

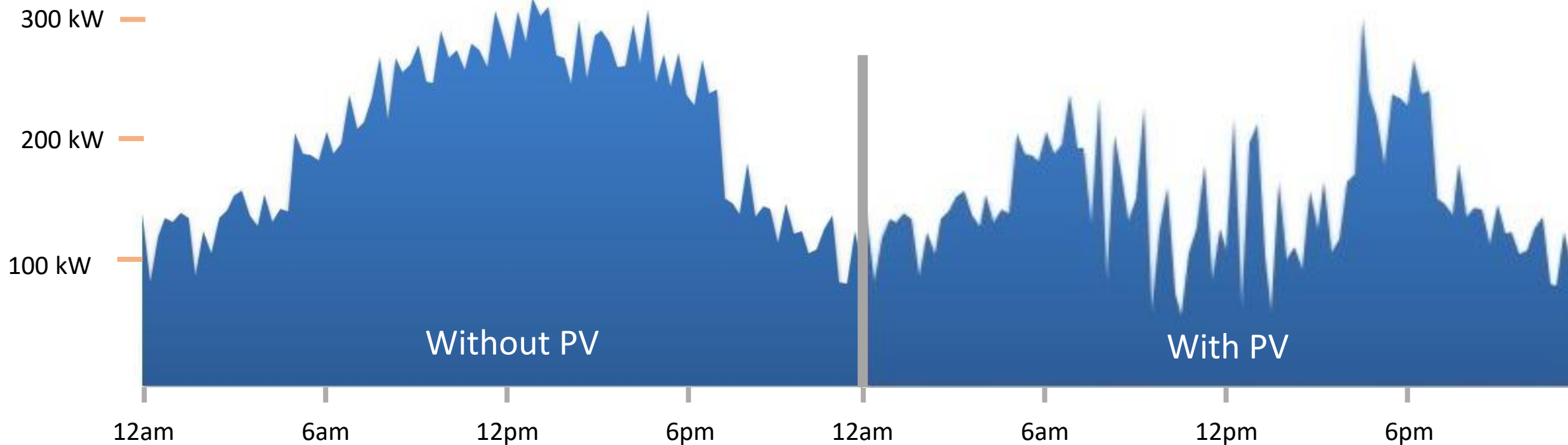
POWER & ENERGY SHIFTING

Battery Use Cases & Sizing

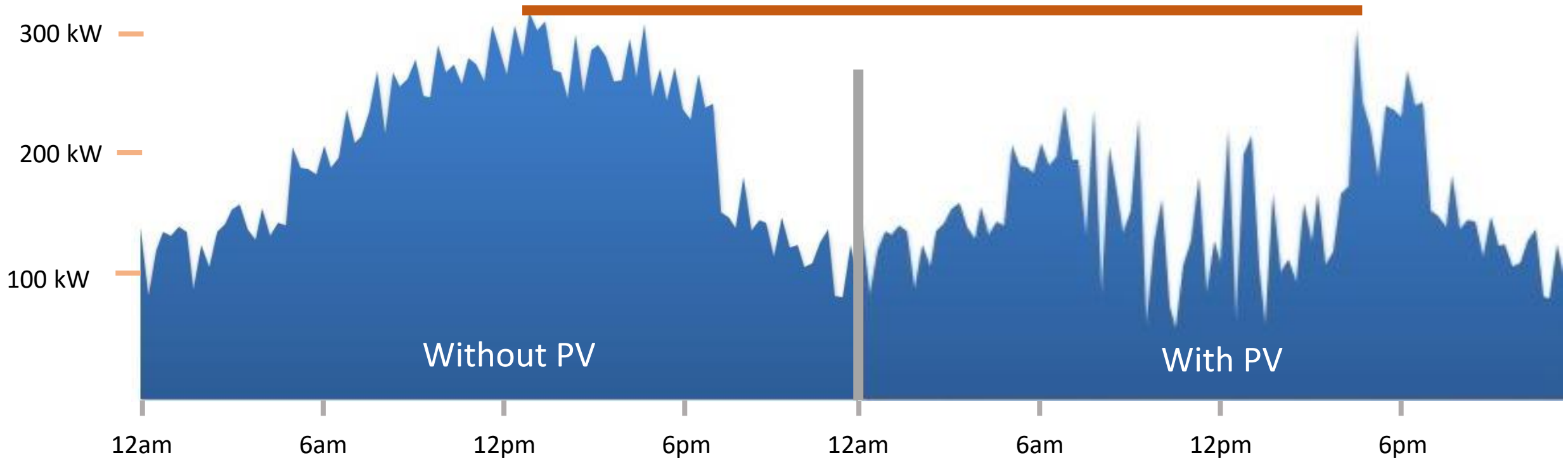
Demand charge management



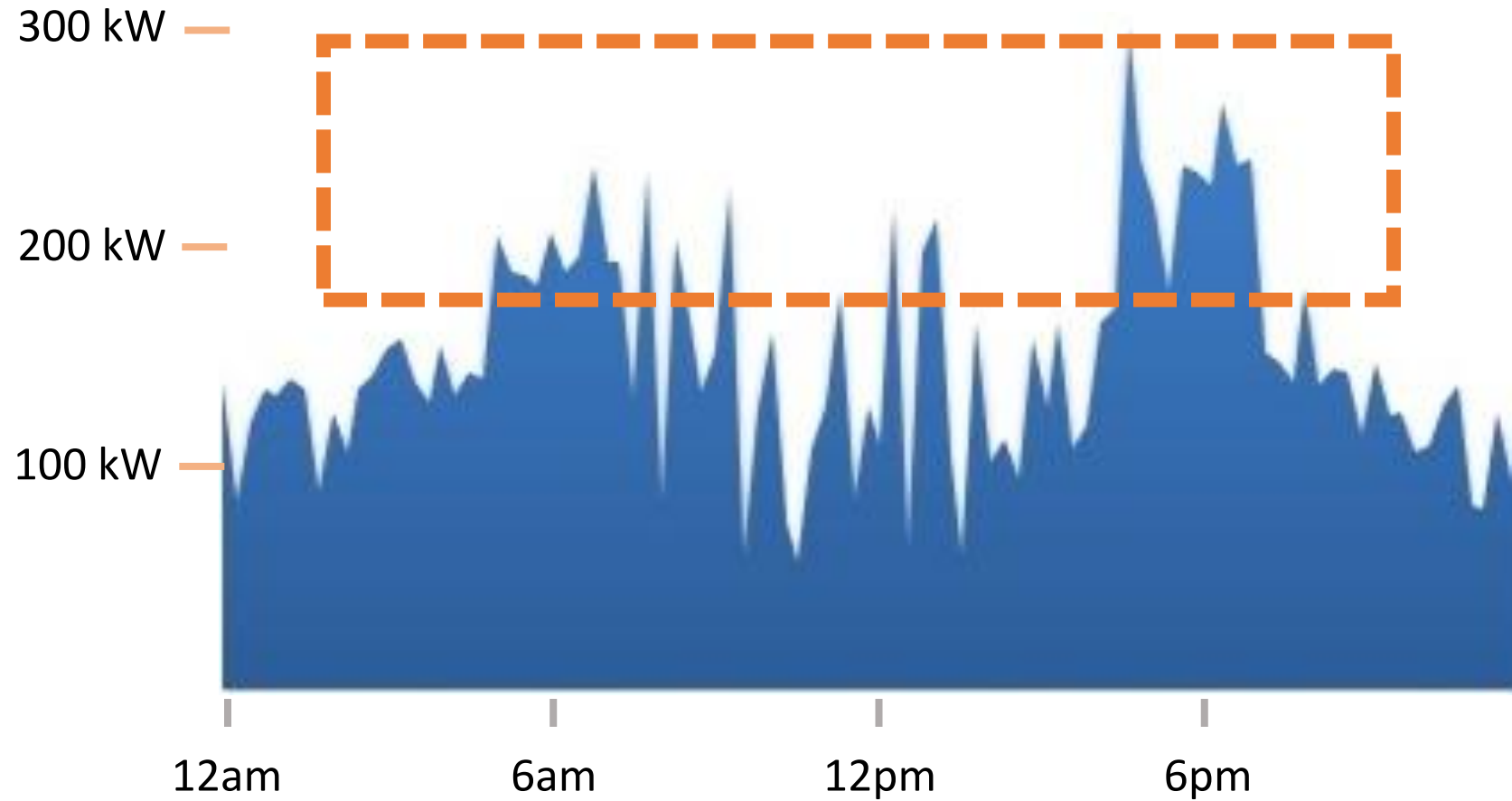
Significant demand charge reduction here?...



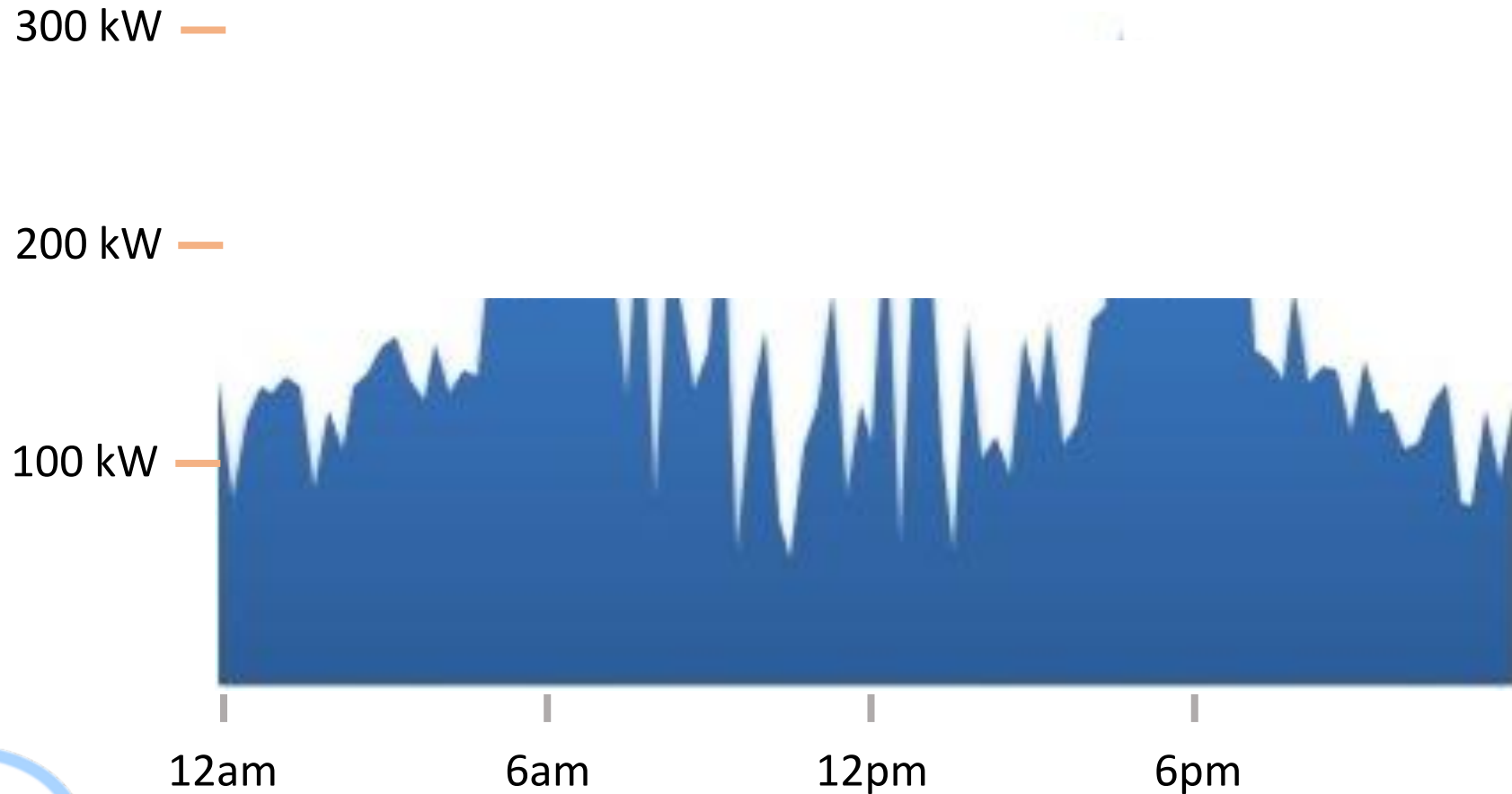
Practically no demand charge reduction



Energy storage to the rescue?



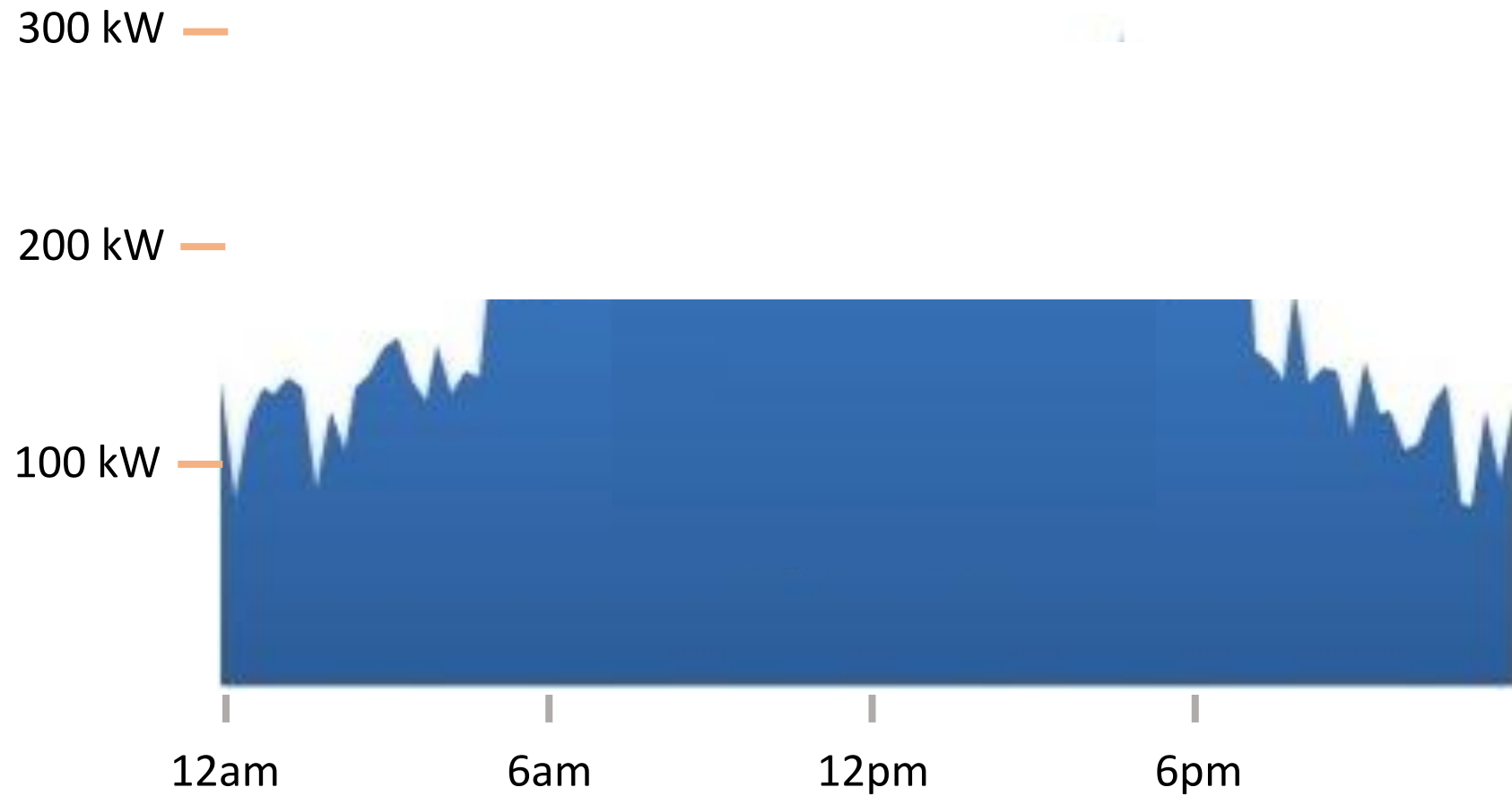
Give that load profile a “haircut”



Peak Shaving

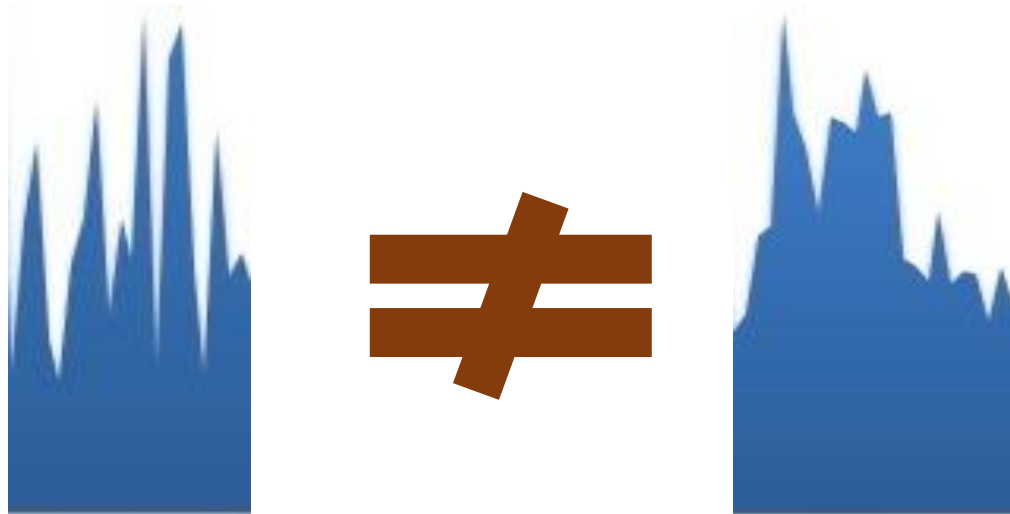
Thanks Energy Toolbase for the “haircut” term

Charge the battery when not peak shaving





Sizing your batteries for the demand charge

...depends on the most challenging single-day load profile...



Demand charge management is hard

MAY 2020						
Sunday	Monday	Tuesday	Wednesday	Thursday	Friday	Saturday
26	27	28	29	30	1 	2 
3 	4 	5 	6 	7 	8 	9 
10 	11 	12 	13 	14 	15 	16 
17 	18 	19 	20 	21 	22 	23 
24 	25 	26 	27 	28 	29 	30 
31 	1 	2	3	4	5	6

Trying to control the total load with batteries:



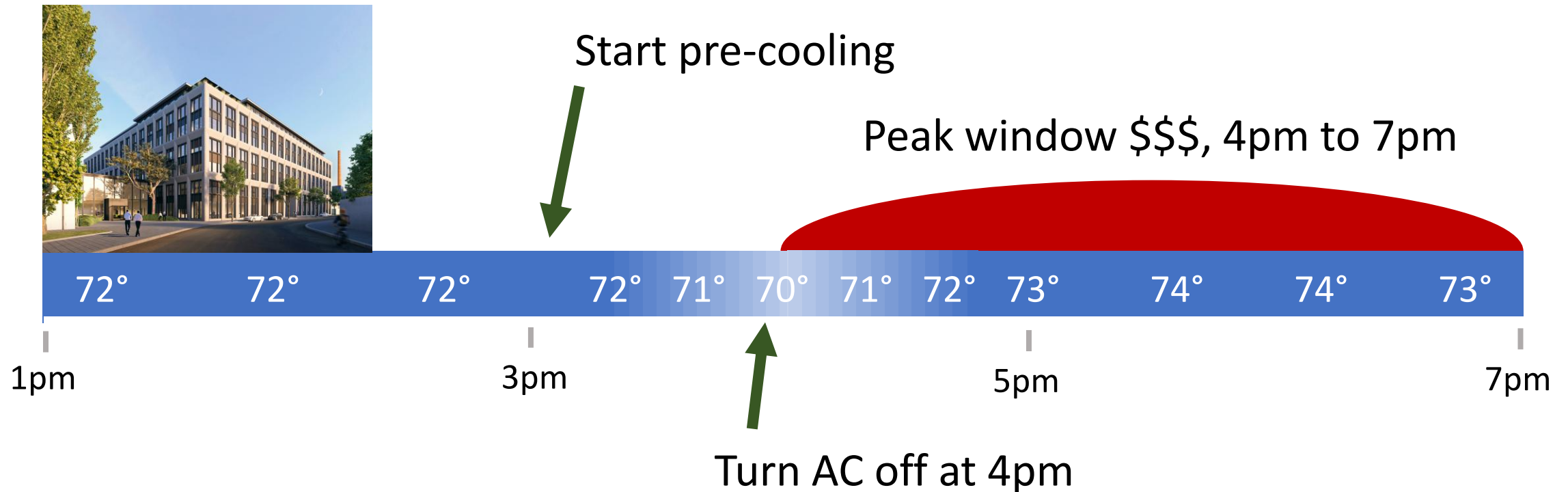
Controlling end loads directly:



Consider air cooling

Bill goal: Keep peak-window demand under 100 kW.

Building requirement: Keep the temperature under 73° F until 5pm.



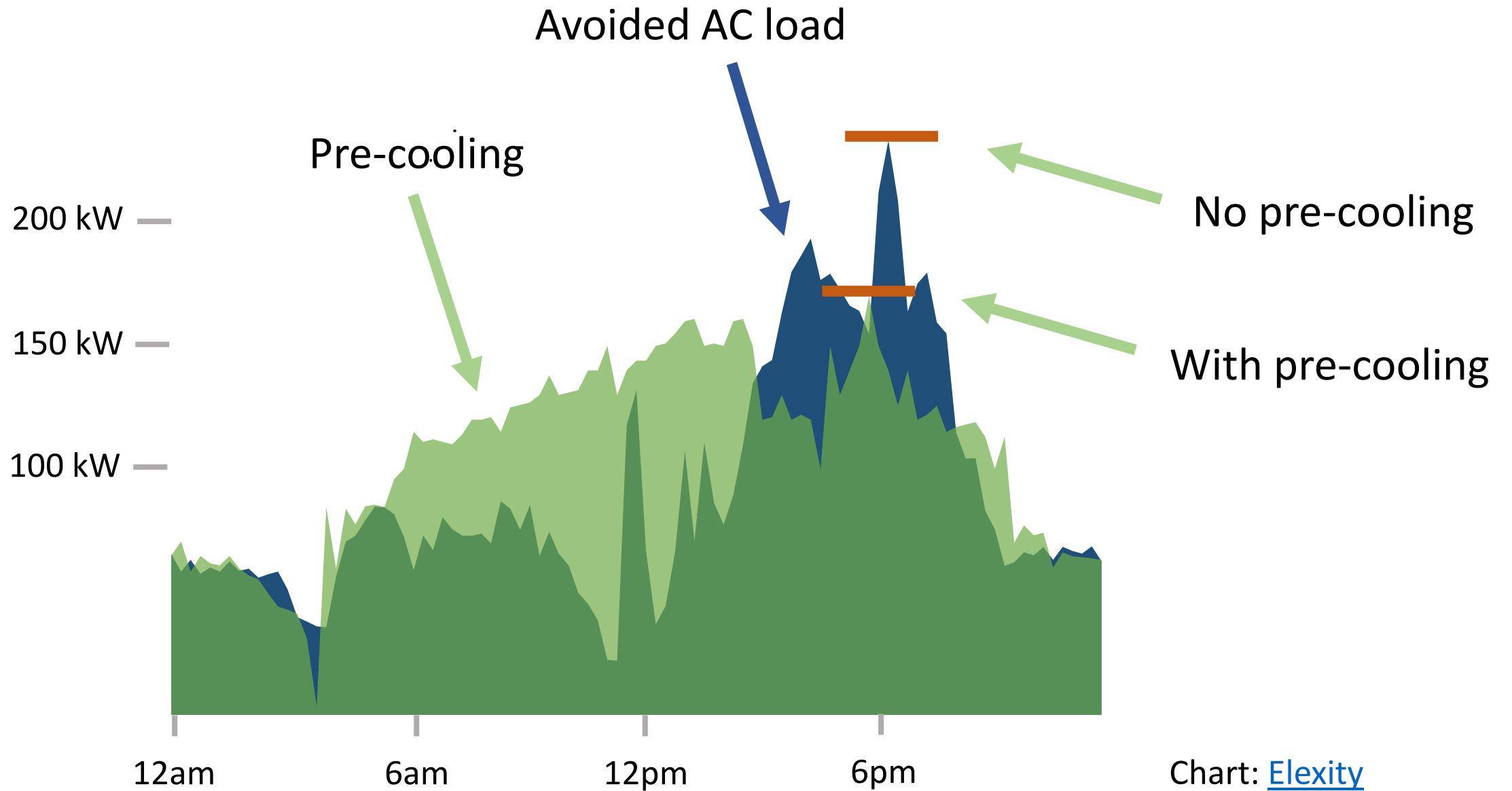


Chart: [Elexity](#)
(modified by Mike)



Time-of-Use energy shifting

Use a battery to...

Move (solar) energy from lower-value times to higher-value times.

Energy arbitrage

Energy time shifting

TOU energy shifting



Chart: [Sunrun](#)
(modified by Mike)

TOU energy shifting

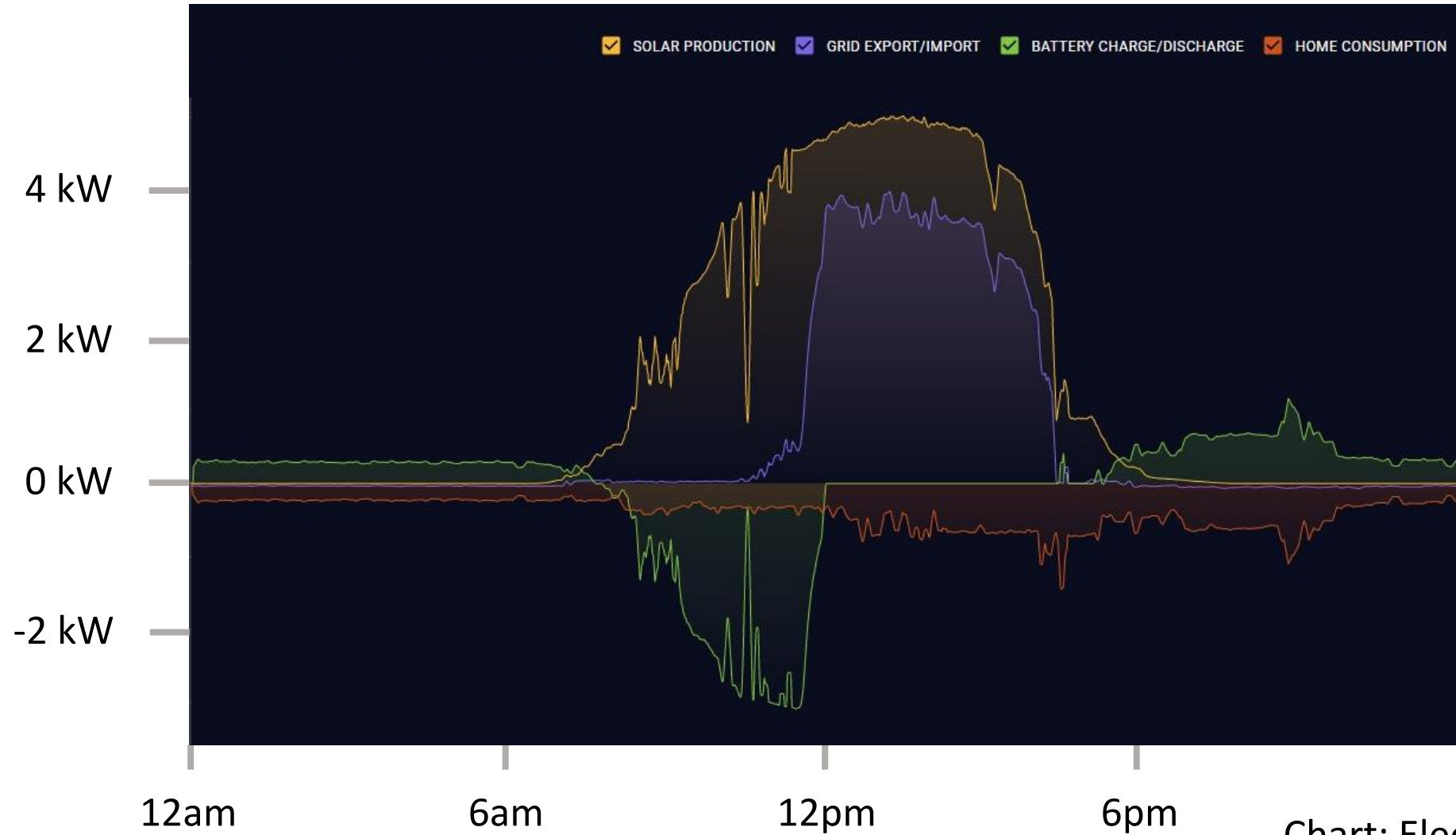


Chart: Electriq Power via [Wired](#)
(modified by Mike)

Co-optimization

Demand charge management + TOU energy shifting



Forecast logic vs. field logic

If the forecast logic assumes co-optimization...

And field logic only targets demand-charge reduction...



POWER & ENERGY SHIFTING

