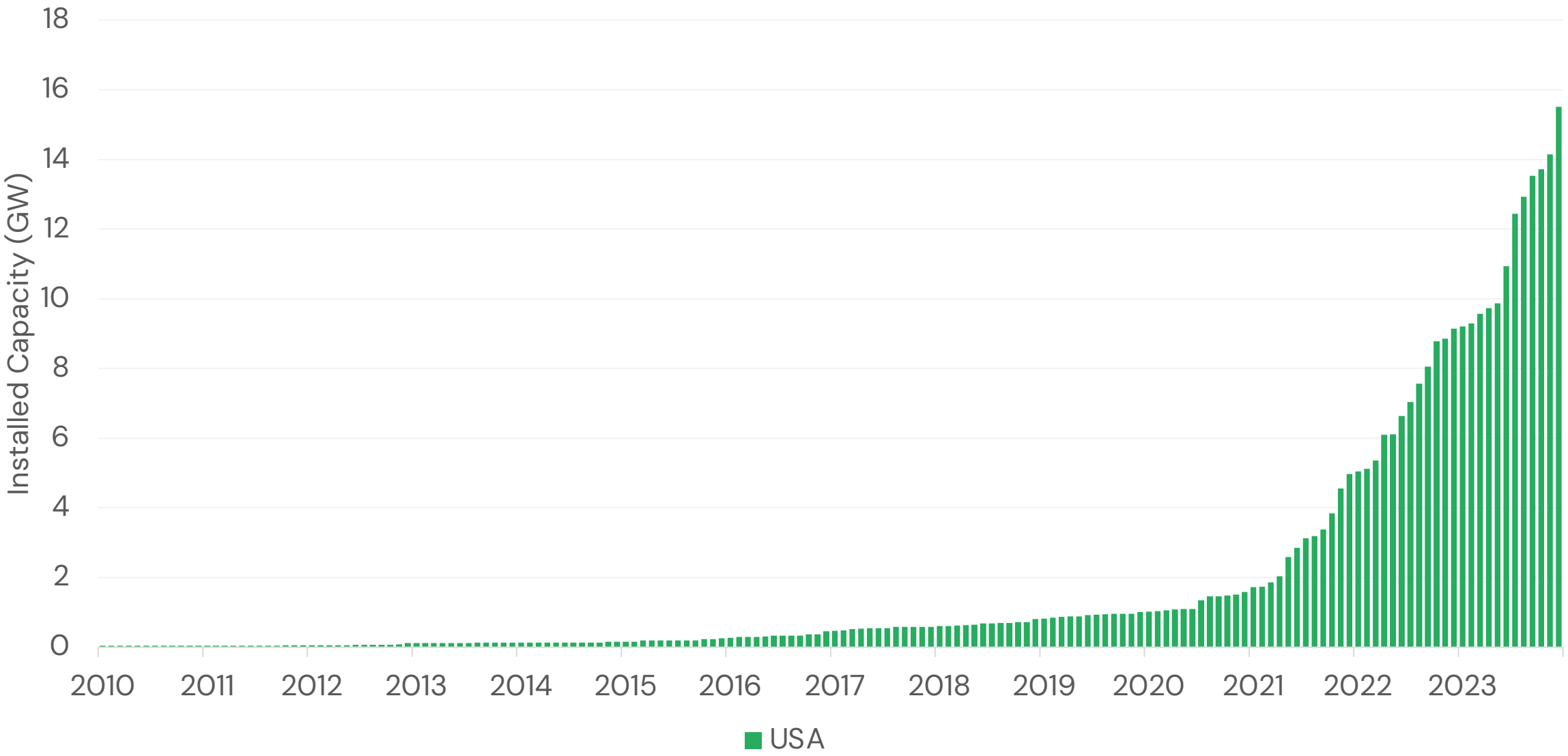
The ERCOT BESS Landscape

Quentin Scrimshire – Co-Founder and CEO

Disclaimer:

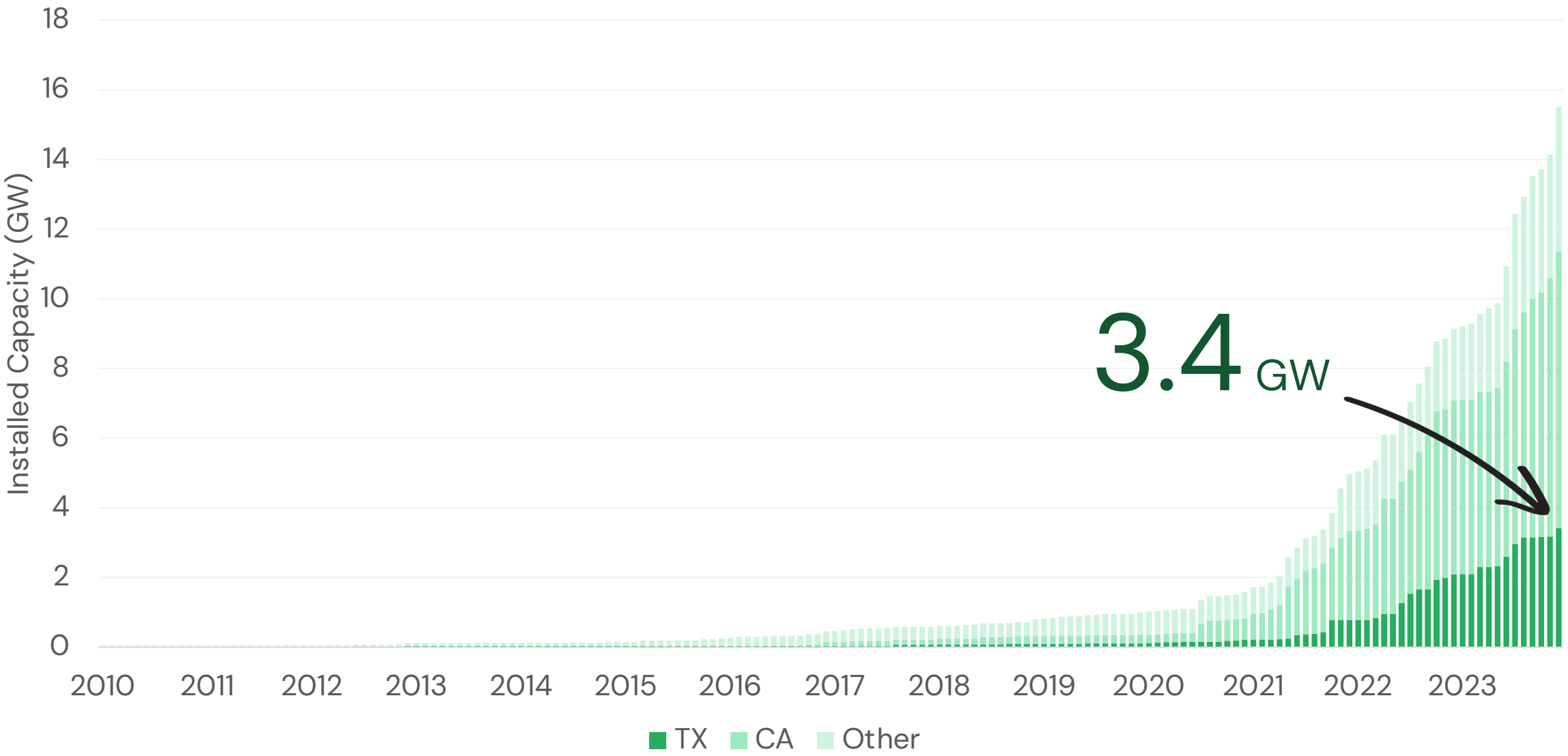
This presentation includes lots of **charts** and colors.

The USA is deploying BESS at record pace.


Installed Capacity (GW)
18
16
14
12
10
8
6
4
2
0
2010
2011
2012
2013
2014
2015
2016
2017
2018
2019
2020
2021
2022
2023
USA

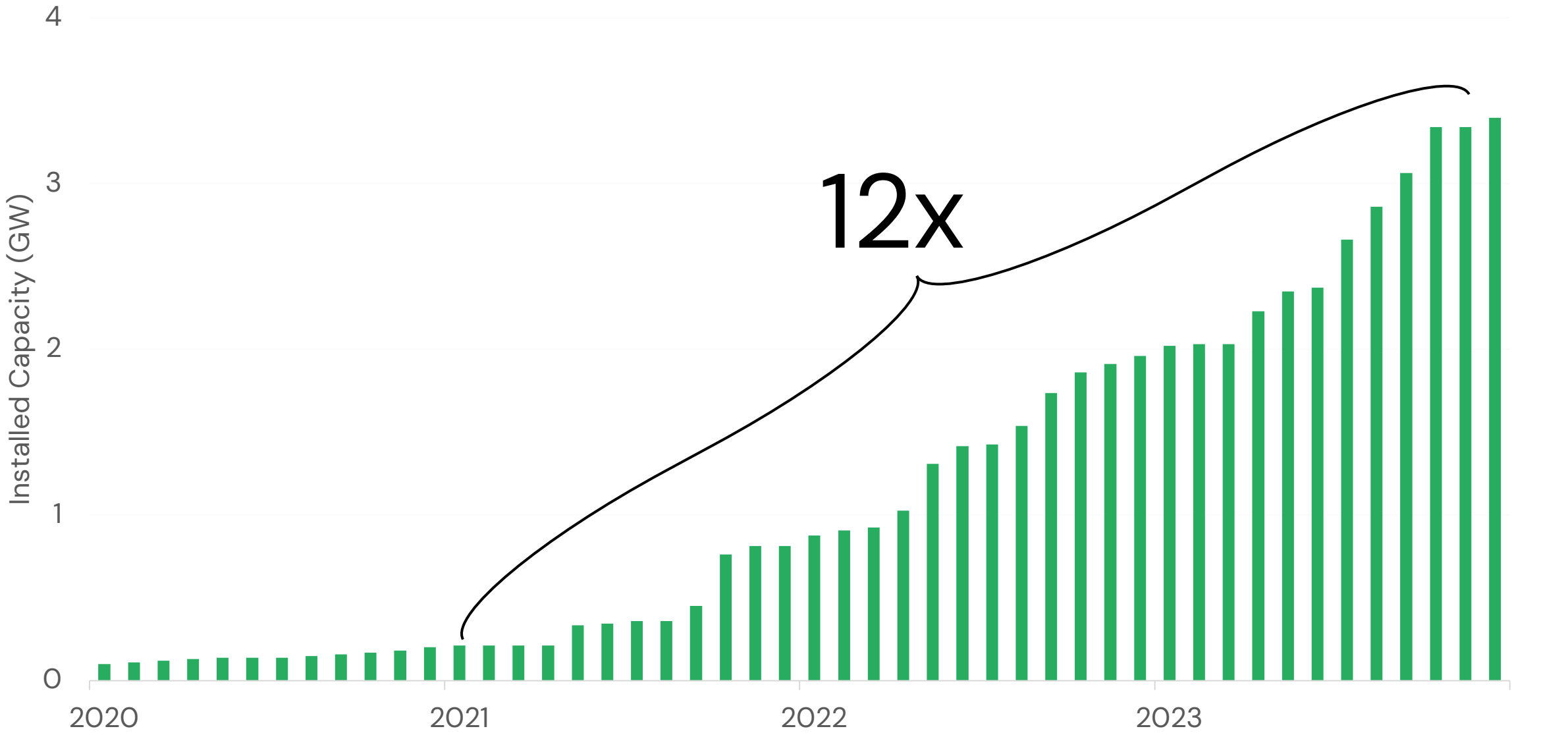
MODOENERGY

Now, lets look at Texas.


Installed Capacity (GW)
18
16
14
12
10
8
6
4
2
0
2010
2011
2012
2013
2014
2015
2016
2017
2018
2019
2020
2021
2022
2023
3.4 GW
TX
CA
Other

MODOENERGY

We’ve gotten here **quickly**.



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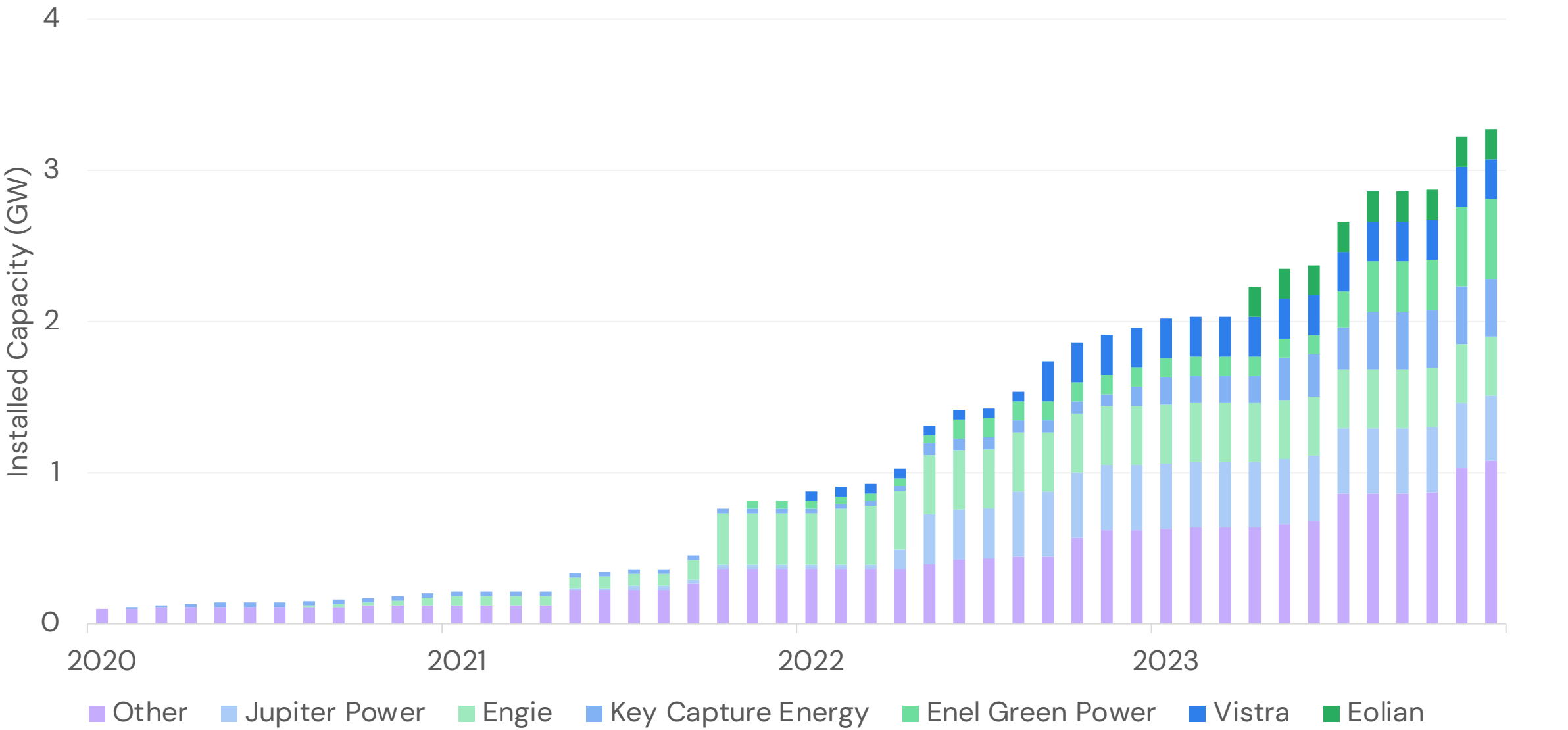
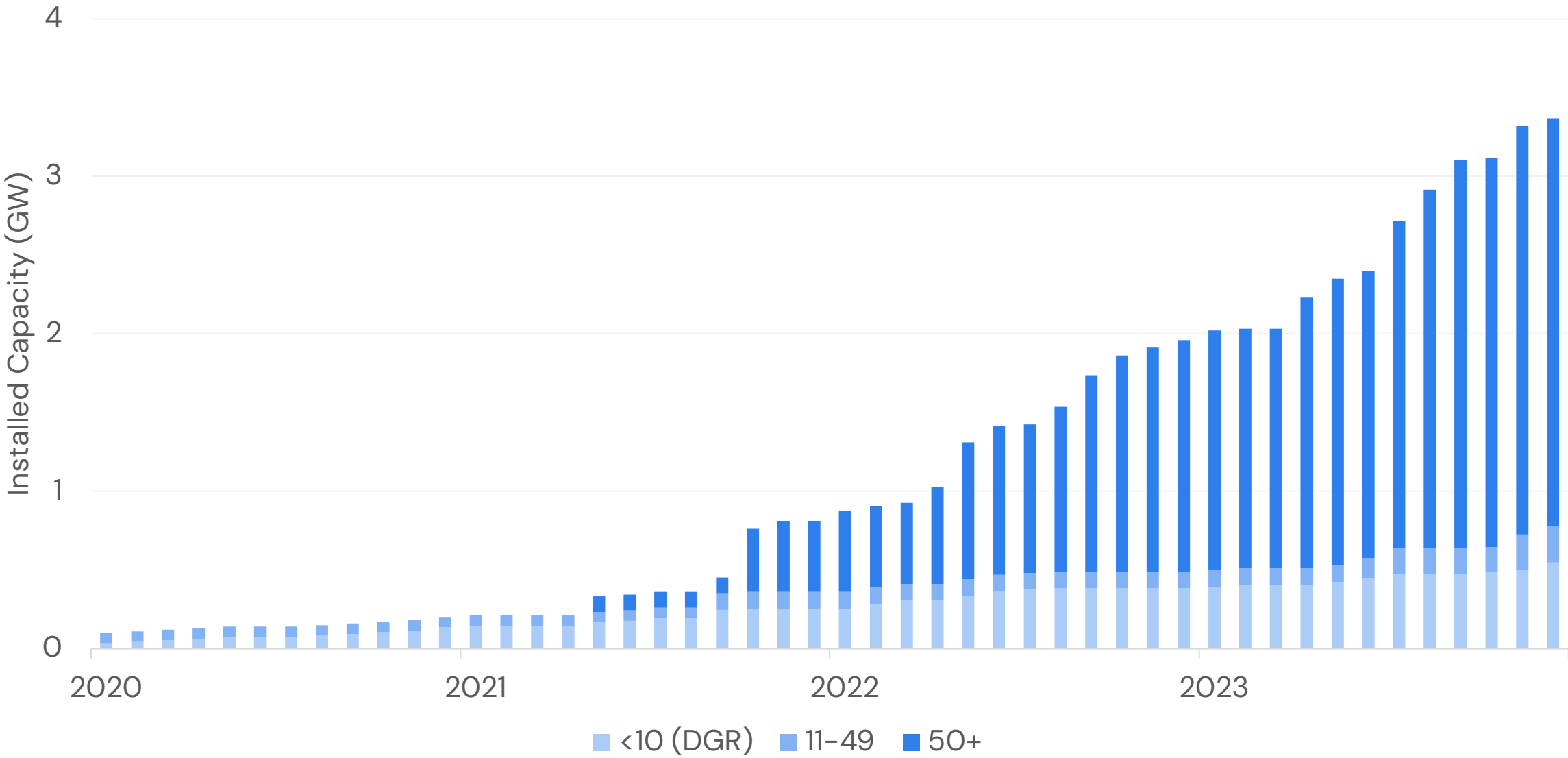
Who made it happen?


Installed Capacity (GW)
4
3
2
1
0
2020
2021
2022
2023
Other
Jupiter Power
Engie
Key Capture Energy
Enel Green Power
Vistra
Eolian

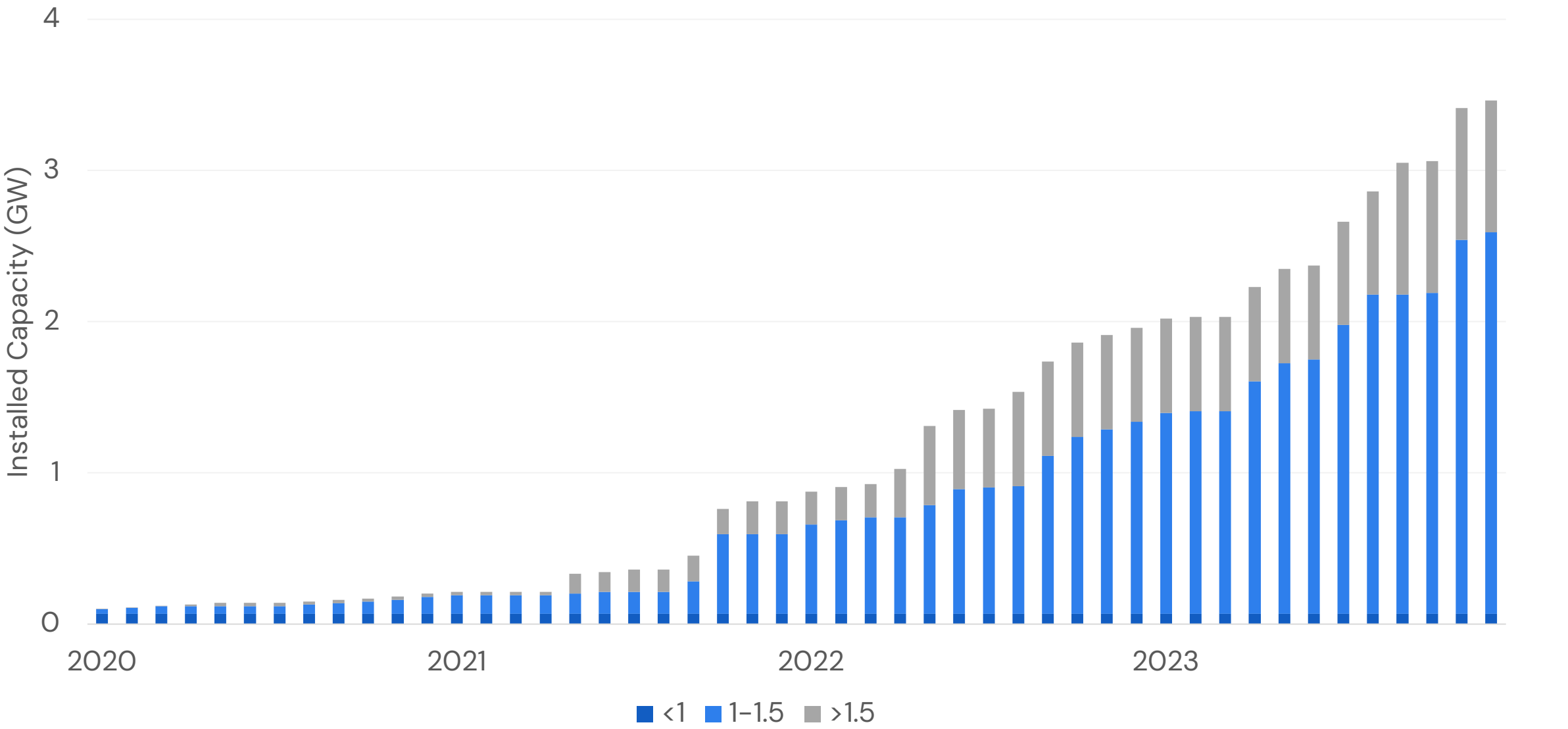
MODOENERGY

It’s all getting much bigger.


Installed Capacity (GW)
4
3
2
1
0
2020
2021
2022
2023
<10 (DGR)
11-49
50+

MODOENERGY

Status quo = 1h



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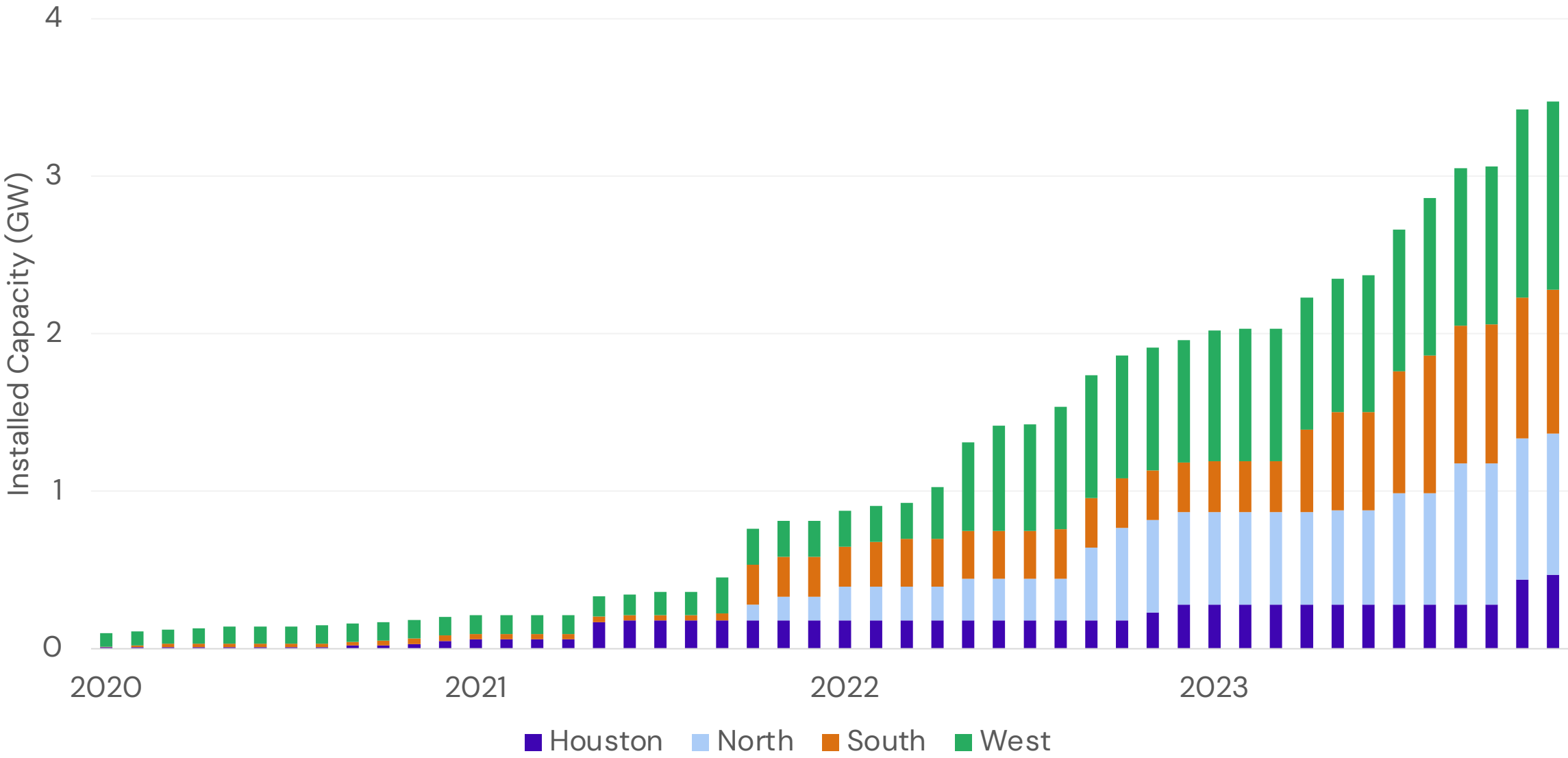
Batteries are being built **across Texas**.


Installed Capacity (GW)
4
3
2
1
0
2020
2021
2022
2023
Houston
North
South
West

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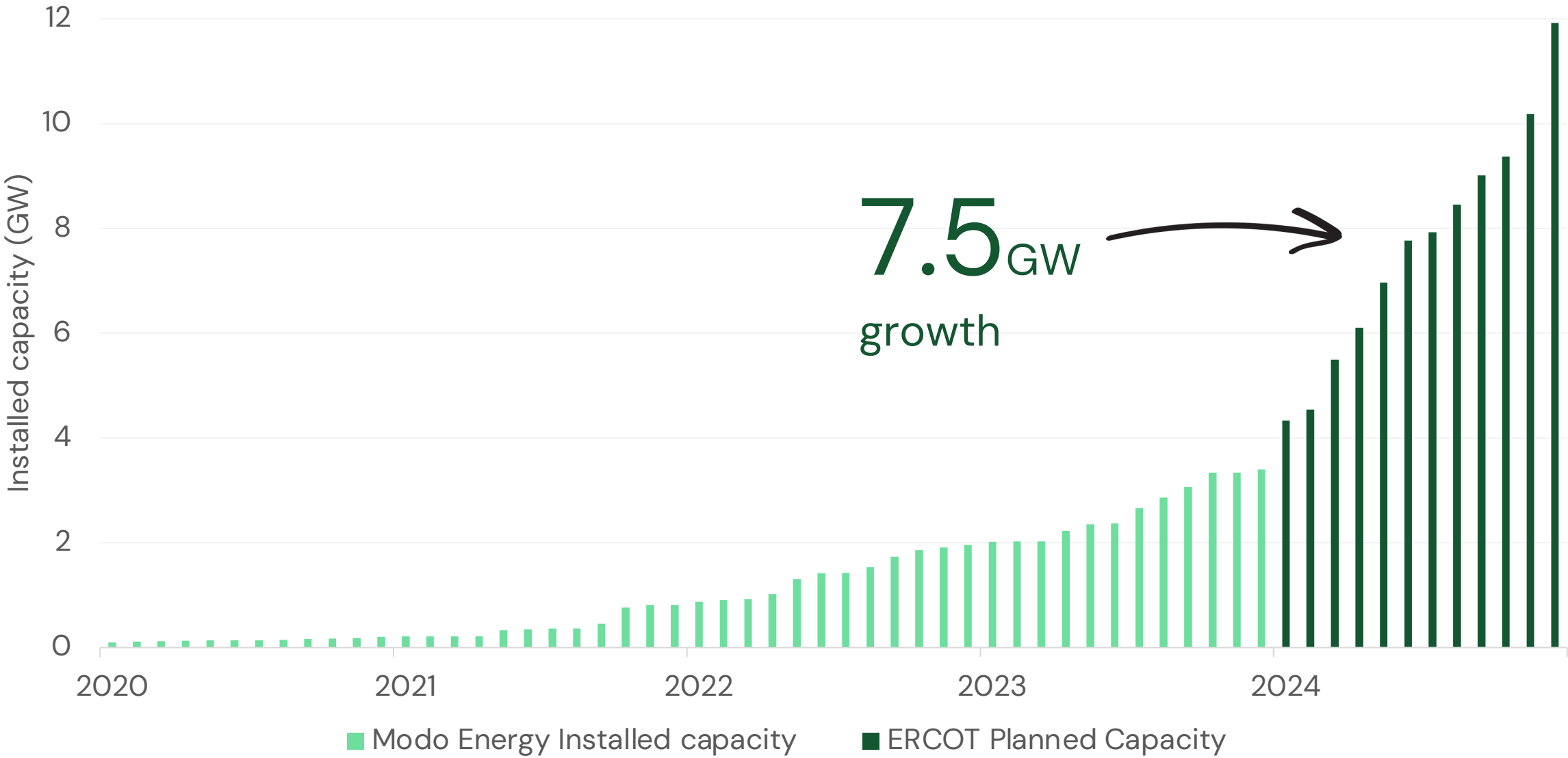
What’s coming next?

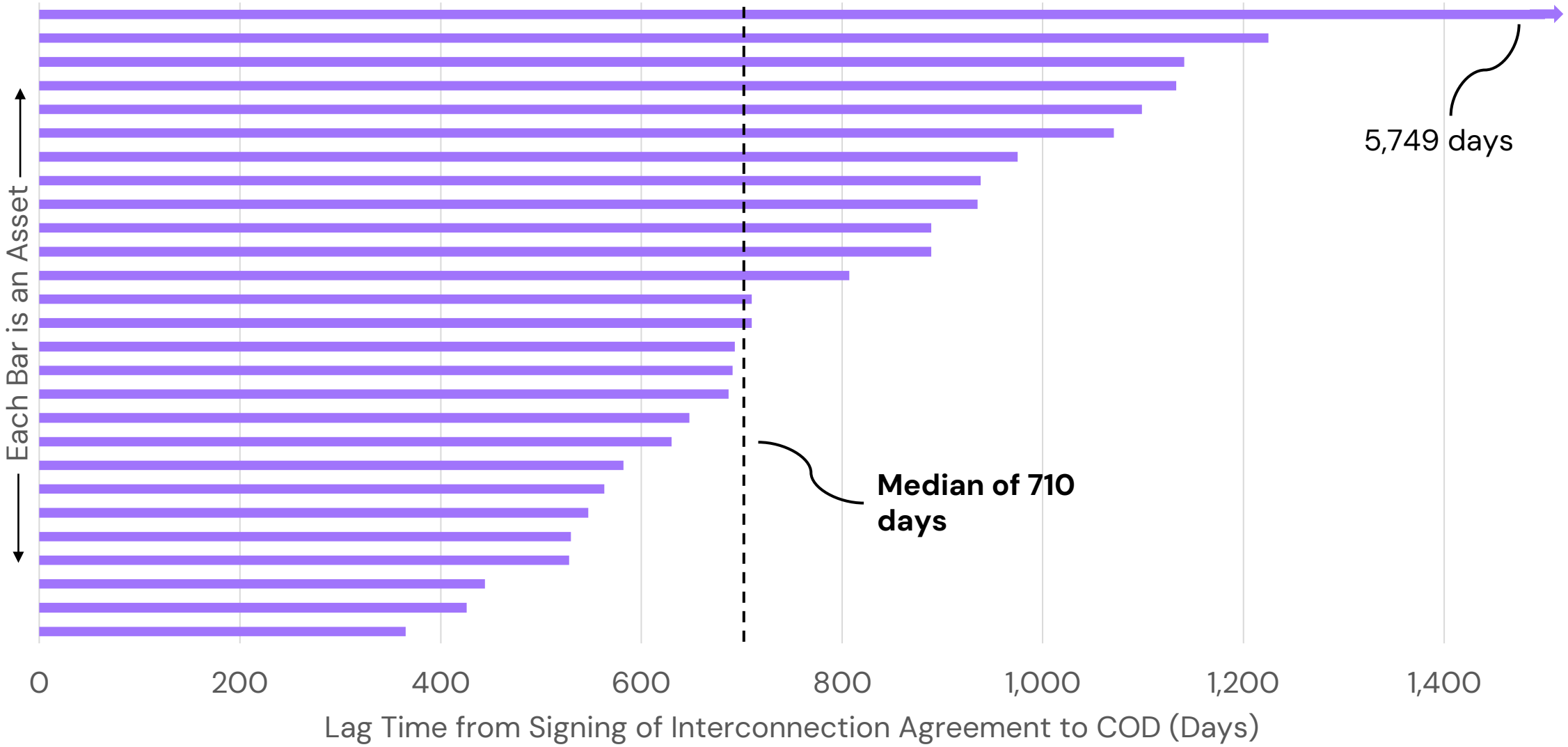
Let’s ask ERCOT.


12
10
8
6
4
2
0
Installed capacity (GW)
2020
2021
2022
2023
2024
7.5GW
growth
Modo Energy Installed capacity
ERCOT Planned Capacity

MODOENERGY

7.5GW in one year.

Can we build that fast?


Each Bar is an Asset
5,749 days
Median of 710 days
0
200
400
600
800
1,000
1,200
1,400
Lag Time from Signing of Interconnection Agreement to COD (Days)

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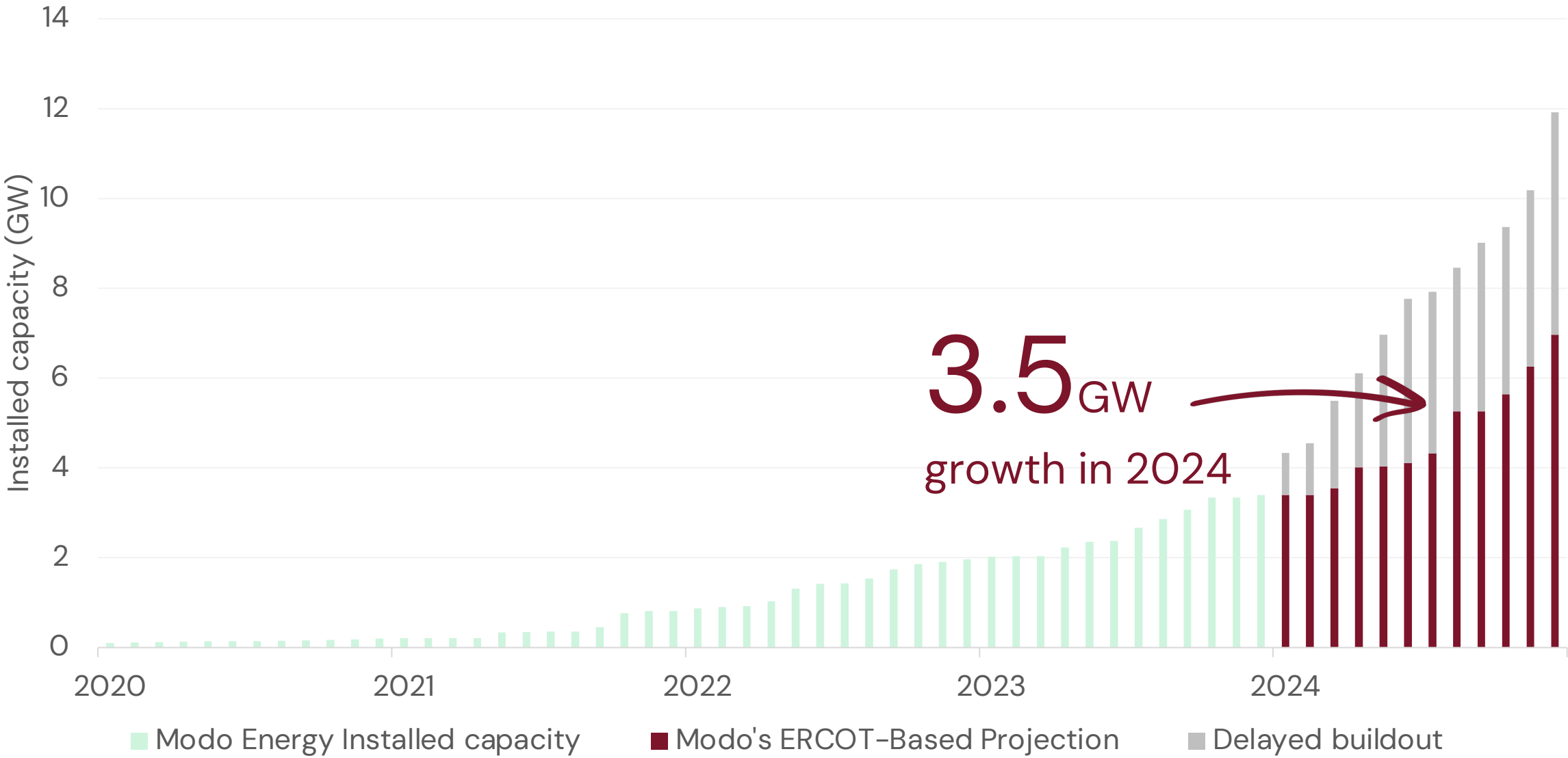
So, what's *really* going to happen?


14
12
10
8
6
4
2
0
Installed capacity (GW)
2020
2021
2022
2023
2024
3.5GW
growth in 2024
Modo Energy Installed capacity
Modo's ERCOT-Based Projection
Delayed buildout

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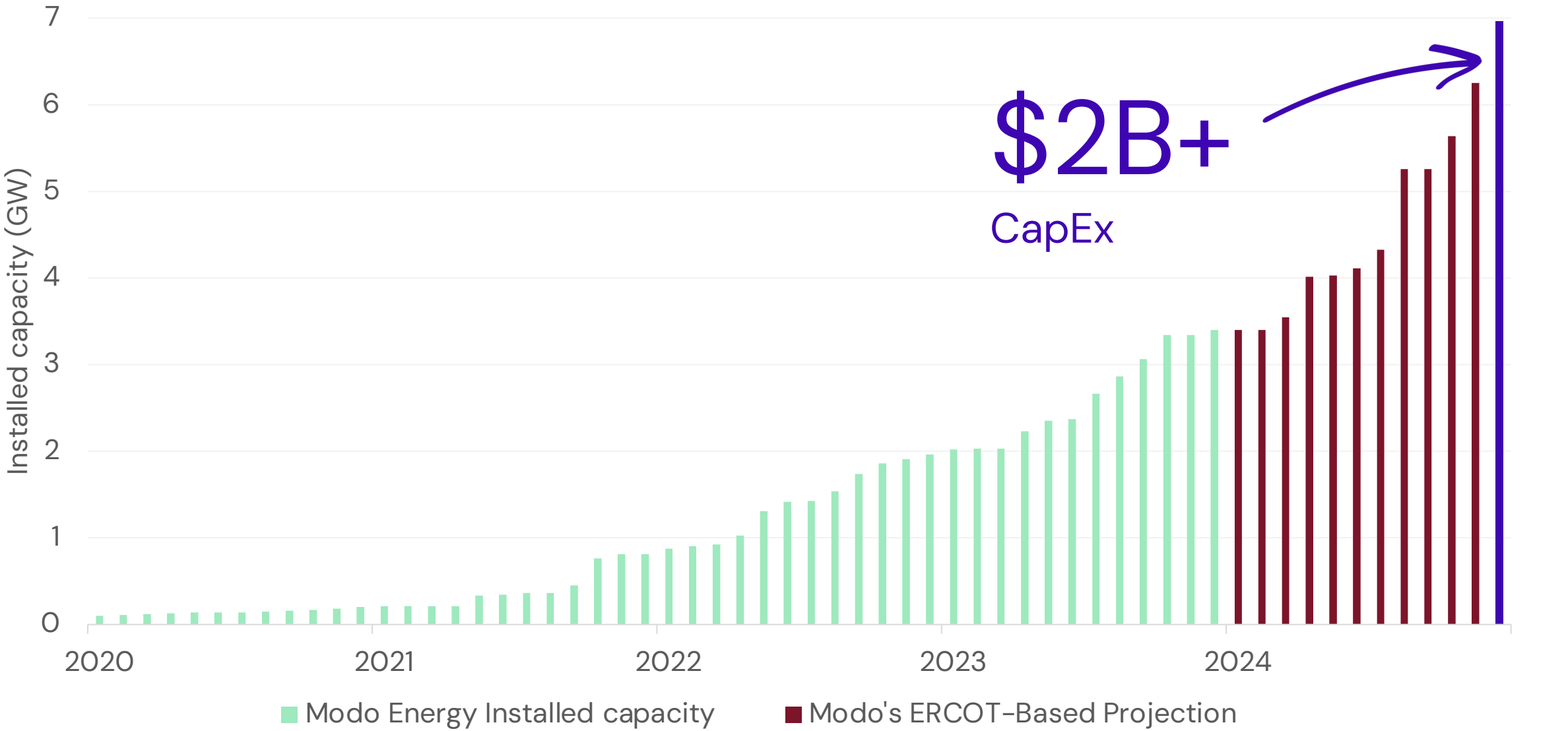
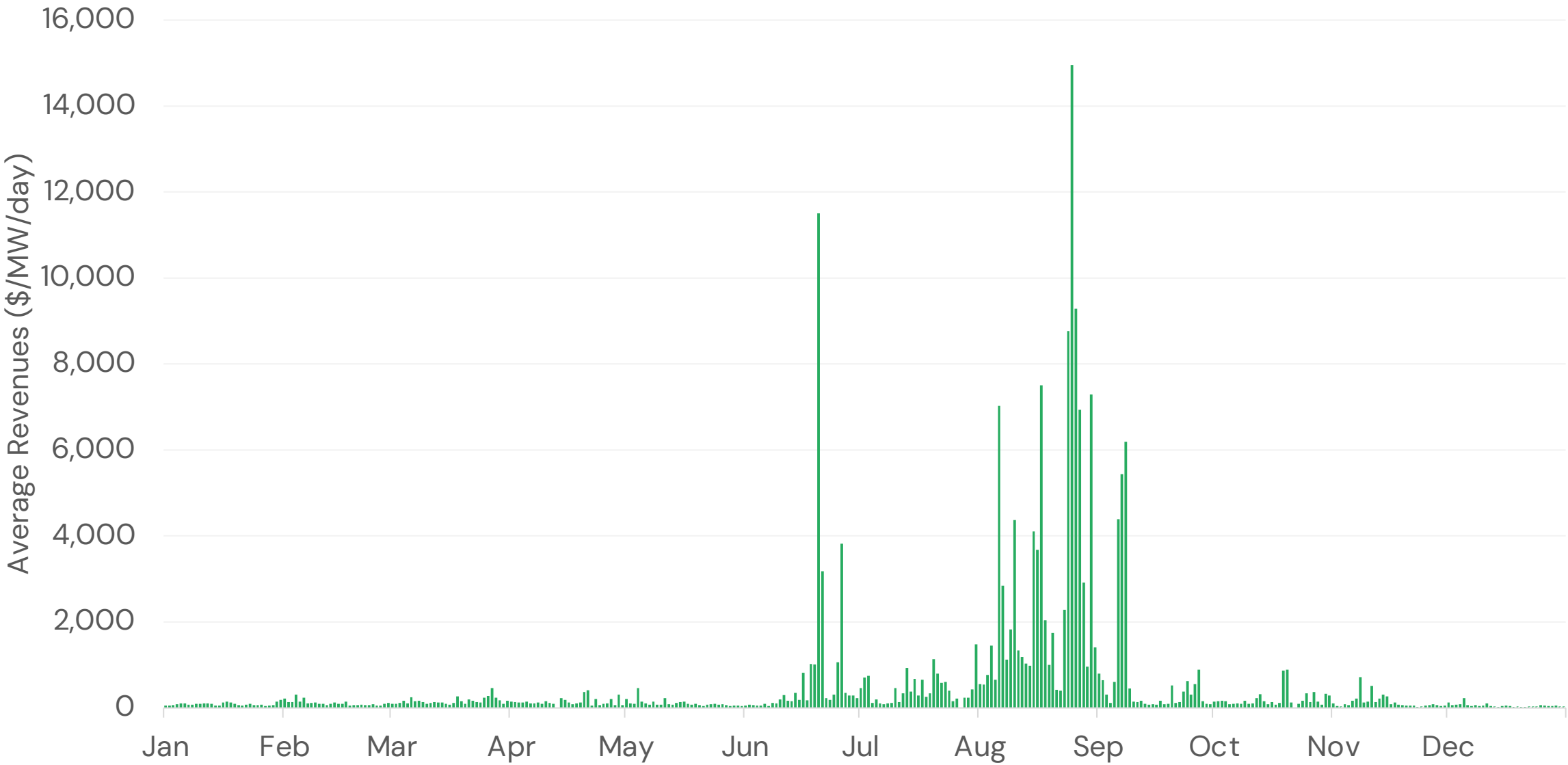
What’s it going to cost?


7
6
5
4
3
2
1
0
Installed capacity (GW)
2020
2021
2022
2023
2024
$2B+
CapEx
Modo Energy Installed capacity
Modo's ERCOT-Based Projection

MODOENERGY

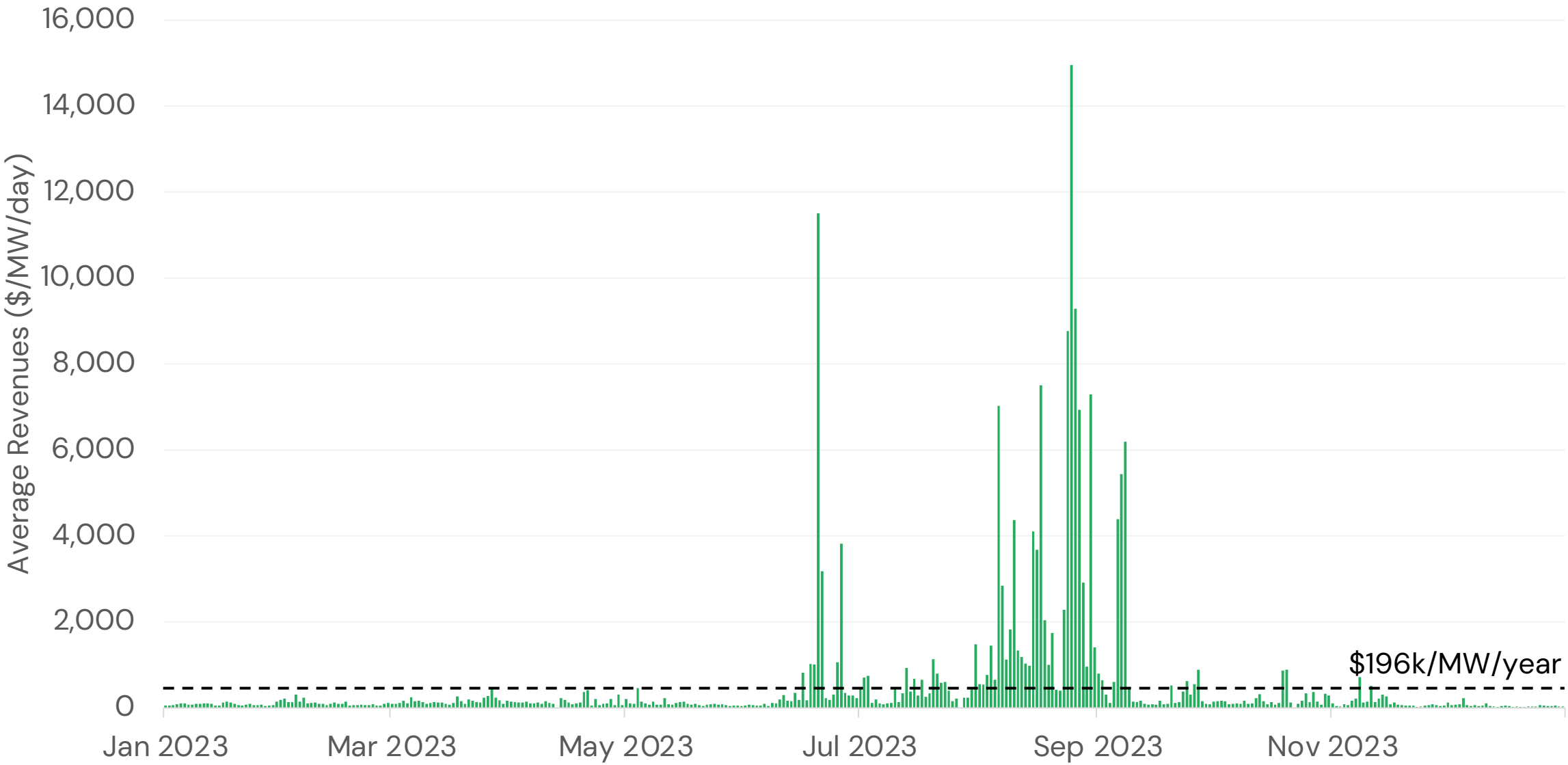
Now, let’s talk revenues.

Introducing the **Modo Index**.


16,000
14,000
12,000
10,000
8,000
6,000
4,000
2,000
0
Average Revenues ($/MW/day)
Jan
Feb
Mar
Apr
May
Jun
Jul
Aug
Sep
Oct
Nov
Dec

MODOENERGY

What were **average earnings** in 2023?


16,000
14,000
12,000
10,000
8,000
6,000
4,000
2,000
0
Average Revenues ($/MW/day)
$196k/MW/year
Jan 2023
Mar 2023
May 2023
Jul 2023
Sep 2023
Nov 2023

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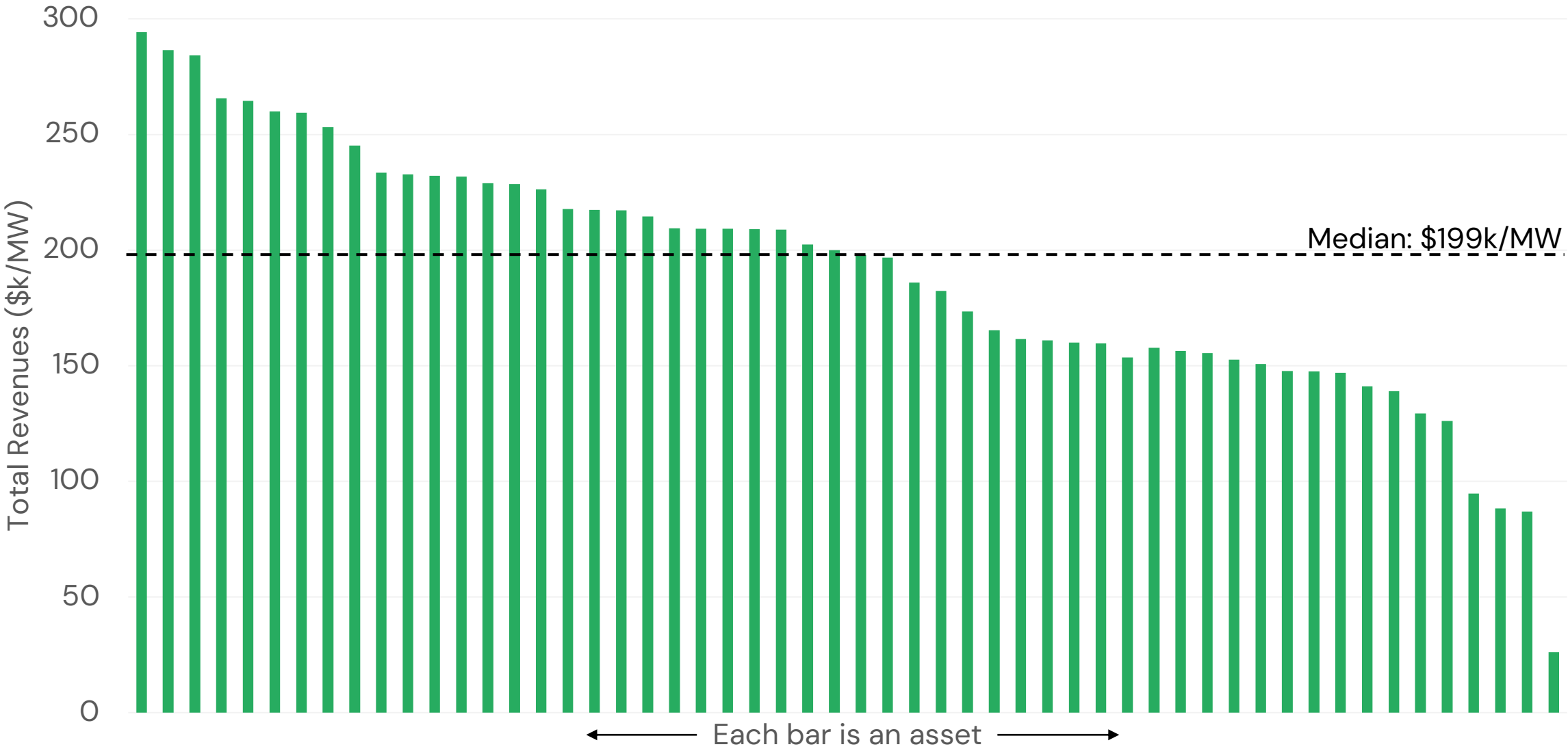
Pretty good.

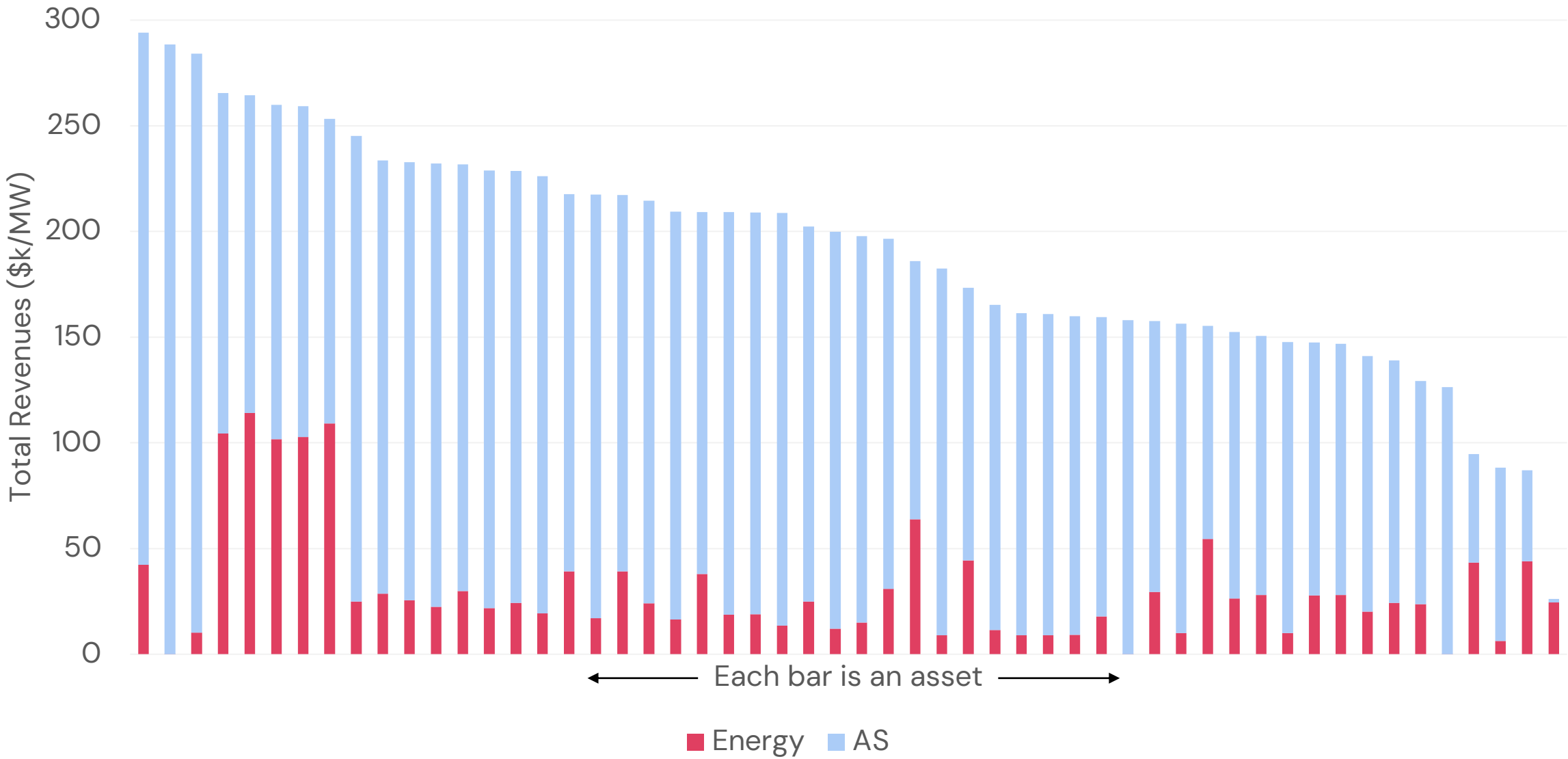
But, not all assets are created equal.



Note: Only assets commissioned before the beginning of 2023 are included in this image

MODOENERGY

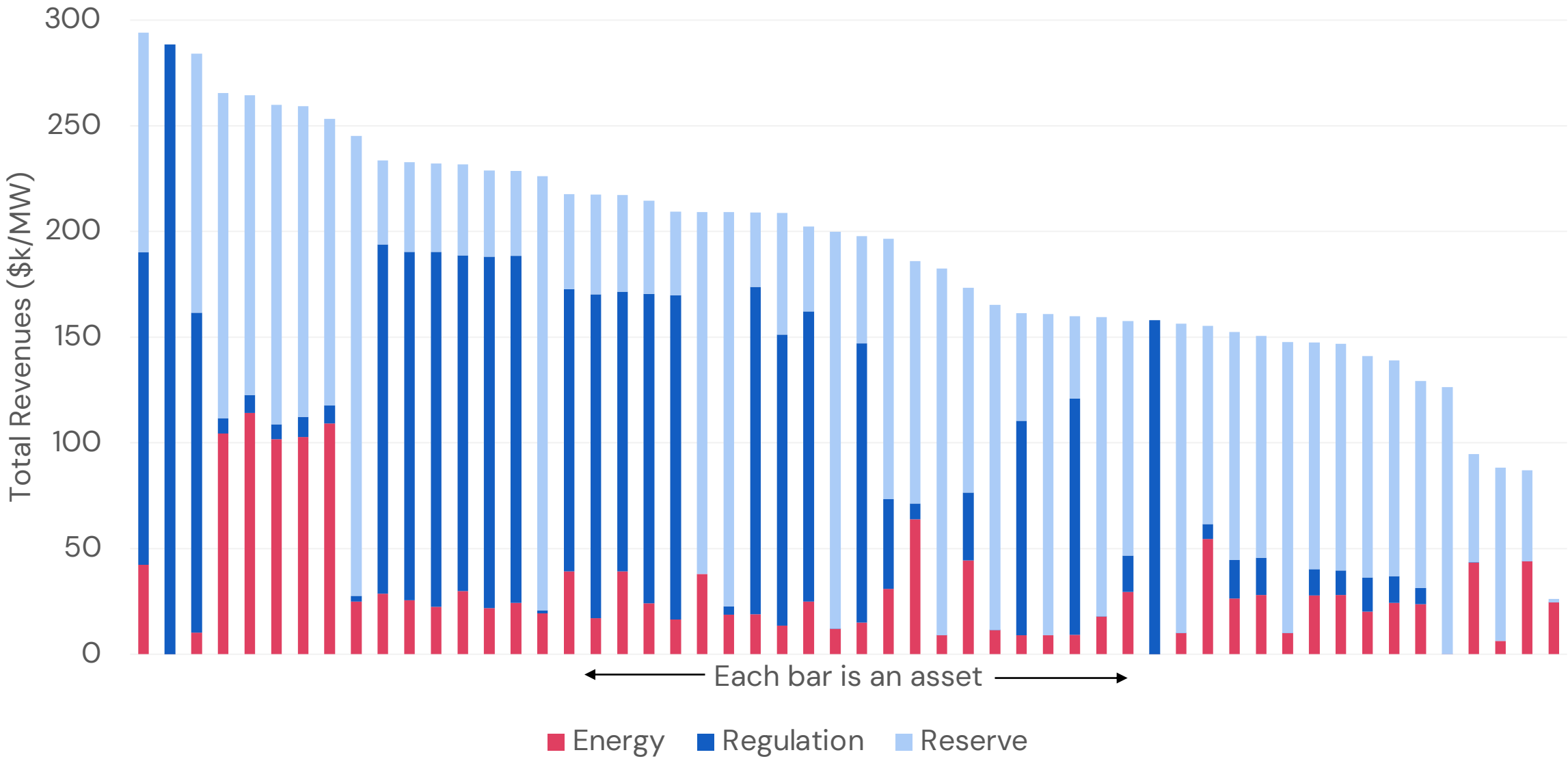
Let’s look at Energy vs. Ancillary Services.



Note: Only assets commissioned before the beginning of 2023 are included in this image

MODOENERGY

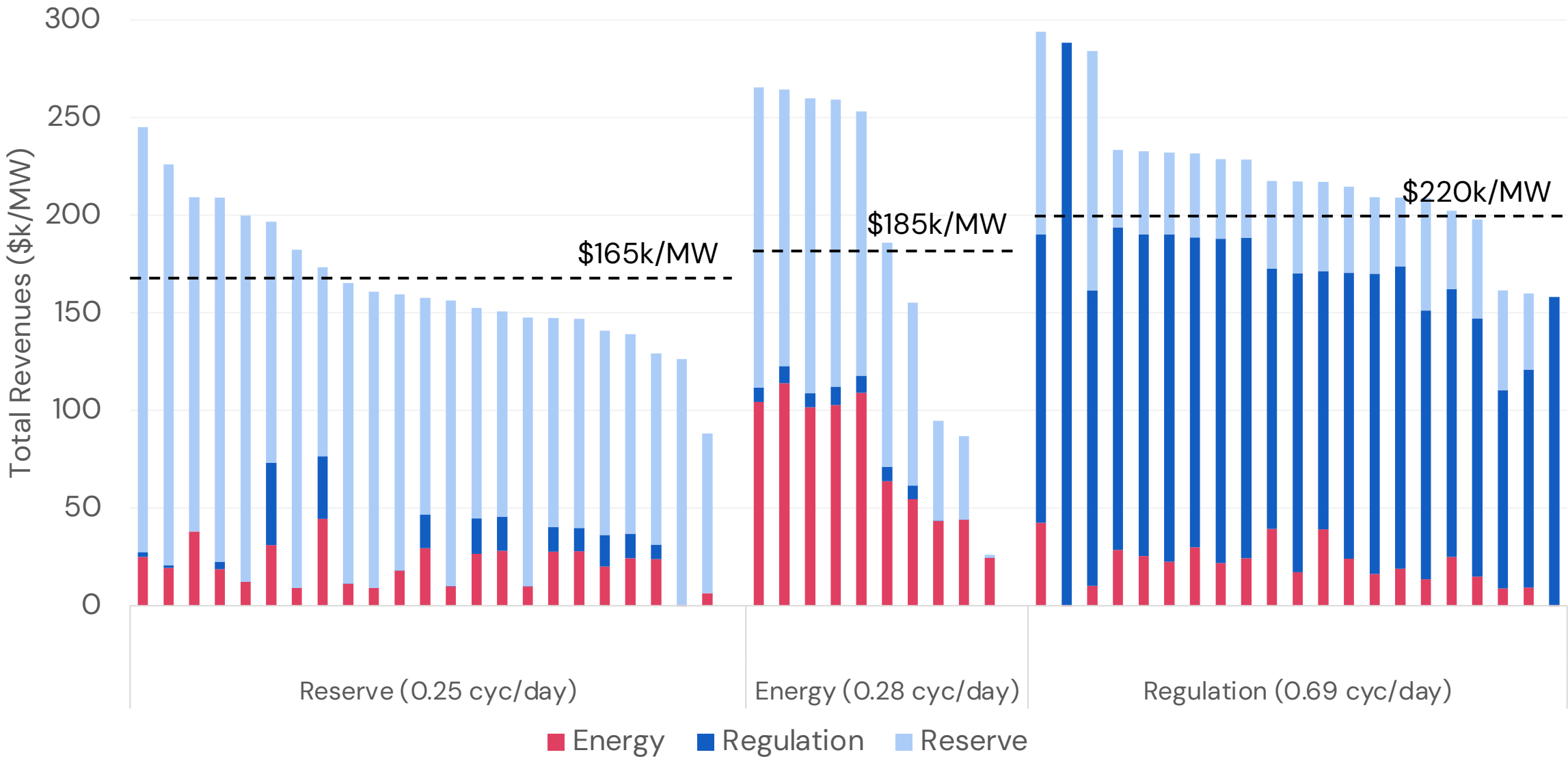
Let’s break out Ancillary Services.



Note: Only assets commissioned before the beginning of 2023 are included in this image

MODOENERGY

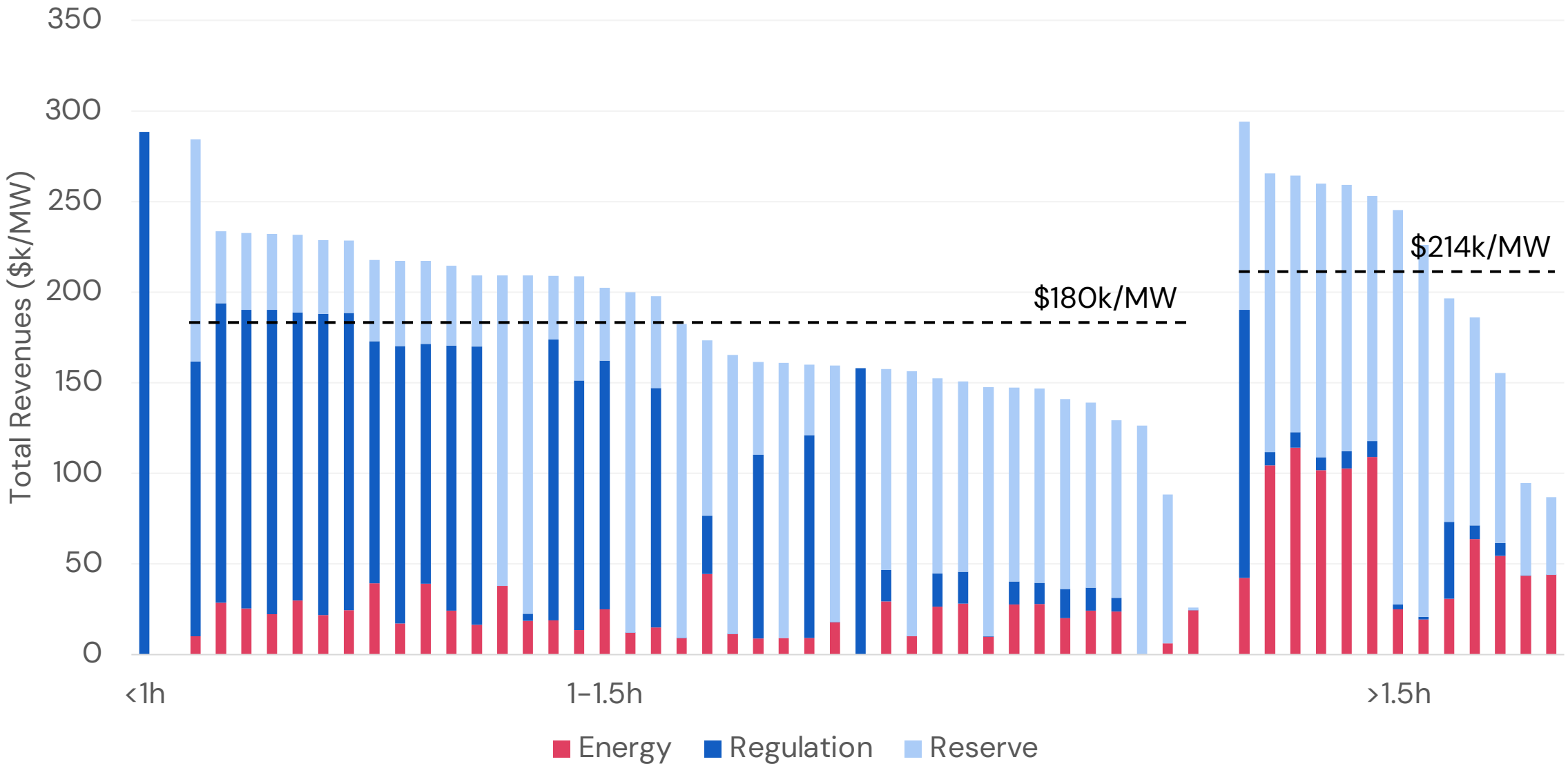
Which strategy was the best?



Note: Only assets commissioned before the beginning of 2023 are included in this image

MODOENERGY

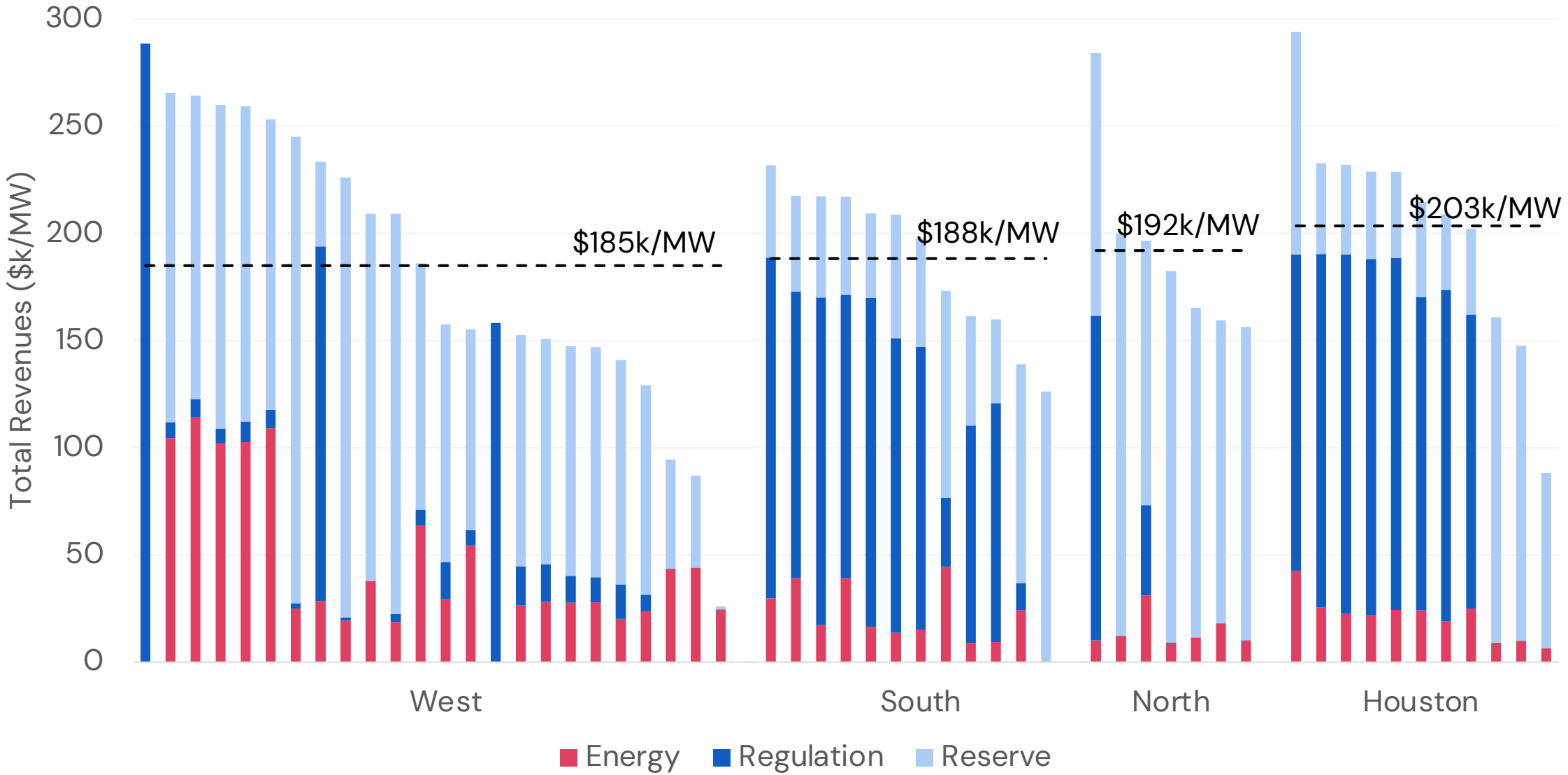
Which duration is in the money?



Note: Only assets commissioned before the beginning of 2023 are included in this image

MODOENERGY

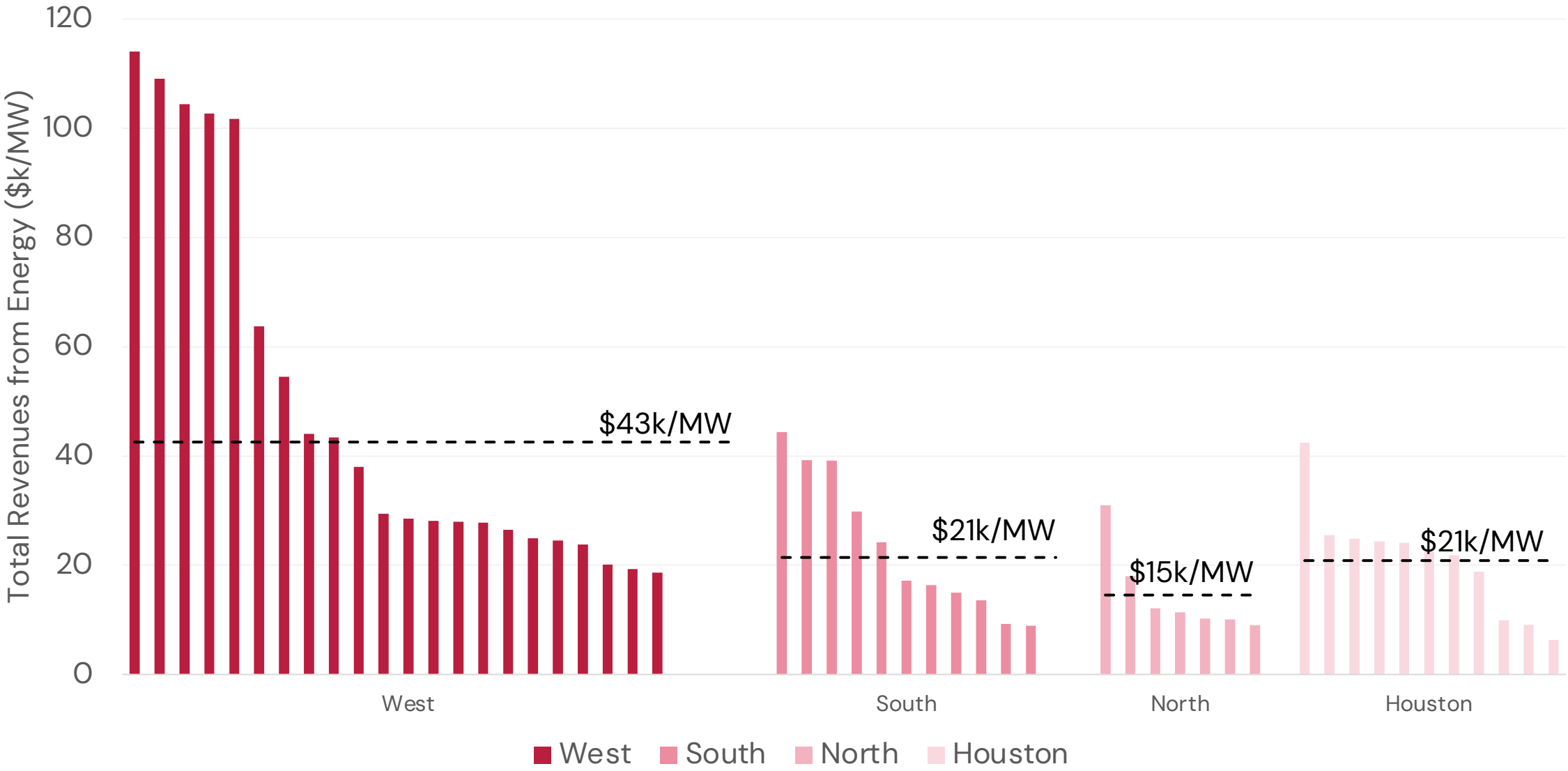
Location is everything in ERCOT, right?



Note: Only assets commissioned before the beginning of 2023 are included in this image

MODOENERGY

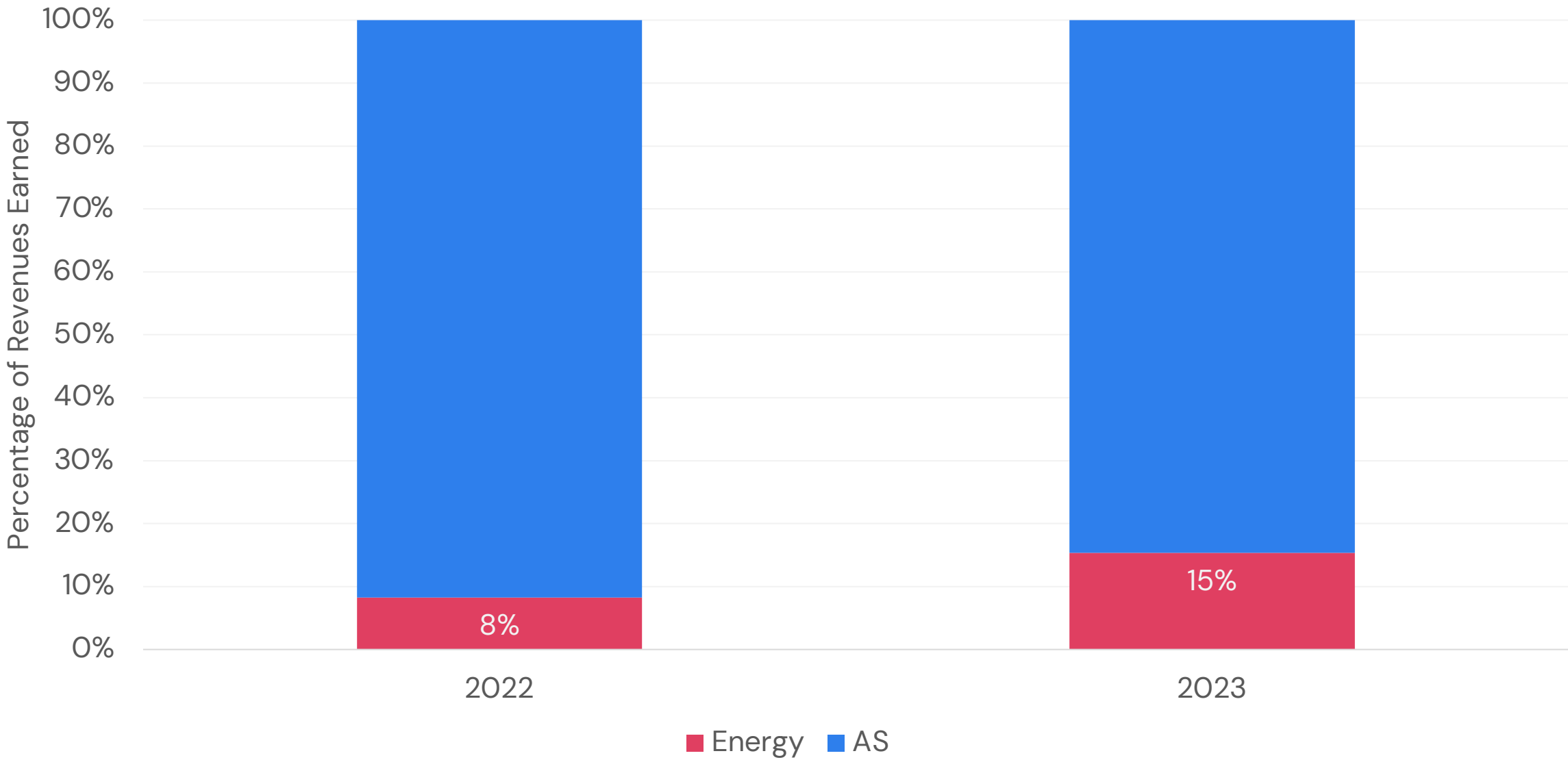
West is best – but only for energy



Note: Only assets commissioned before the beginning of 2023 are included in this image

MODOENERGY

Let’s revisit Energy vs. Ancillary Services


100%
90%
80%
70%
60%
50%
40%
30%
20%
10%
0%
Percentage of Revenues Earned
8%
15%
2022
2023
Energy
AS

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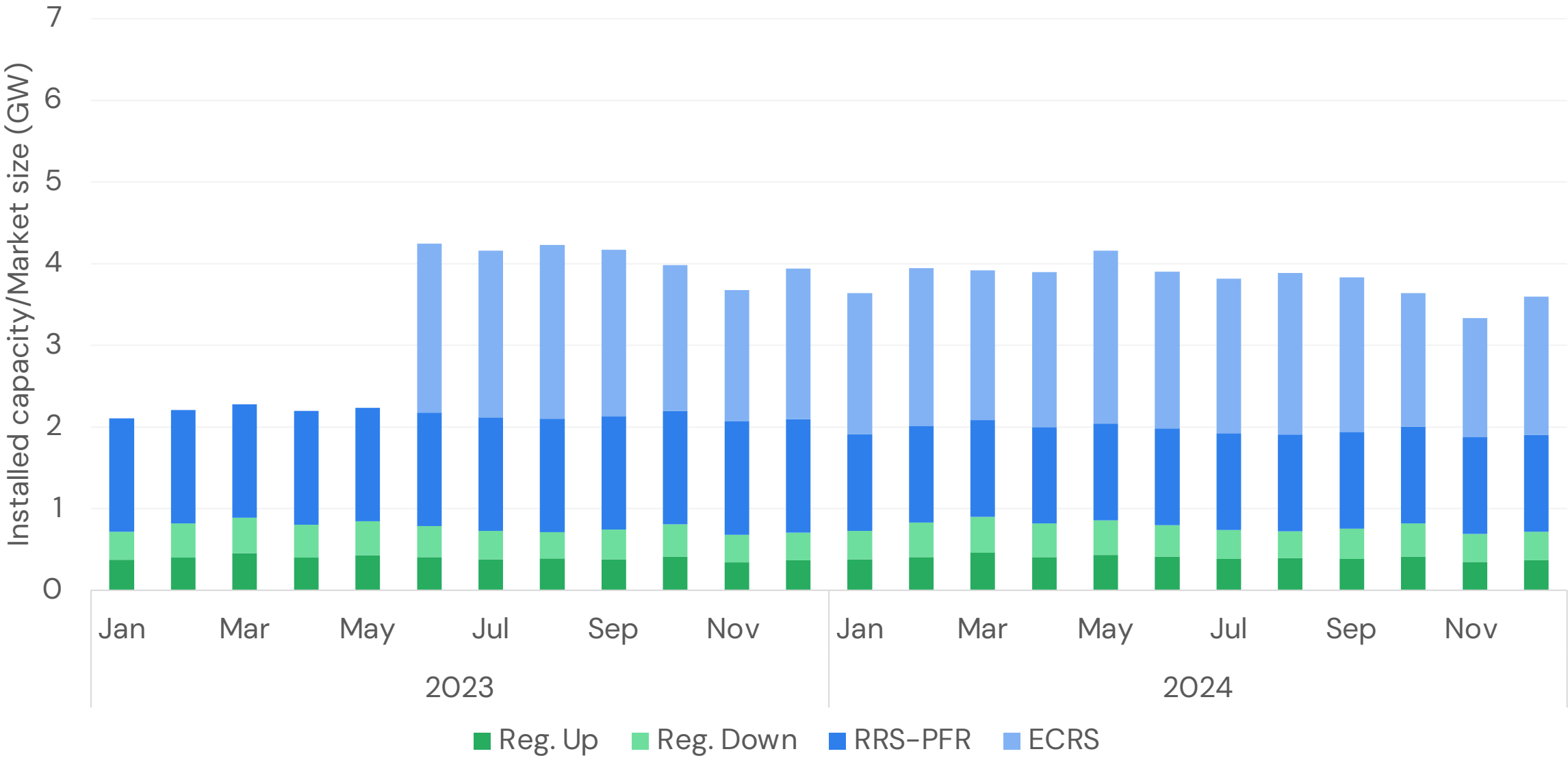
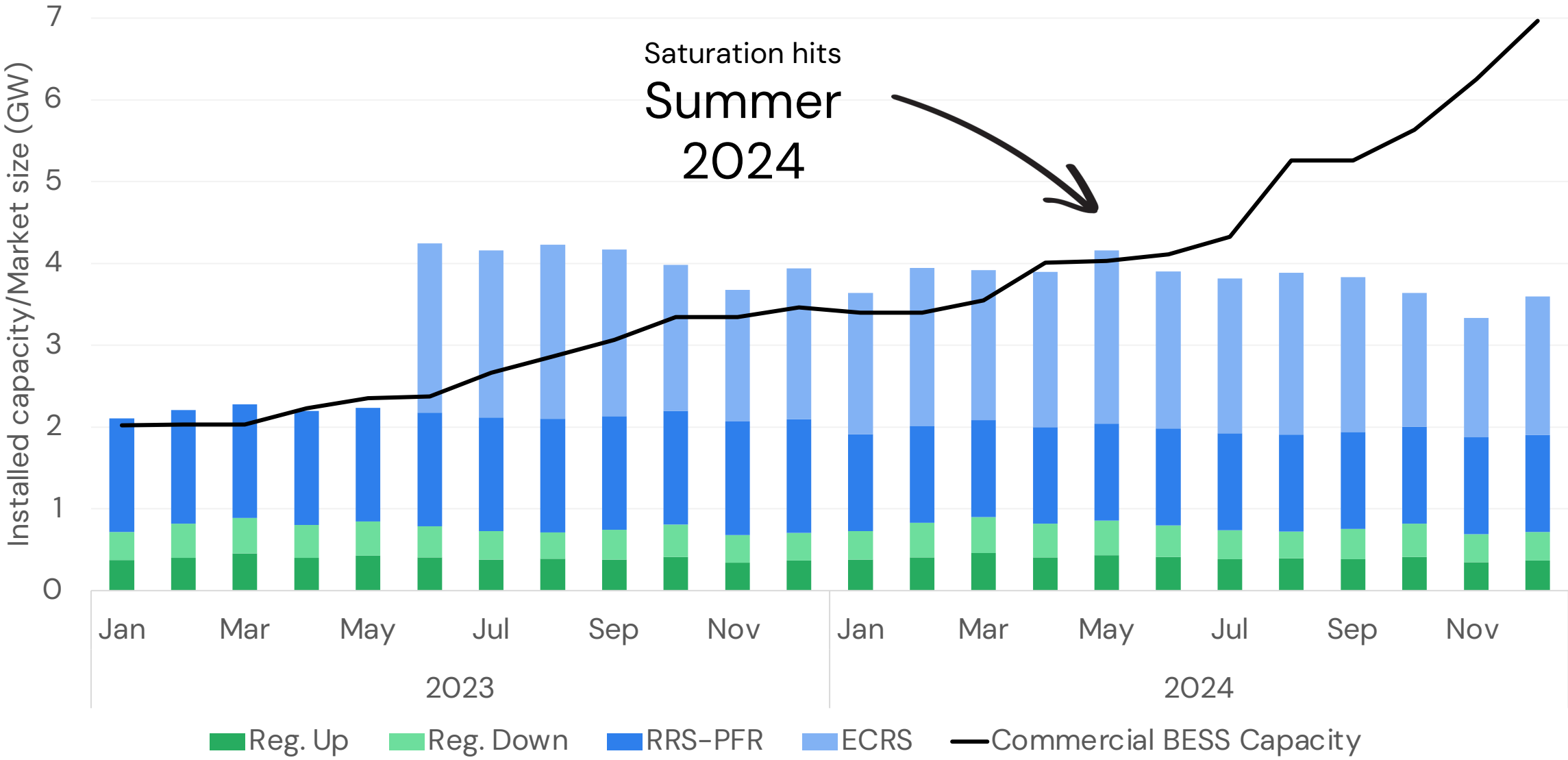
Saturation will change the game.


Installed capacity/Market size (GW)
7
6
5
4
3
2
1
0
Jan
Mar
May
Jul
Sep
Nov
2023
Jan
Mar
May
Jul
Sep
Nov
2024
Reg. Up
Reg. Down
RRS-PFR
ECRS


Saturation hits
Summer
2024
Installed capacity/Market size (GW)
7
6
5
4
3
2
1
0
Jan
Mar
May
Jul
Sep
Nov
2023
Jan
Mar
May
Jul
Sep
Nov
2024
Reg. Up
Reg. Down
RRS-PFR
ECRS
Commercial BESS Capacity

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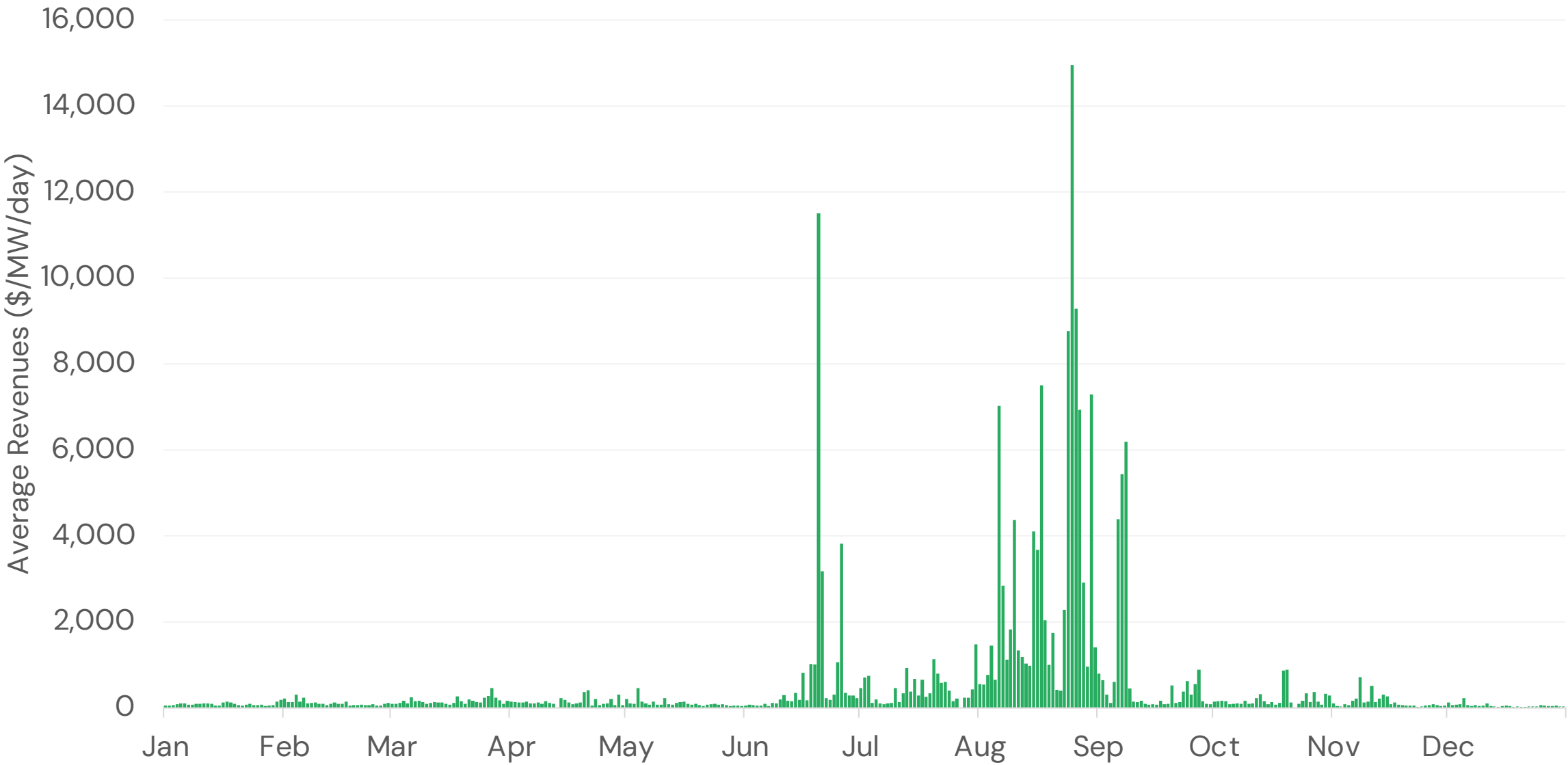
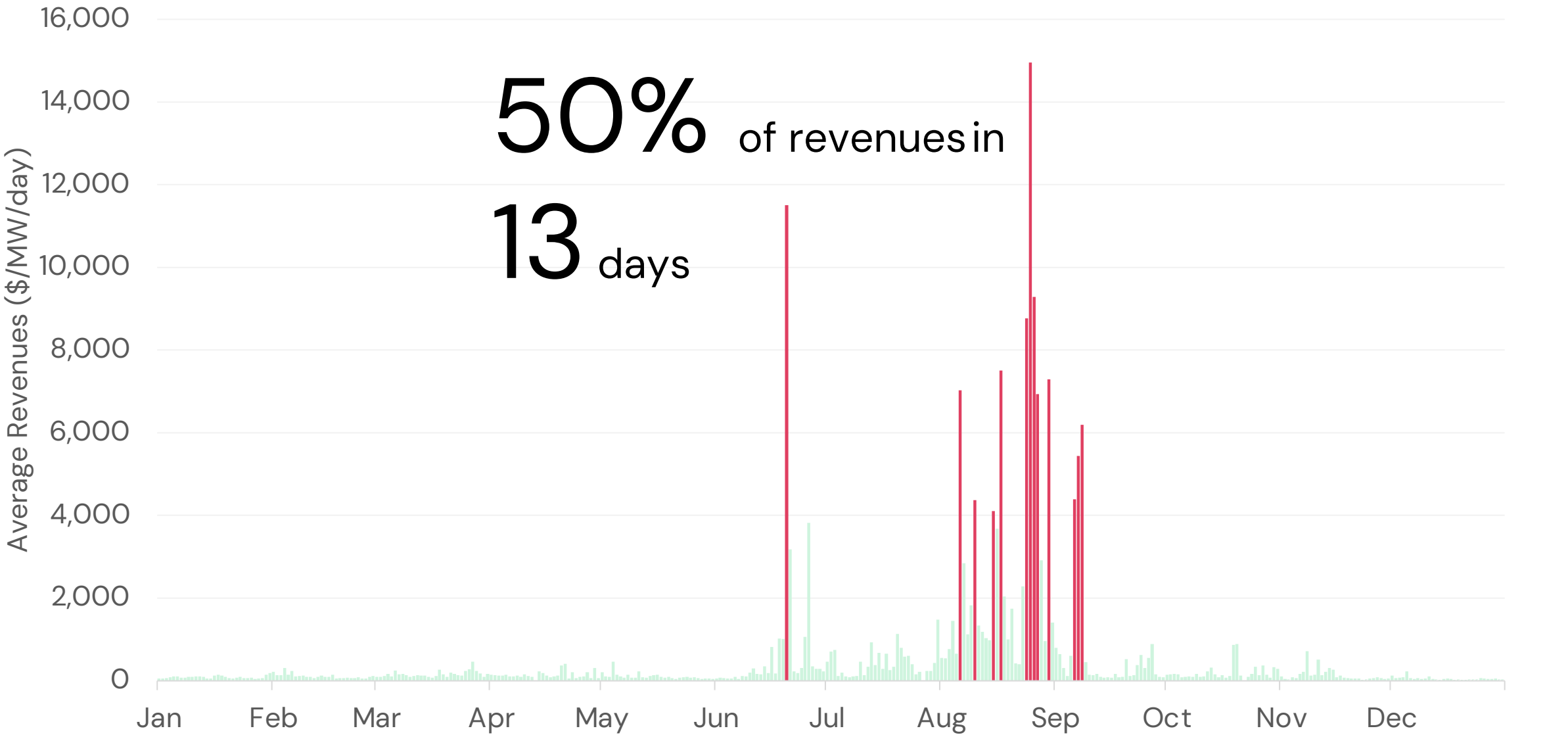
Without Ancillary Services, volatility is everything


16,000
14,000
12,000
10,000
8,000
6,000
4,000
2,000
0
Average Revenues ($/MW/day)
Jan
Feb
Mar
Apr
May
Jun
Jul
Aug
Sep
Oct
Nov
Dec

MODOENERGY


50% of revenues in
13 days
Average Revenues ($/MW/day)
16,000
14,000
12,000
10,000
8,000
6,000
4,000
2,000
0
Jan
Feb
Mar
Apr
May
Jun
Jul
Aug
Sep
Oct
Nov
Dec

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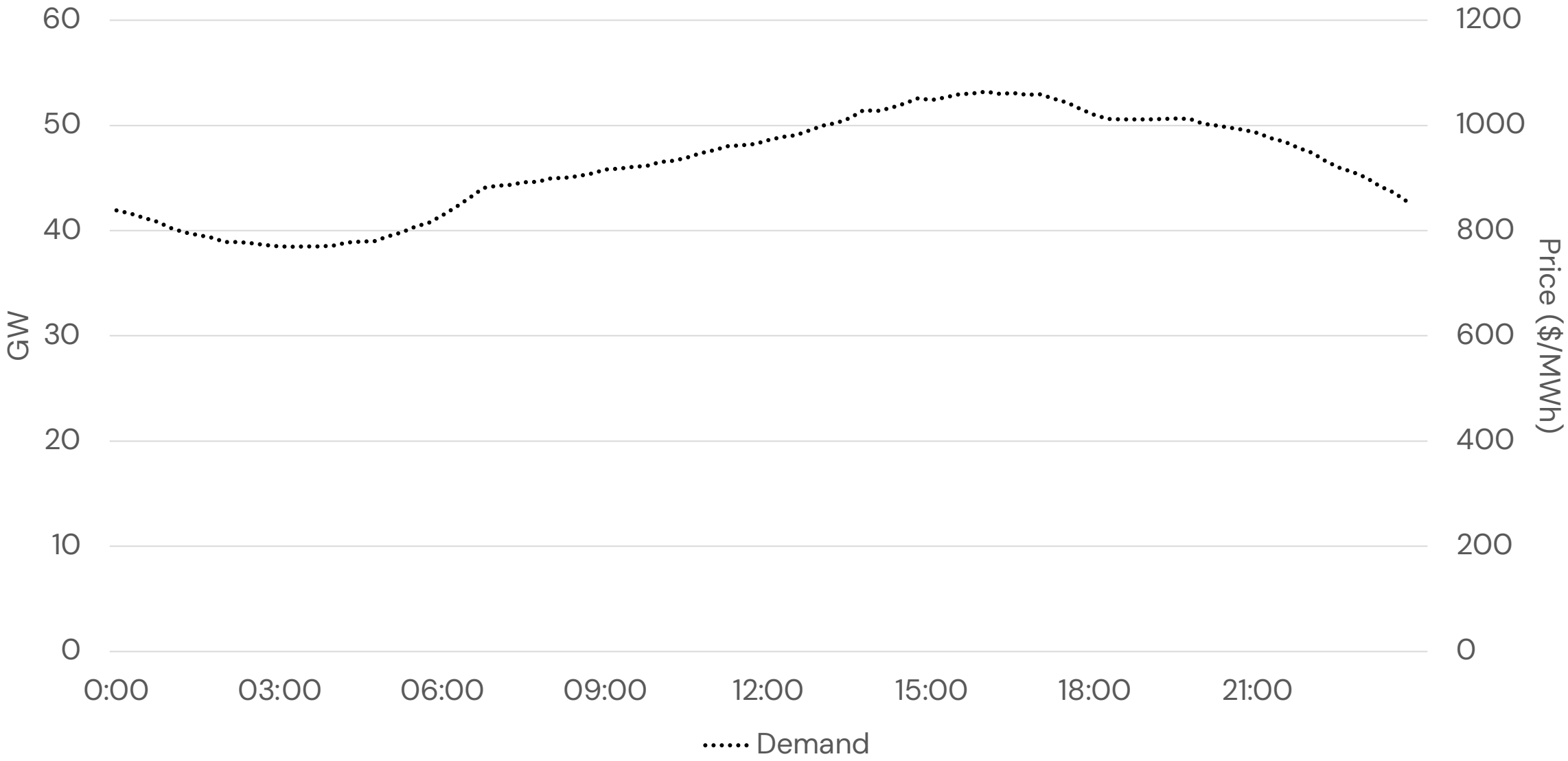
When do we see the most volatility?

High demand + high solar = Net load ramps


60
50
40
30
20
10
0
GW
1200
1000
800
600
400
200
0
Price ($/MWh)
0:00
03:00
06:00
09:00
12:00
15:00
18:00
21:00
Demand

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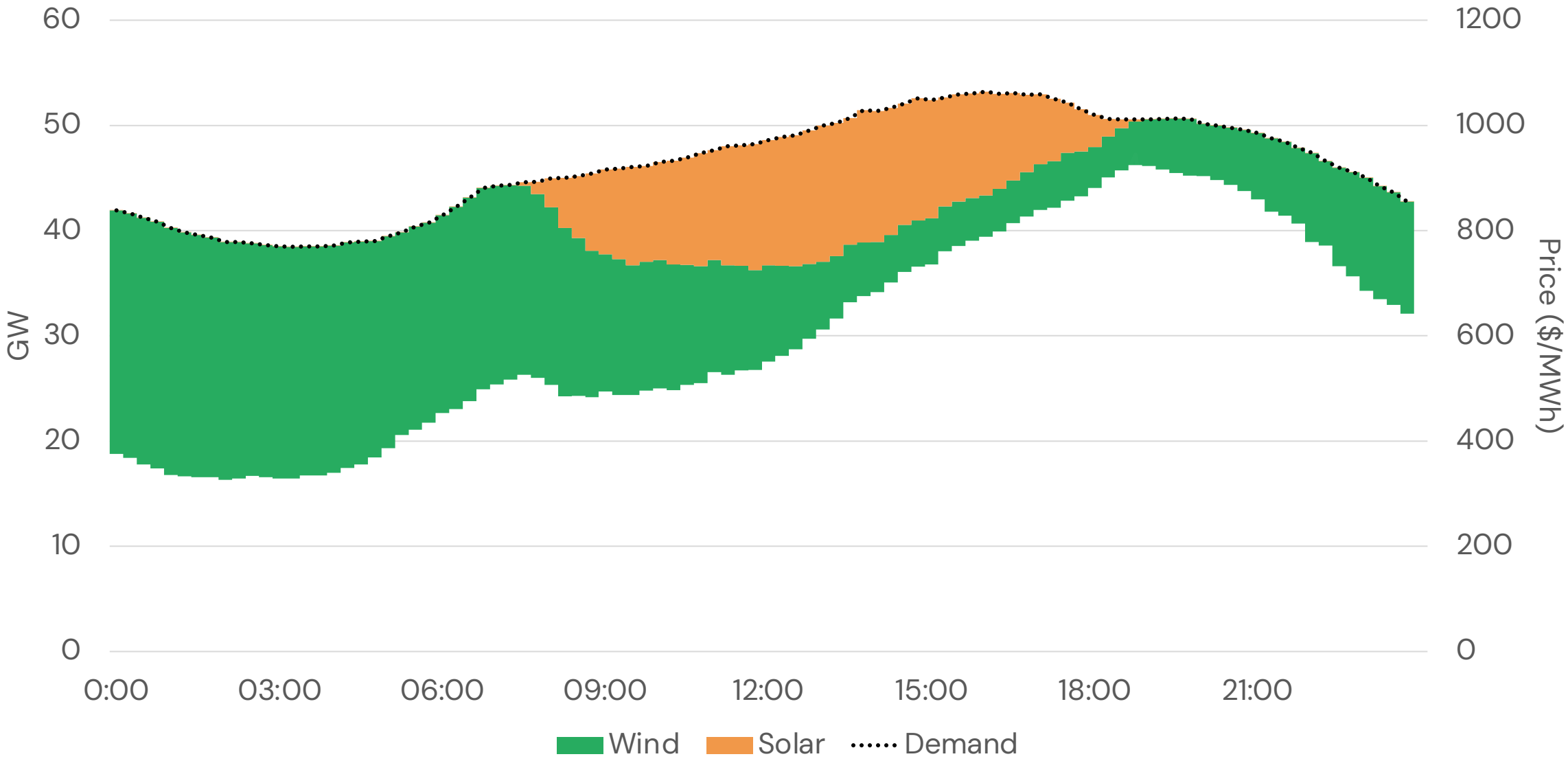
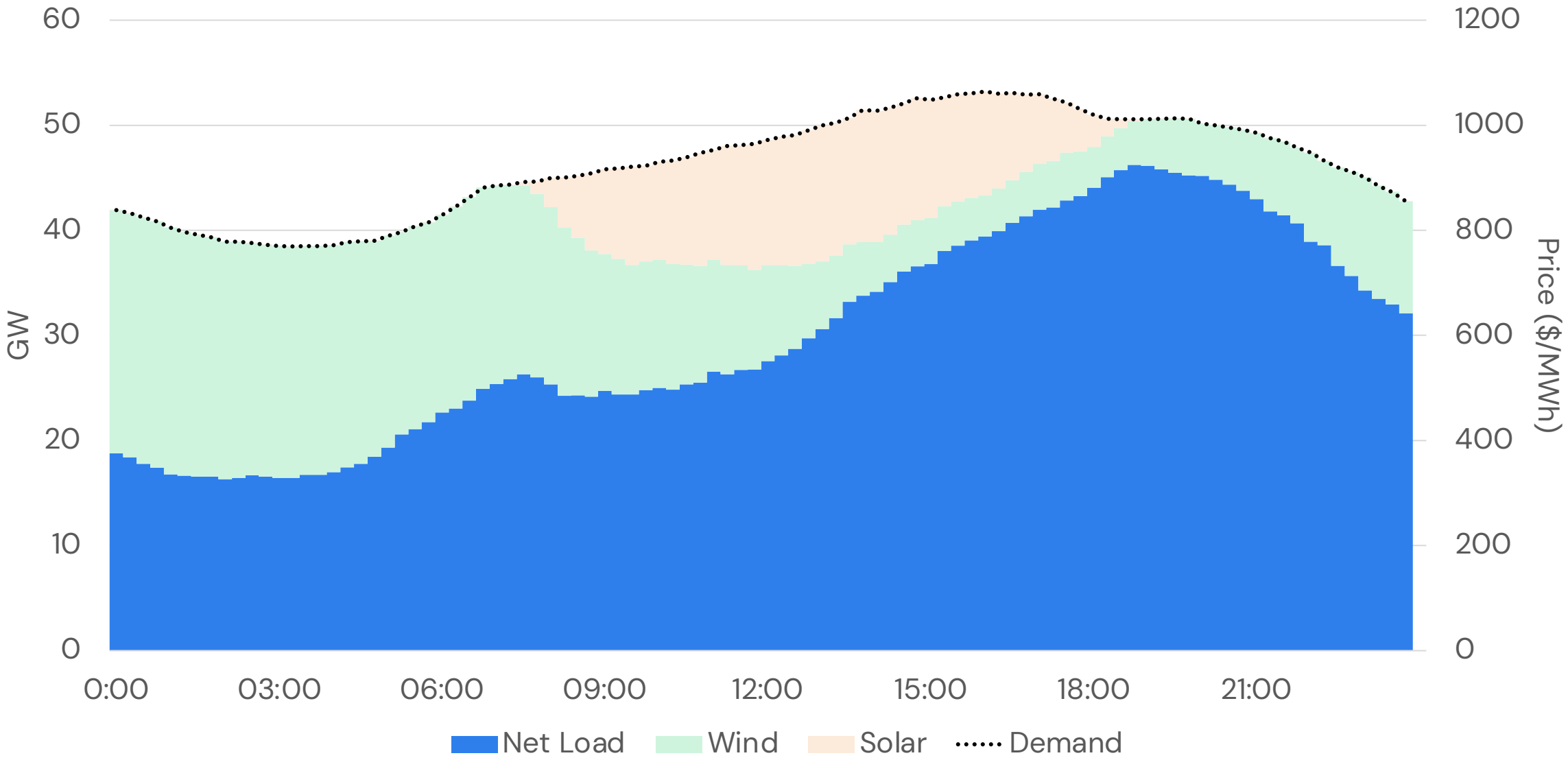
Now lets add wind and solar


60
50
40
30
20
10
0
GW
1200
1000
800
600
400
200
0
Price ($/MWh)
0:00
03:00
06:00
09:00
12:00
15:00
18:00
21:00
Wind
Solar
Demand

MODOENERGY


60
50
40
30
20
10
0
GW
1200
1000
800
600
400
200
0
Price ($/MWh)
0:00
03:00
06:00
09:00
12:00
15:00
18:00
21:00
Net Load
Wind
Solar
Demand

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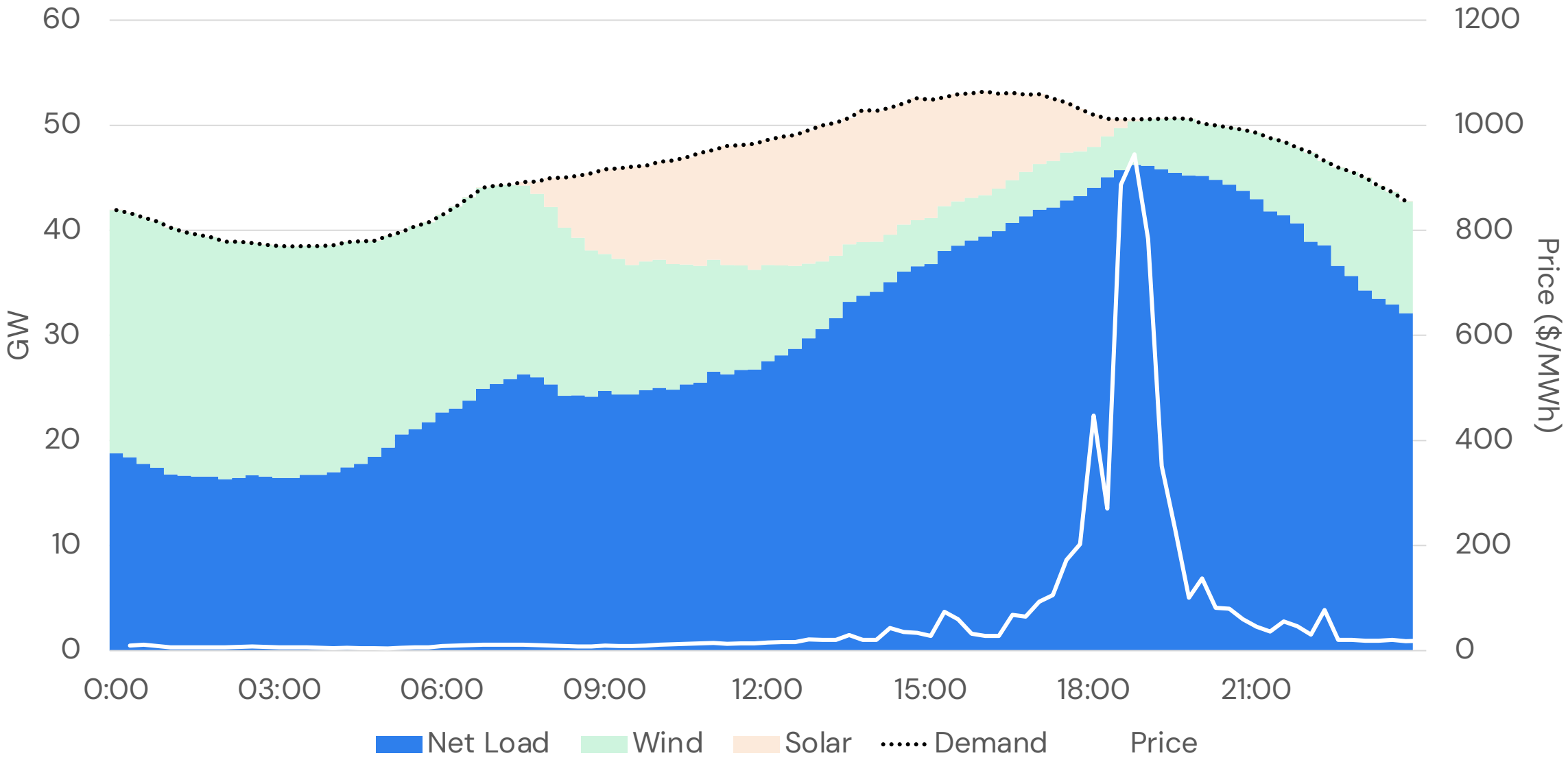
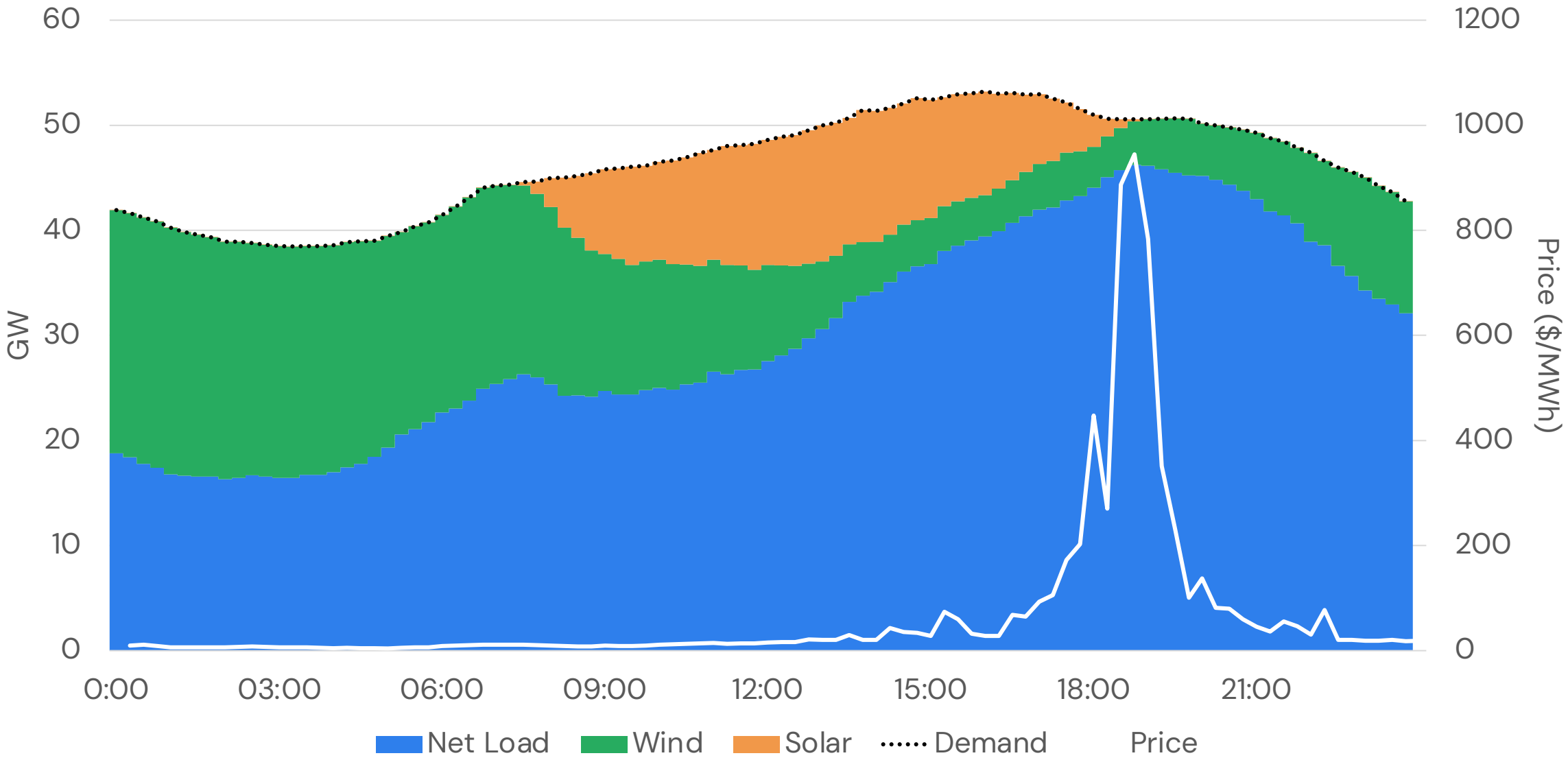
What happens to price?


60
50
40
30
20
10
0
GW
1200
1000
800
600
400
200
0
Price ($/MWh)
0:00
03:00
06:00
09:00
12:00
15:00
18:00
21:00
Net Load
Wind
Solar
Demand
Price

MODOENERGY


60
50
40
30
20
10
0
GW
1200
1000
800
600
400
200
0
Price ($/MWh)
0:00
03:00
06:00
09:00
12:00
15:00
18:00
21:00
Net Load
Wind
Solar
Demand
Price

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What does this mean for summer 2024?

	2022
Peak hourly load	80,038 MW
Peak hourly solar generation	10,039 MW
Max. 30-minute Net Load Ramp	5,874 MW
Battery energy storage revenues	**$147k/MW**

	2022	2023
Peak hourly load	80,038 MW	85,464 MW
Peak hourly solar generation	10,039 MW	13,742 MW
Max. 30-minute Net Load Ramp	5,874 MW	7,867 MW
Battery energy storage revenues	**$147k/MW**	**$196k/MW**

	2022	2023	Change
Peak hourly load	80,038 MW	85,464 MW	+7%
Peak hourly solar generation	10,039 MW	13,742 MW	+49%
Max. 30-minute Net Load Ramp	5,874 MW	7,867 MW	+30%
Battery energy storage revenues	**$147k/MW**	**$196k/MW**	**+33%**

	2022	2023	Change	2024
Peak hourly load	80,038 MW	85,464 MW	+7%	88,500 MW
Peak hourly solar generation	10,039 MW	13,742 MW	+49%	24,200 MW
Max. 30-minute Net Load Ramp	5,874 MW	7,867 MW	+30%	10,000 MW
Battery energy storage revenues	**$147k/MW**	**$196k/MW**	**+33%**	**?**

	2022	2023	Change	2024	Change
Peak hourly load	80,038 MW	85,464 MW	+7%	88,500 MW	+4%
Peak hourly solar generation	10,039 MW	13,742 MW	+49%	24,200 MW	+76%
Max. 30-minute Net Load Ramp	5,874 MW	7,867 MW	+30%	10,000 MW	+31%
Battery energy storage revenues	**$147k/MW**	**$196k/MW**	**+33%**	**?**	**?**

6th Edition

Energy Storage USA

You're invited to the

MODO ENERGY

Official Afterparty!

Tuesday 19th March - 7:30pm 'til late

Open bar, good food, networking opportunities, prizes

✦ ✦ ✦

1114 East Cesar Chavez (Austin, TX - 78724)

A historic compound in the heart of bustling East Austin

✦ ✦ ✦

All you need is a wristband

Head over to the Modo Energy stall to claim your pass