Ohm Analytics

Q1-25 RESIDENTIAL STORAGE & VPP MARKET UPDATE

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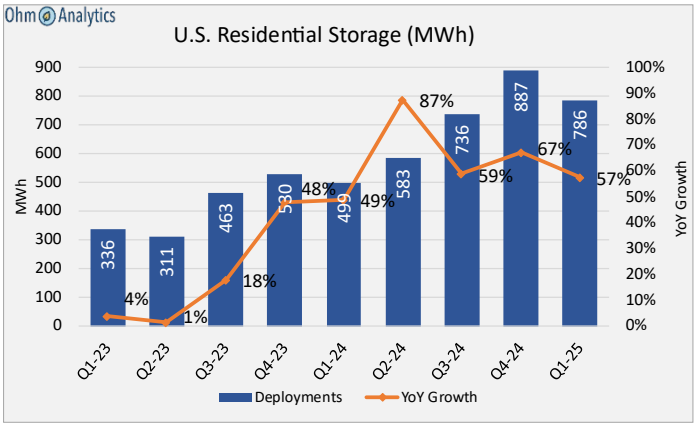
U.S. RESIDENTIAL STORAGE

SUMMARY

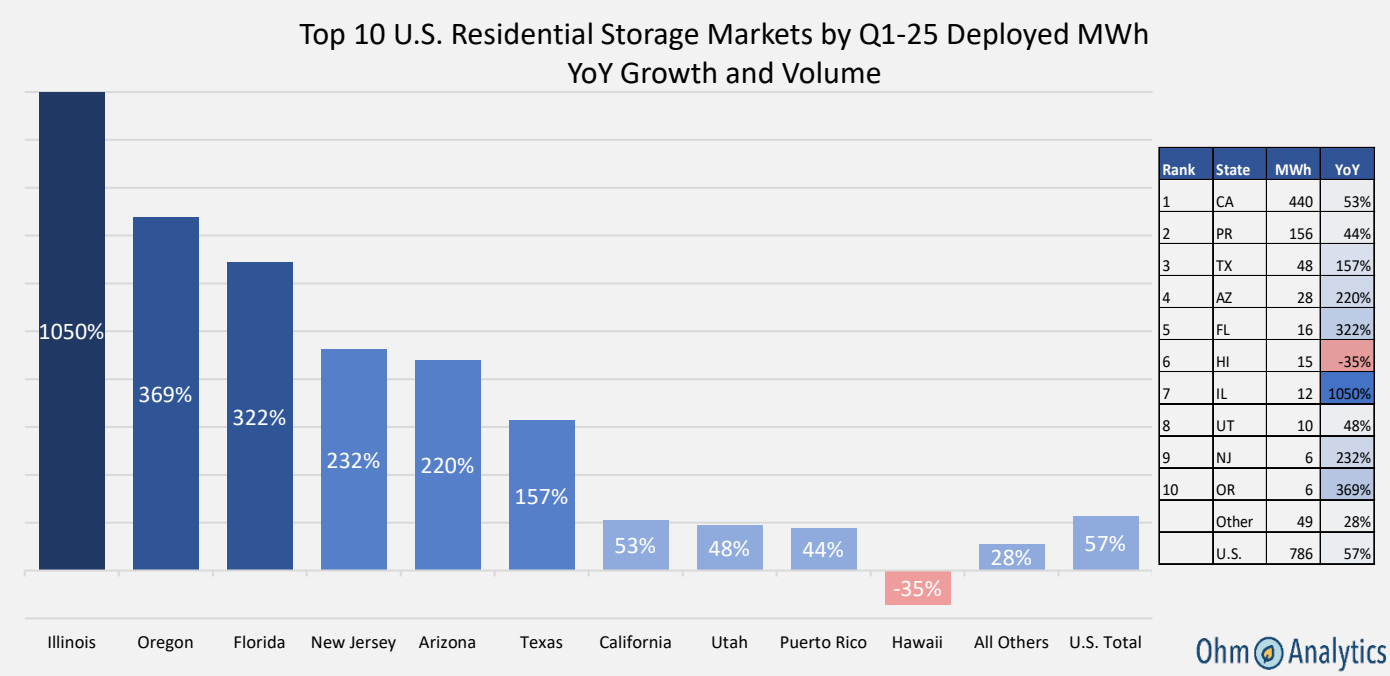
- **Q1-25 +57% YoY, 786 MWh deployed:** CA and PR were significant drivers of growth in Q1 with 440 MWh (53% YoY) and 156 MWh (44% YoY) deployed, respectively.
- **Attachment Rate Trends Mostly Positive:** Key Ex. CA markets grew YoY while attachment rates grew but showed signs of flattening (FL, NC, etc.) in some state markets, with tariffs and consumer sentiment a potential headwind for near-term adoption.
- **ITC Bill and Tariffs Concern, More Positive for BESS than PV:** The draft of the reconciliation bill eliminates 25D and disqualifies residential solar leases from 48E, but BESS appears to qualify for 48E. Overall incentives seem to be supportive for BESS, but PV headwinds would be a net negative for the BESS market. The rapidly changing tariffs have also added uncertainty on pricing that may be a near-term headwind.



Residential storage quarterly deployments

NATIONAL OVERVIEW

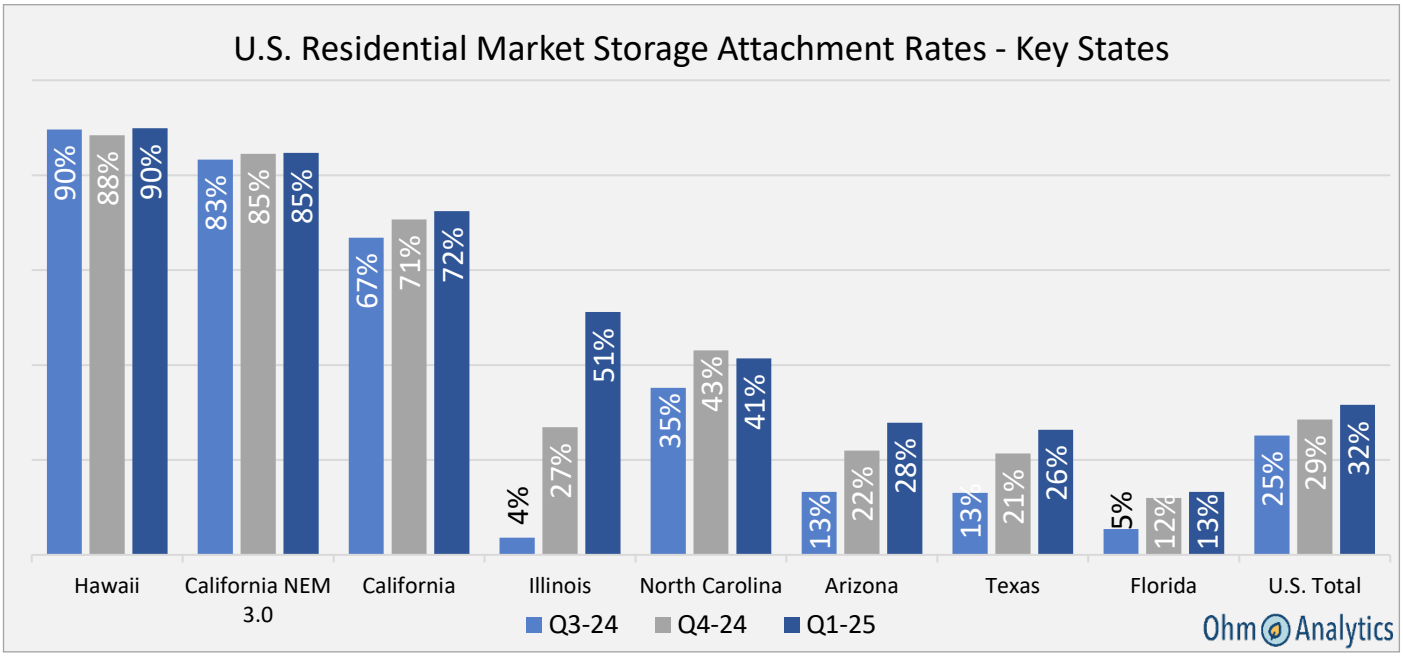
786 MWh of residential storage were deployed in the U.S. in Q1-25, an increase of 57% YoY. 440 MWh were deployed in CA, an increase of 53% YoY. Outside of CA, PR was the second largest driver of growth with 156 MWh added (44% YoY). The recent expansion of LUMA's CBES program, ongoing grid reliability issues, and the 100% attachment rate on the PR Solar Access Program are tailwinds for the PR storage market. Several key markets outside of CA and PR including AZ, CO, IL, FL, NC, and TX supported the national trend with triple digit or more YoY growth in Q1. Attachment rates have continued to improve across CA and Ex. CA markets despite softer performance in the residential PV market, driving growth in national storage deployment.



Rank	State	MWh	YoY
1	CA	440	53%
2	PR	156	44%
3	TX	48	157%
4	AZ	28	220%
5	FL	16	322%
6	HI	15	-35%
7	IL	12	1050%
8	UT	10	48%
9	NJ	6	232%
10	OR	6	369%
	Other	49	28%
	U.S.	786	57%

U.S. quarterly residential storage market trends

In Q1-25 the attachment rate in IL increased to 51% (from 27% in Q4-24) as the market adjusted to the new, decreased net metering rate.



U.S. quarterly residential storage attachment rate trends*
*CA Muni Utility Service Areas not impacted by NEM 3 broken out (see appendix)

Attachment rates improved across the Sun Belt states, with AZ and TX increasing to 28% and 26%, respectively, while growth in FL and NC attachment rates was flattish but remained high relative to Q3-24 performance.

ITC BILL AND TARIFFS

Budget Reconciliation Bill and BESS

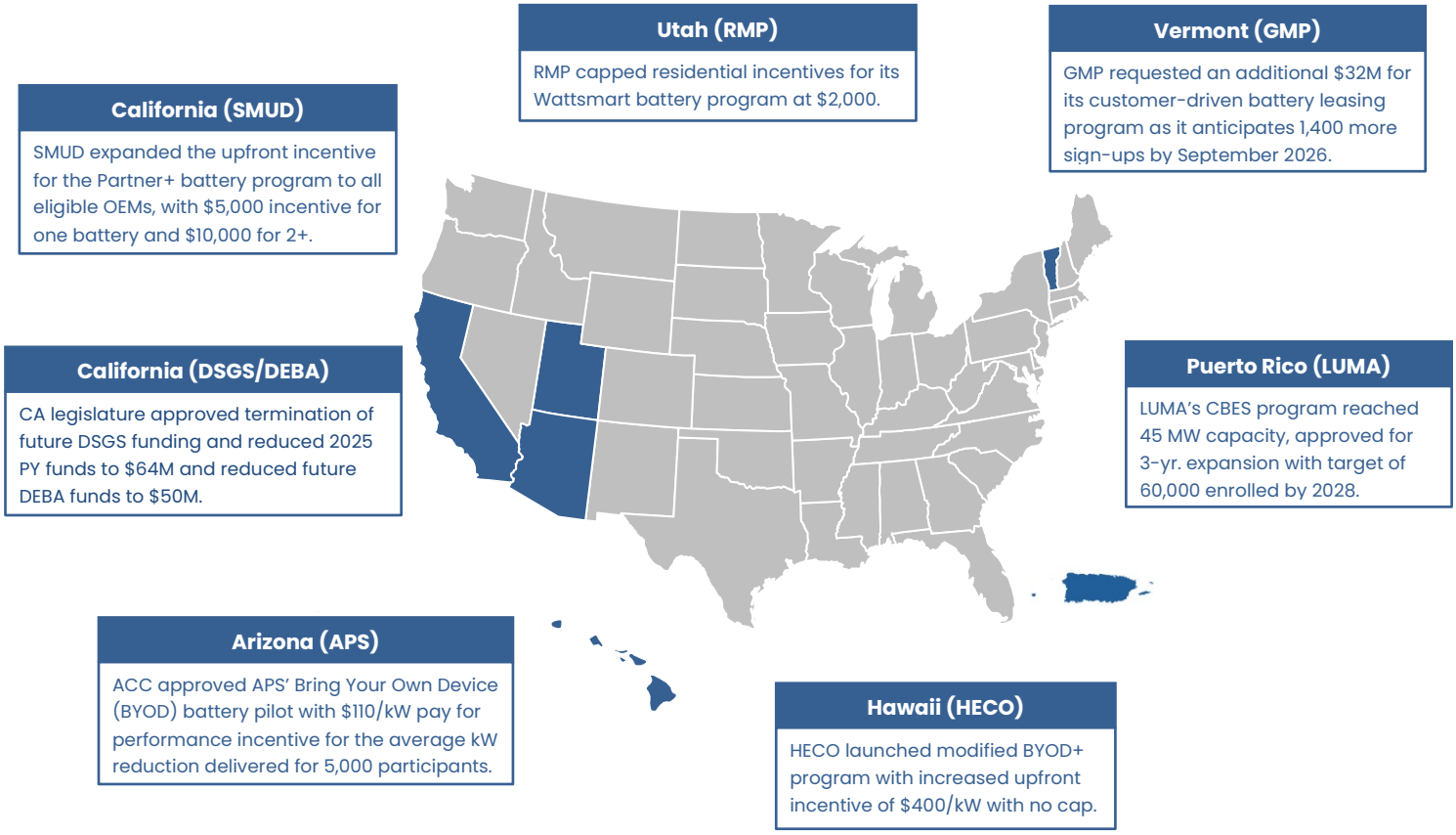
As discussed in our PV market update, the GOP-controlled House approved a proposal for a budget reconciliation bill in late May which eliminated the 25D credit, which allows customers to claim the 30% ITC on cash and loan purchases, and disallowed solar leases from qualifying for 48E on projects that would otherwise qualify for the 25D credit. The disqualification for leases in the House bill, however, does not appear to refer to BESS. Additionally, the recent (June 16th) Senate amendments went as far as to include reference to BESS qualifying for 48E through 2032. The potential continuation of 48E for BESS is a significant positive for storage adoption and attachment rates. Still, the impact to the market by the elimination of 25D and 48E will be significant due to its impacts on overall PV+ESS economics – we discuss one possible (likely worst case) scenario in more detail in our storage outlook section on p. 32.

Tariffs

The major tariff surprise during the quarter was the announcement of 145% tariffs on all Chinese goods, which has subsequently been reduced to 30% during trade negotiations. The impacts on BESS pricing of the initial tariffs were expected to be 25-30%+, given the vast majority of battery cells are produced in China. Channel commentary indicates that this has shifted around with the reduction of tariffs on China but remains in flux. Additionally, Section 301 tariffs on non-EV batteries are expected to increase to 25% in 2026 and the White House may leverage Section 301 if the April "reciprocal" tariffs are struck down in court. Finally, AD/CVD cases on battery anodes are ongoing, with preliminary CVD rates for China coming in lower than expected (6.55%) a positive, but with AD rates expected to be higher. Pricing increases and uncertainty have primarily impacted overall consumer sentiment so far, but we will continue to monitor if this could flow into adoption of storage, particularly in Ex. CA states such as FL or CO, where a battery isn't as essential to the economics.

VPP & STORAGE INCENTIVE UPDATES

The first quarter of 2025 saw expansion of mature VPP programs (GMP's leasing program, LUMA'S CBES, etc.) as well as updates to newer programs (APS' BYOD, etc.)



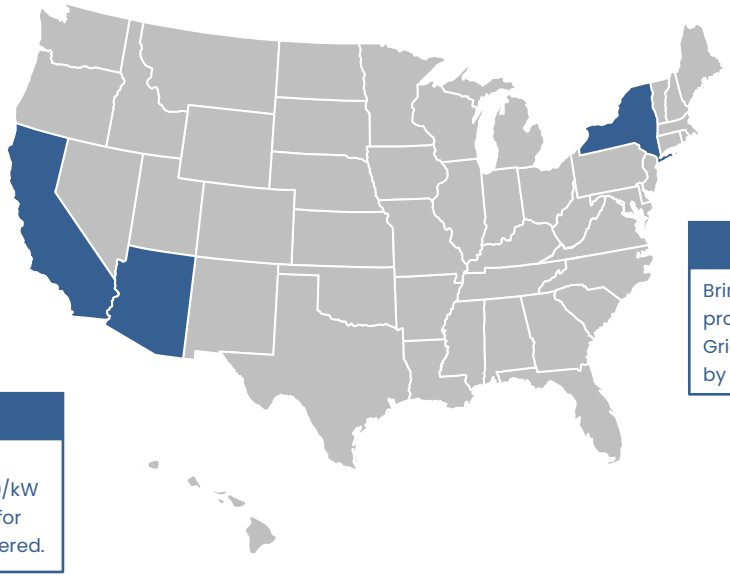
Existing VPP program updates across the U.S. in Q1

Notable developments in Q1-25 include increased upfront incentives across multiple programs (CA, HI), and enrollment expansion (PR, VT).

- HECO raised its upfront incentive for **BYOD+ participants** in Hawaii to $400/kW, while SMUD in CA expanded the upfront incentive for **Partner+** to include all eligible OEMs in the program.
- LUMA's **Customer Battery Energy Sharing (CBES)** program in PR grew to 45 MW of enrolled capacity and was approved to expand to 60,000 enrollees, and GMP's **battery leasing program** averaged 85 sign-ups a month and requested an additional $32M.

Despite growth of some existing programs, others faced setbacks. Budget cuts approved in the CA legislature would terminate future allocations to DSGS and eliminate $18M in 2025 funds, leaving the program with $64M in 2025.

Q1 also saw the announcement of new programs across the country, with Ava Community Energy and PG&E offering programs in CA, TEP launching a program in AZ, and the DPS approving "Bring Your Own Battery" programs for four utilities in NY (see more on next page).



California

Ava Community Energy launches VPP initiative with PV+ESS offering in Fall 2025, PG&E announces SAVE VPP program.

New York (ComEd)

Bring Your Own Battery (BYOB) program plans from NYSEG, National Grid, O&R, and RG&E were approved by the DPS.

Arizona (TEP)

TEP launched Energy Storage Rewards program, offering $120/kW pay for performance incentive for the average kW reduction delivered.

New and in-development program updates from Q1

Other Relevant Storage Updates

While fewer VPP programs were announced in Q1 than in Q4-24, there were still many positive actions for the broader storage market. Three bills mandating VPPs were introduced, the earlier VA bill was signed into law, CA and NY opened applications for new ESS programs, and Texas passed legislation to expedite ESS permits while removing onerous regulations.

Minnesota

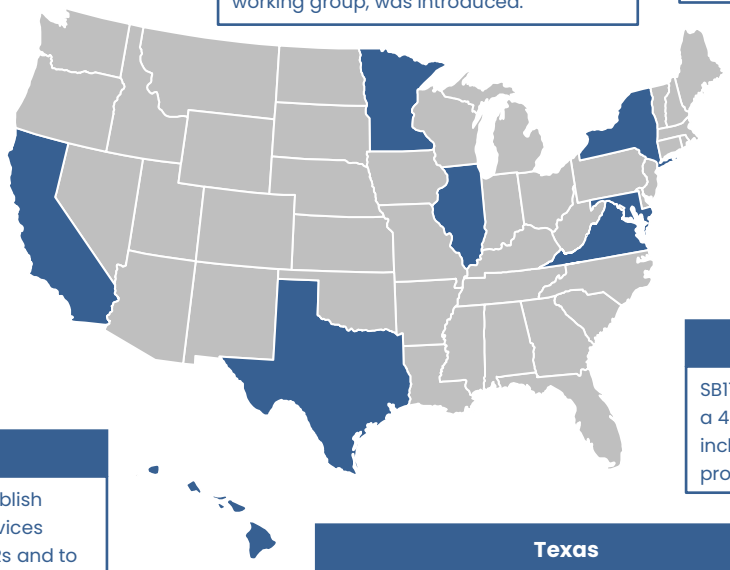
MN legislature introduced a bill requiring utilities to file a VPP tariff and program by 2026.

Illinois

HB3758, requiring IOUs with >300,000 customers to file VPPs and establishing a stand-alone energy storage program working group, was introduced.

New York

Applications for NYSERDA's $100M residential ESS program opened 6/10.



California

CEC adopted the Fourth Edition of the DSGS Program Guidelines; AB 740, requiring the CEC to adopt a VPP deployment plan, was introduced in the legislature; SGIP opened applications for its RSSE budget on 6/2.

Maryland

PSC issued a VPP implementation order, harmonizing development of DRIVE Act retail VPPs and FERC Order 2222 implementation with focus on open communication standards (IEEE 2030.5).

Virginia

SB1100, requiring Dominion to file a 450 MW VPP by 12/31/25, including a 15 MW residential ESS program, was signed into law.

Hawaii

SB589, requiring the PUC to establish compensation rates for grid services provided by customer-sited DERs and to set a goal for additional DER installations by 2030, passed the state legislature.

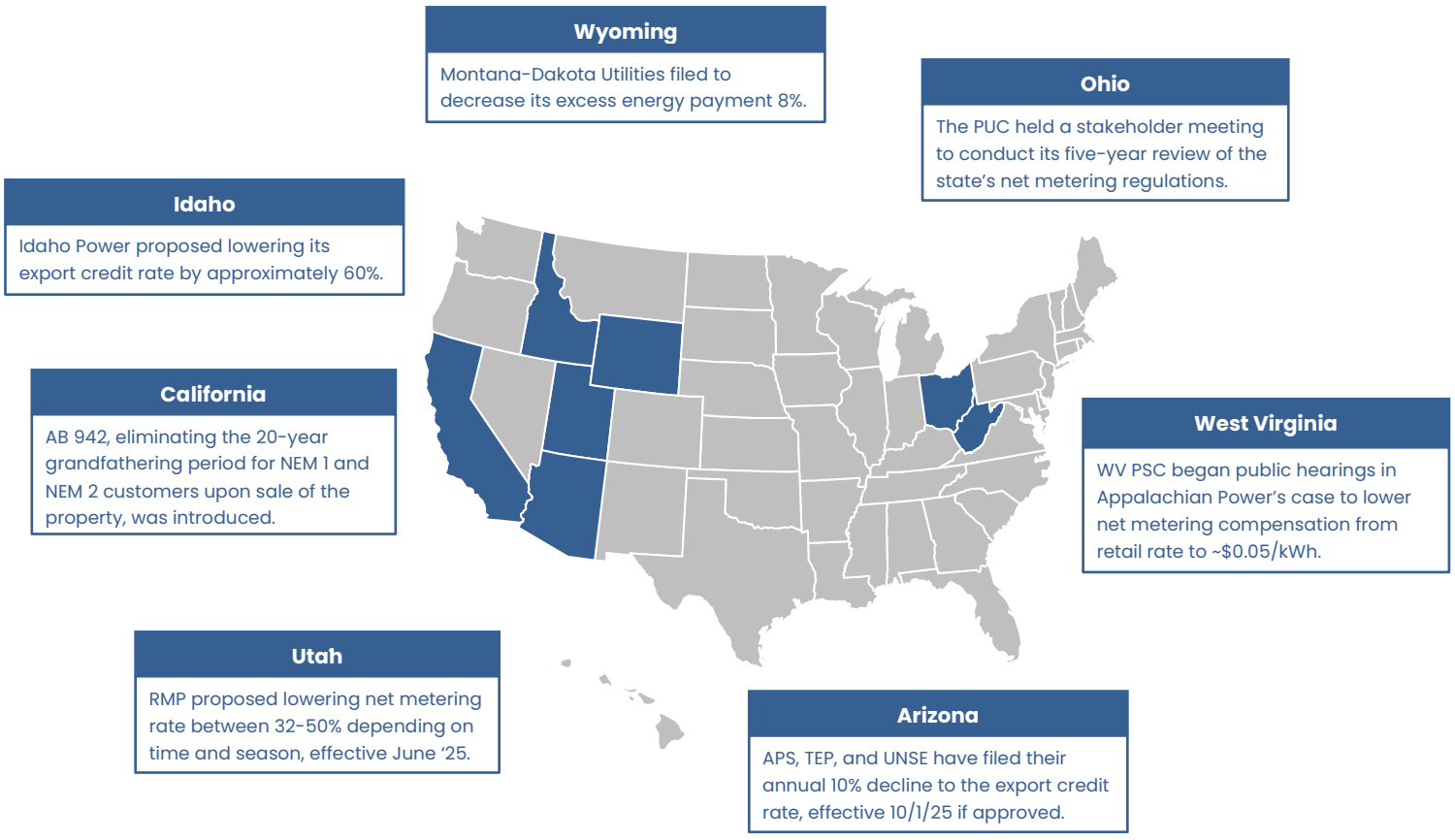
Texas

SB 1202, expediting permitting of residential PV+ESS projects and SB 1525, removing regulations on ESS installs, both passed the state legislature.

Other storage-relevant updates in Q1

Net Metering Updates

Multiple changes to net metering compensation were announced across the U.S. in Q1-25. RMP in UT proposed an additional decrease in compensation (-32 to -50%) following a decrease in March, Idaho Power proposed lowering compensation by 60% in ID, and MDU in WY proposed an 8% reduction to their rate. In AZ, the IOUs APS, TEP, and UNSE each filed for their annual 10% reduction in the export rate, effective October 1. A CA bill was introduced that would eliminate retail net metering for grandfathered NEM 1 and NEM 2 systems upon sale of the property, the OH PUC announced it will conduct its five-year review of the state's net metering regulations, and the WV PSC began public hearings in Appalachian Power's case to lower net metering compensation from the retail rate to approximately 5 c/kWh, all of which we will continue to track. As we have seen in CA, AZ, IL, etc., decreases to net metering/excess generation compensation favors storage attachment to make project economics pencil out. Most recently in IL, attachment rates have nearly doubled in the first quarter since the supply-only net metering rate took effect, increasing from 27% in Q4-24 to 51% in Q1-25.



Net metering updates in Q1

RESIDENTIAL STORAGE OUTLOOK

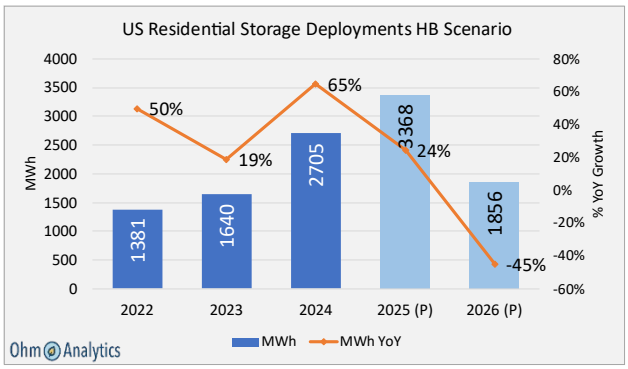
Note: We have removed our forecast given extreme policy uncertainty. The below is from an analysis we released based on the draft passed by the House in May. While the June version from the Senate changed slightly, the market impact is similar and we will wait for more clarity before releasing another forecast.

SUMMARY

- **Scenario modeling based on House proposed (May) draft:** This scenario can be taken as a worst case, as Senate amendments have included incremental improvements to the House draft (60 to 180 days timeline for 48E/25D PV, FEOC language, etc.). The continued inclusion of BESS qualifying for 48E in the recent Senate draft (June 16th) is also an incremental positive that should provide upside to both the PV and BESS outlooks.

- **Moderate Reduction to 2025 in May House Bill Scenario**: While the residential PV market scenario is reduced vs. our Q4 forecast, attachment rate trends continue to improve in CA, supporting growth of 24% YoY in 2025 (vs. 35% in prior report).

- **More Significant Downturn in 2026 Scenario Build:** 2026 down 45% o. 2025 scenario build (1.9 GWh o. 3.4 GWh). Growth in average system size should partially offset the national decline in the PV market (-53% YoY).

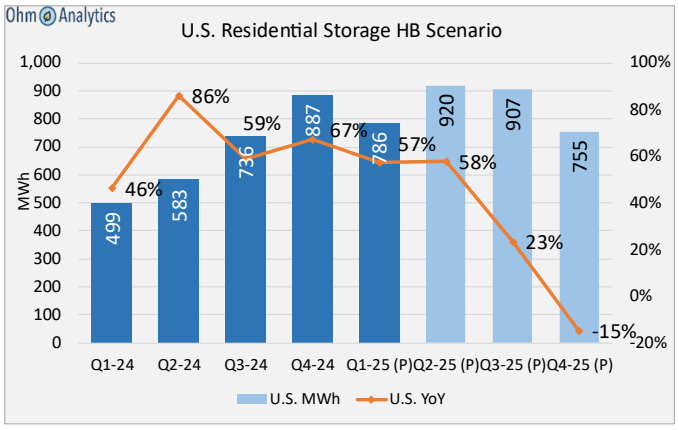


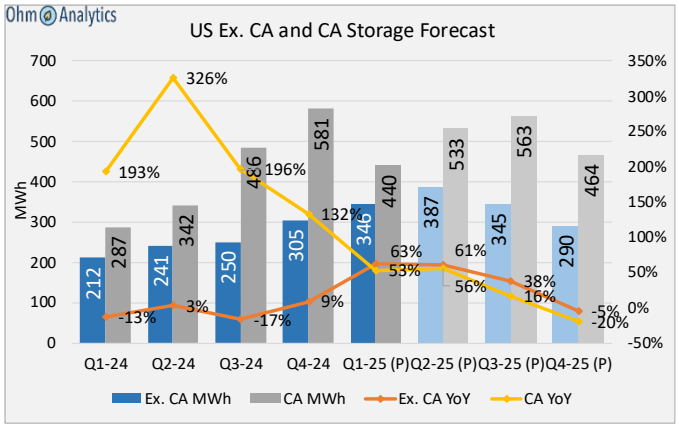
ESS deployments HB Scenario

May House Bill Passage

The scenario considers the passage of the House bill as is and utilizes our PV scenario discussed above (using adjusted paybacks to project PV market totals) combined with our attachment rate outlook. The primary national drivers are CA and PR, which have ongoing tailwinds for ESS attachment and system sizes, including local CCA (CA) and federal (PR) programs to incentivize batteries, as well as large VPP incentive programs, and load growth. With the last NEM 2 projects interconnected in 2025 (~5% of volume), 2026 will also be the first full year with only higher attachment NEM 3 volume.

Seasonal growth is expected through Q3-25, with the market slowing in Q4 as financiers slow/pause ITC pricing for PV+ESS systems.





U.S. quarterly residential storage scenarios

One positive factor that this scenario may not capture is a potential inflection point in the retrofit market in CA. If AB 942 is passed (taking effect in 2026), a home sale will transition NEM 1/2 customers to NEM 3, providing a large economic incentive to add a battery. Additional drivers for growth in the retrofit market include consumer load growth and growing VPP programs (although cuts to DSGS could put this factor at risk).

We are also monitoring the impact of the bill on burgeoning PV+ESS markets, particularly in more cost-sensitive Sun Belt states. Attach rates could step down as the economics for PV+ESS in the absence of 25D and 48E (on PV) will need to compete with other alternatives (e.g. natural gas generators, etc.).

RESIDENTIAL STORAGE STATE MARKETS

CALIFORNIA

Q1-25 MWh **440** **Q1-25 YoY** **53%**	+ NEM 3 continues to drive storage adoption in CA market, with attachment rates at 85% vs. 36% for NEM 2 projects (as of Mar '25) + AB 942's passage could incentivize retrofits on NEM 1 and NEM 2 solar homes, an incremental positive to the market – Proposed budget cuts to DSGS passed in mid-June would rescind $18M previously allocated to the program for 2025, reducing program funding for the 2025 season to $64M

PUERTO RICO

Q1-25 MWh **156** **Q1-25 YoY** **44%**	+ 3-yr. expansion of LUMA's CBES program approved in Q1-25, and CBES+ emergency program will target 60,000 enrollees this summer + Backup power remains a key driver of attachment rate in PR market, with mid-April blackout highlighting grid reliability concerns

TEXAS

Q1-25 MWh **48** **Q1-25 YoY** **157%**	+ Expansion of VPP programs across the state continues to be a tailwind for the market + Channel commentary in line with Ohm projection for continued growth, with one partner seeing storage as a hedge against future energy price increases in TX

ARIZONA

Q1-25 MWh **28** **Q1-25 YoY** **220%**	+ APS and TEP BYOD battery programs launched in May are tailwinds for the market, particularly in H2-25 + Contacts in the Ohm network have noted an increase in attachment rates in AZ, in line with Ohm data (28% in Q1-25, reaching peak of 39% in April). One partner commented that cost savings during peak hours are driving demand