BESS
- [ ] CCGT90
- [ ] CCLE90
- [ ] CLLIG
- [ ] DSL
- [ ] GSNONR
- [ ] GSREH
- [ ] GSSUP
- [ ] HYDRO
- [ ] NON-BESS
- [ ] NUC
- [ ] PVGR
- [x] PWRSTR
- [ ] RENEW
- [ ] SCGT90
- [ ] SCLE90
- [ ] WIND

In 2024, BESS Energy allocation increased during peak price hours (5-9pm, Mon-Sat)

Awarded Capacity (MW) in AS & Energy by color and Avg. Energy SPP line

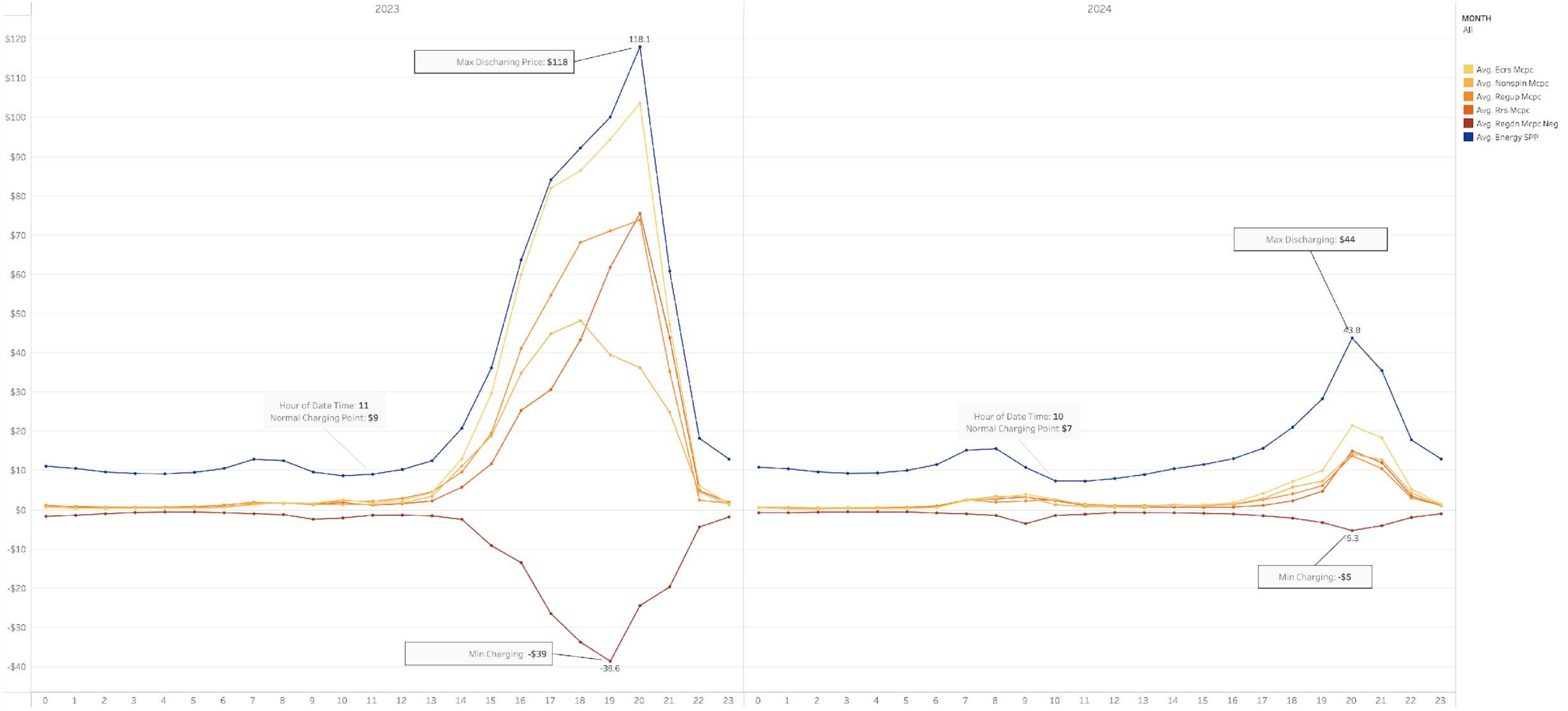


From 2024 and beyond, as the grid becomes more robust, there will be less room for arbitrage across all services in the DAM due to smaller price difference

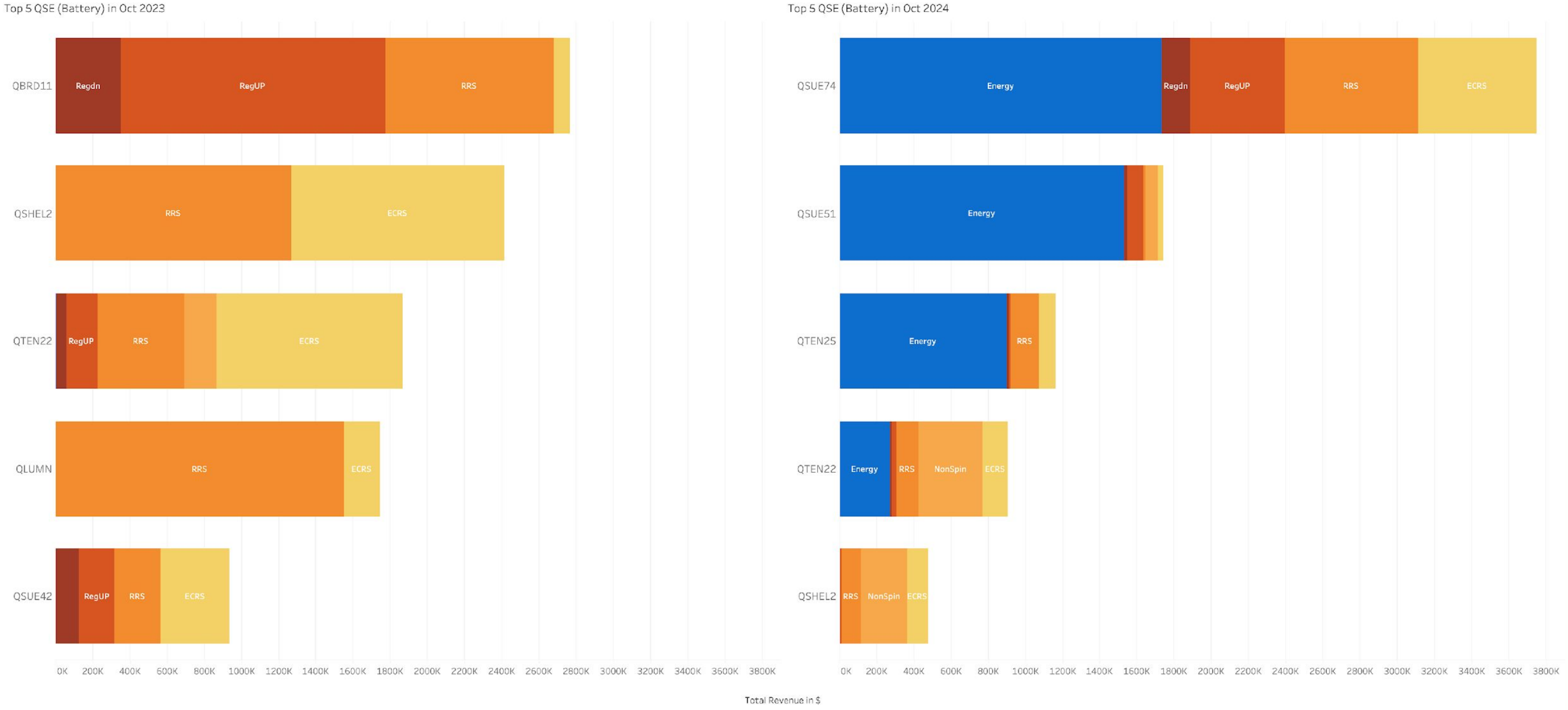
Avg. Hourly SPP and MCPC breakdown by color in 24-hour period

DAY
All

MONTH
All

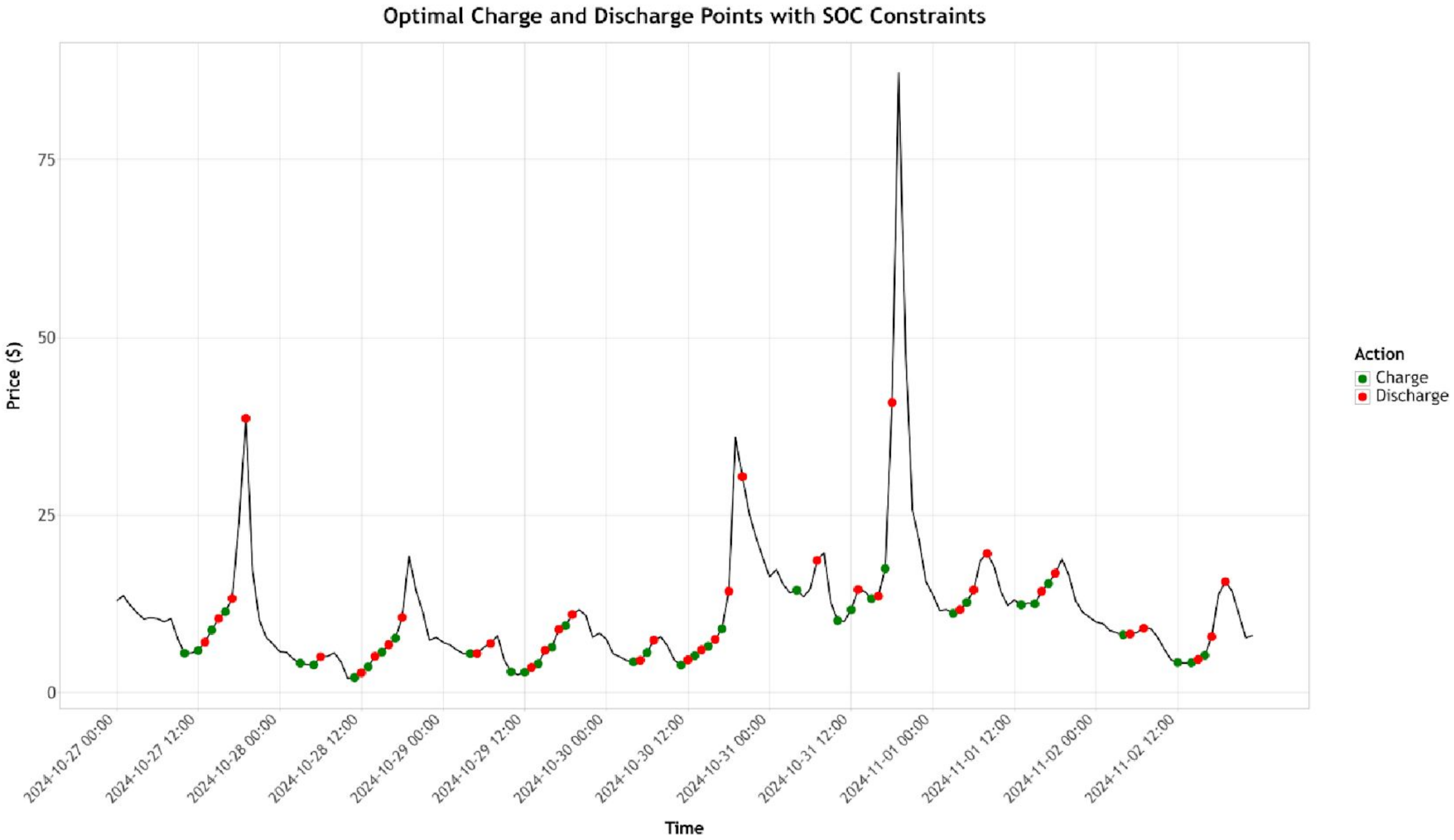


In Oct 2024, top 5 BESS QSEs earned most of their revenue from Energy in DAM



Recommendation

To Maximize Battery Revenues: Prioritize Energy market participation over Ancillary Services, especially in June & September, where energy award prices are consistently higher than average ancillary service prices



Summary

- In 2024, DAM average revenues were impacted by the increase in average monthly capacity and decrease in the energy prices
- In DAM, the Energy prices (SPP) were **consistently higher** than those of Ancillary services
- Intra-day peak prices for both Energy and AS were observed between 5-9pm
- In 2024, we observed a shift towards Energy allocation for Top Battery QSE during peak Energy price hours
- A slight increase in Energy market allocation, results in a **significant uptick in revenue contribution** for Batteries

THANK YOU!