Advanced Microgrid Solutions

Behind the Meter

Energy Storage Applications

&

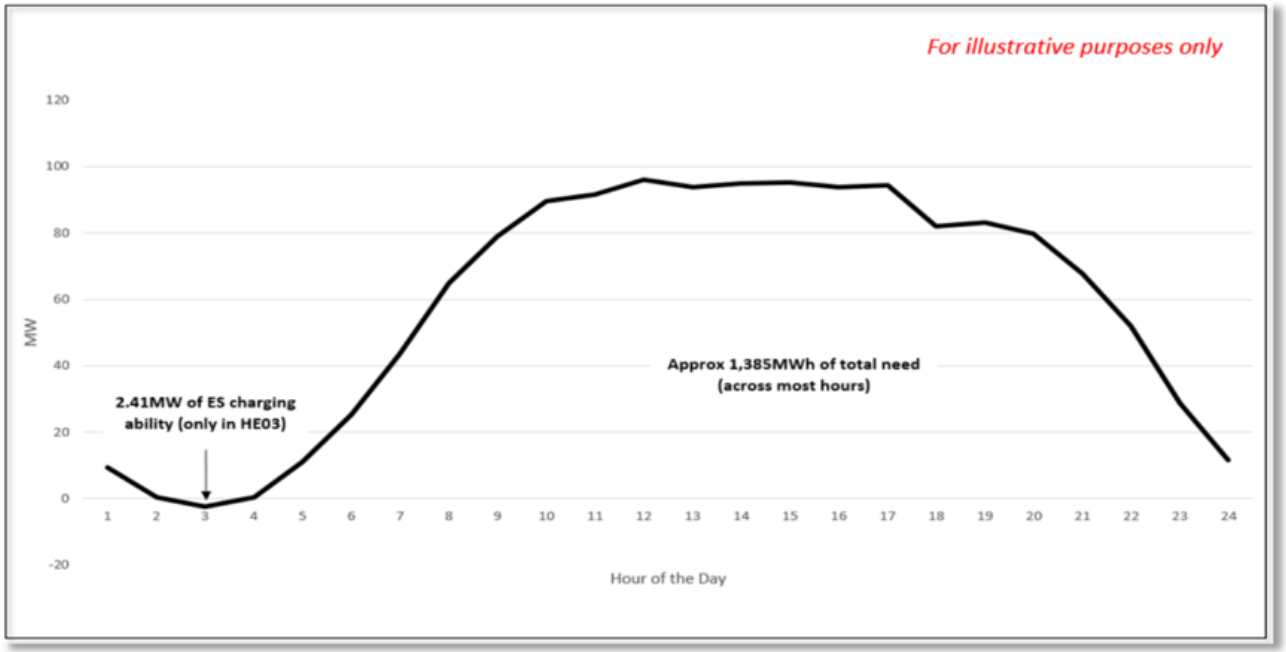
Solutions Design

A window into the Resiliency need around Goleta

A shortfall in energy supply / availability must be met with either:

1. **Increases in local supply** (e.g., regional or local generation)
2. **Reduction in demand** (e.g., regional or local curtailment)

Illustration 2: Goleta Resiliency MW/MWh Objective



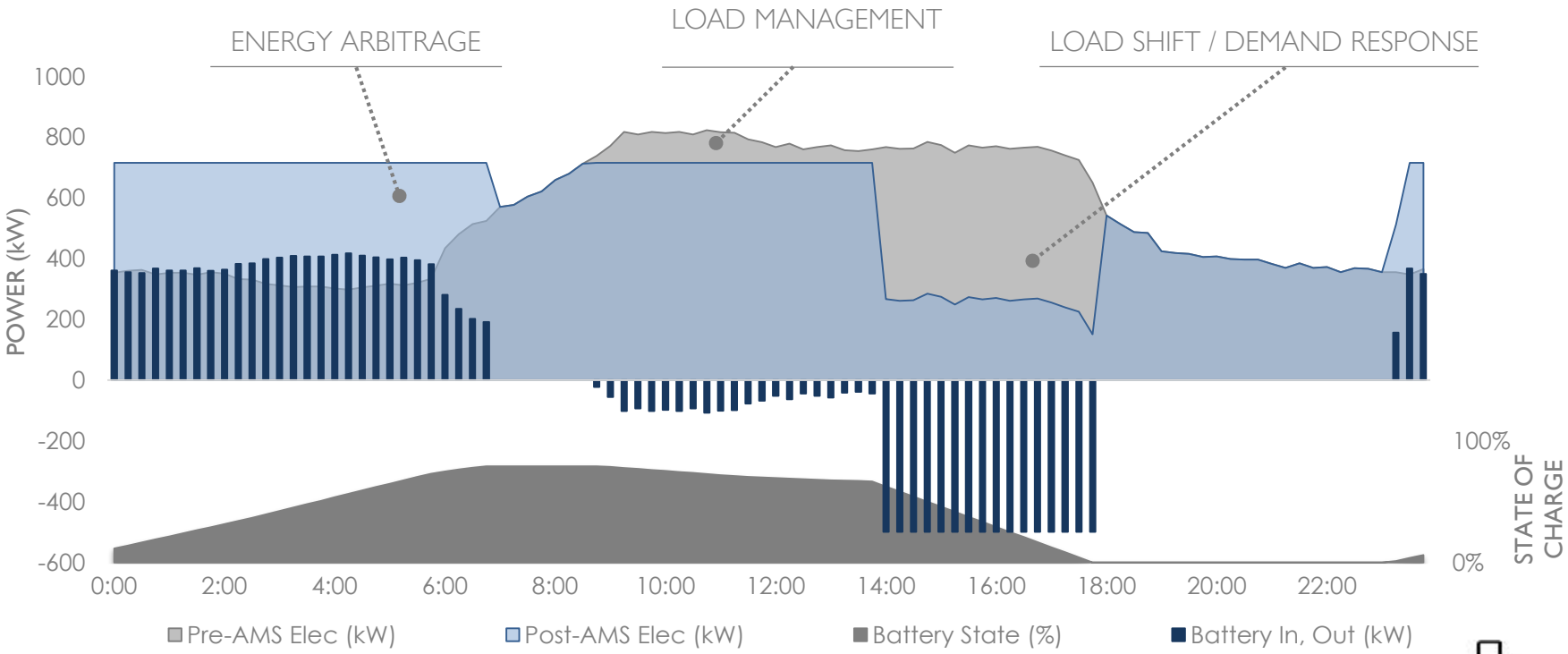
Behind the Meter Storage = More Control for the Customer

Lower Demand and Energy Costs

Control energy consumption with no impact to operations

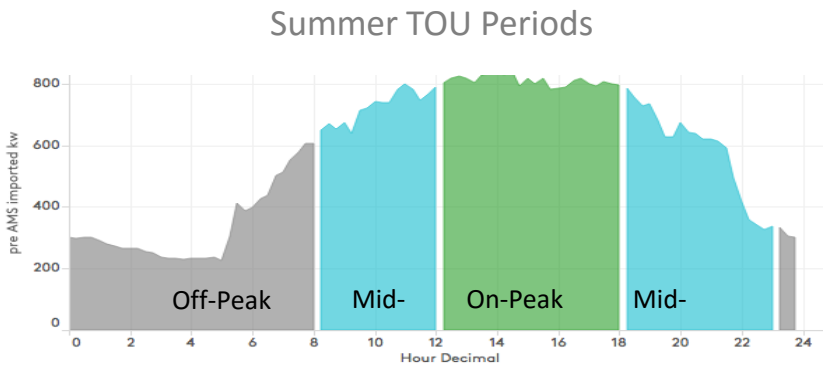
Protect against future rate increases

Capitalize on price volatility; **Monetize** your energy usage

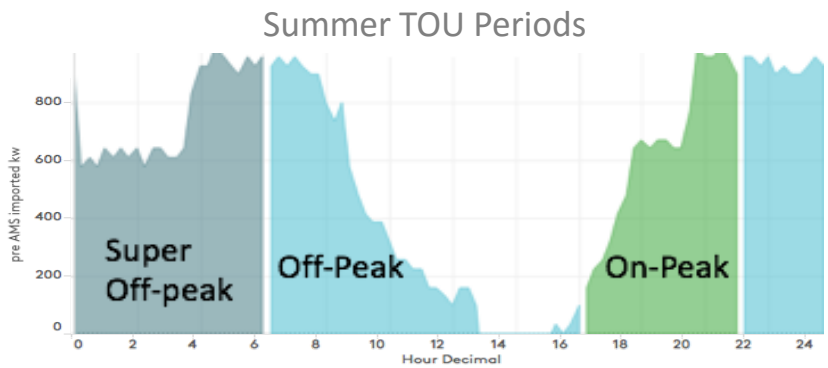


More Control over Costs

As Time of Use times change, storage provides a **flexible solution**



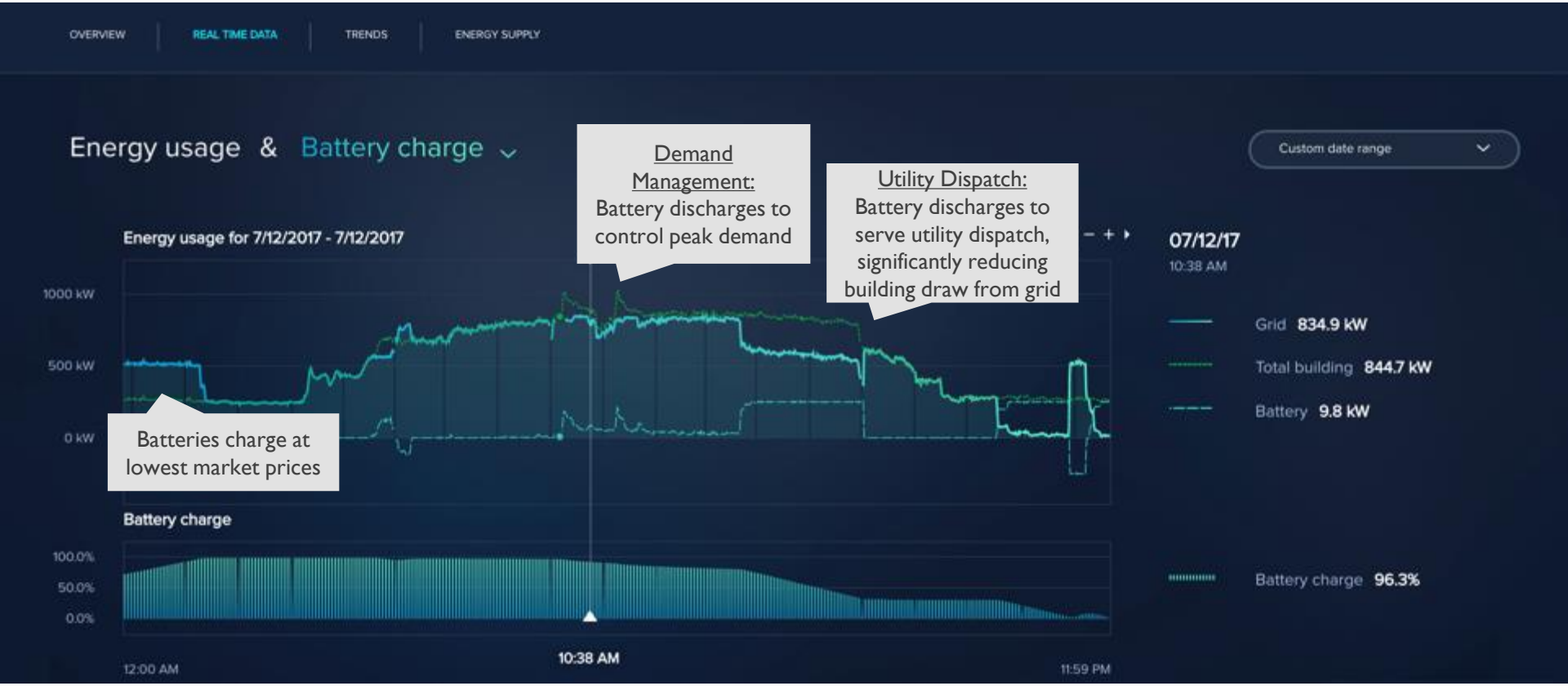
Current SUMMER TOU:
12 – 6 pm, Weekdays
June - September



Proposed Year Round TOU:
4 – 9 pm, Weekdays
Year Round

More Control over Usage

Behind the Meter Energy Storage provides multiple load shaping services to save or earn money with no operational changes

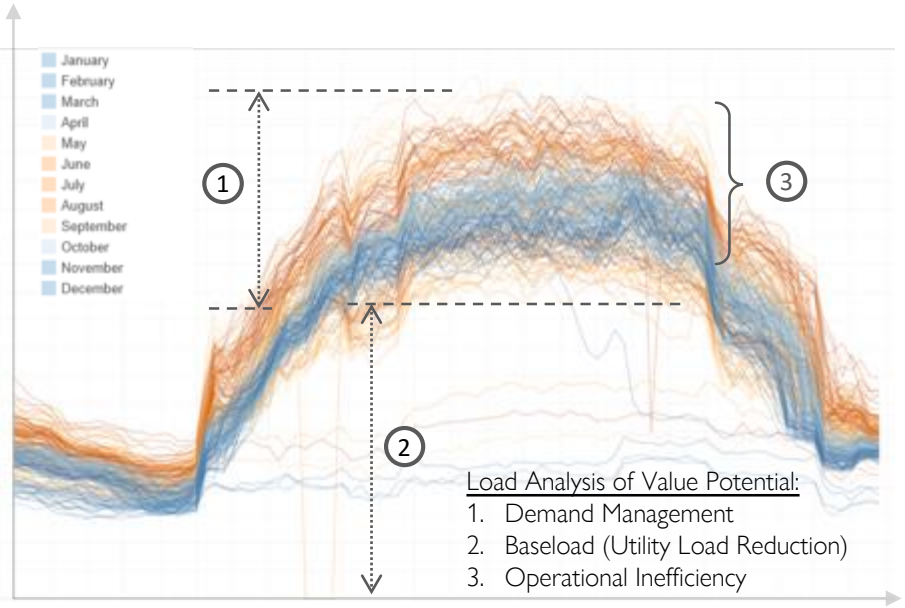


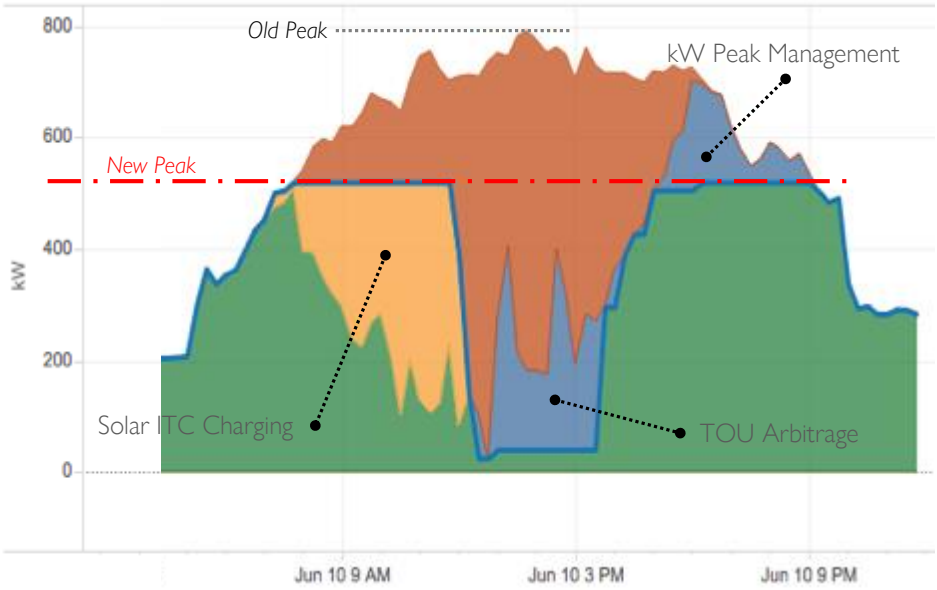
Solutions Design by Advanced Microgrid Solutions

Ask not what a **battery** can do **for you**…

Ask what **you** can do **with a battery**.

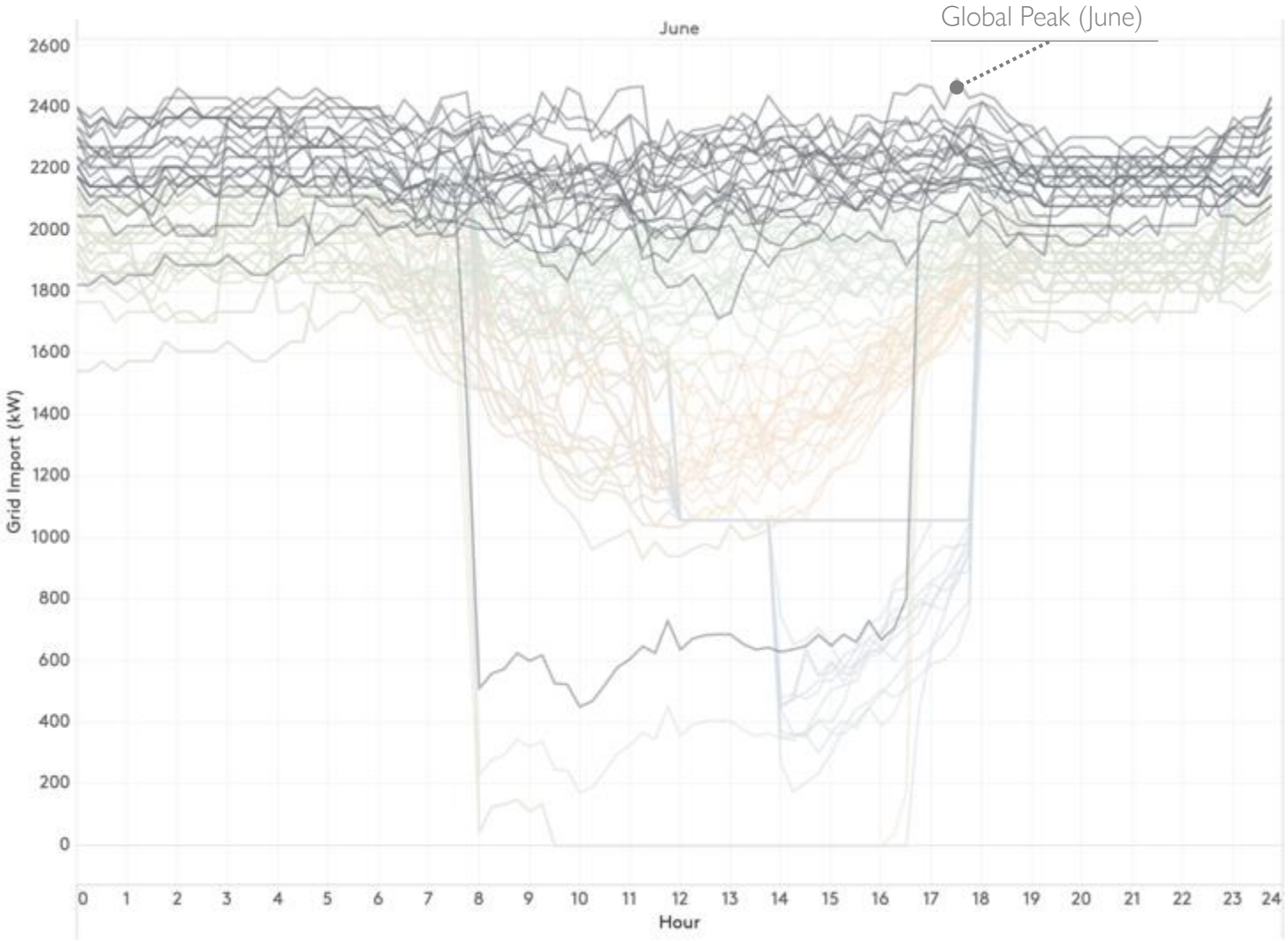
Solutions Design helps you find not just the value of energy storage, but the value of your load





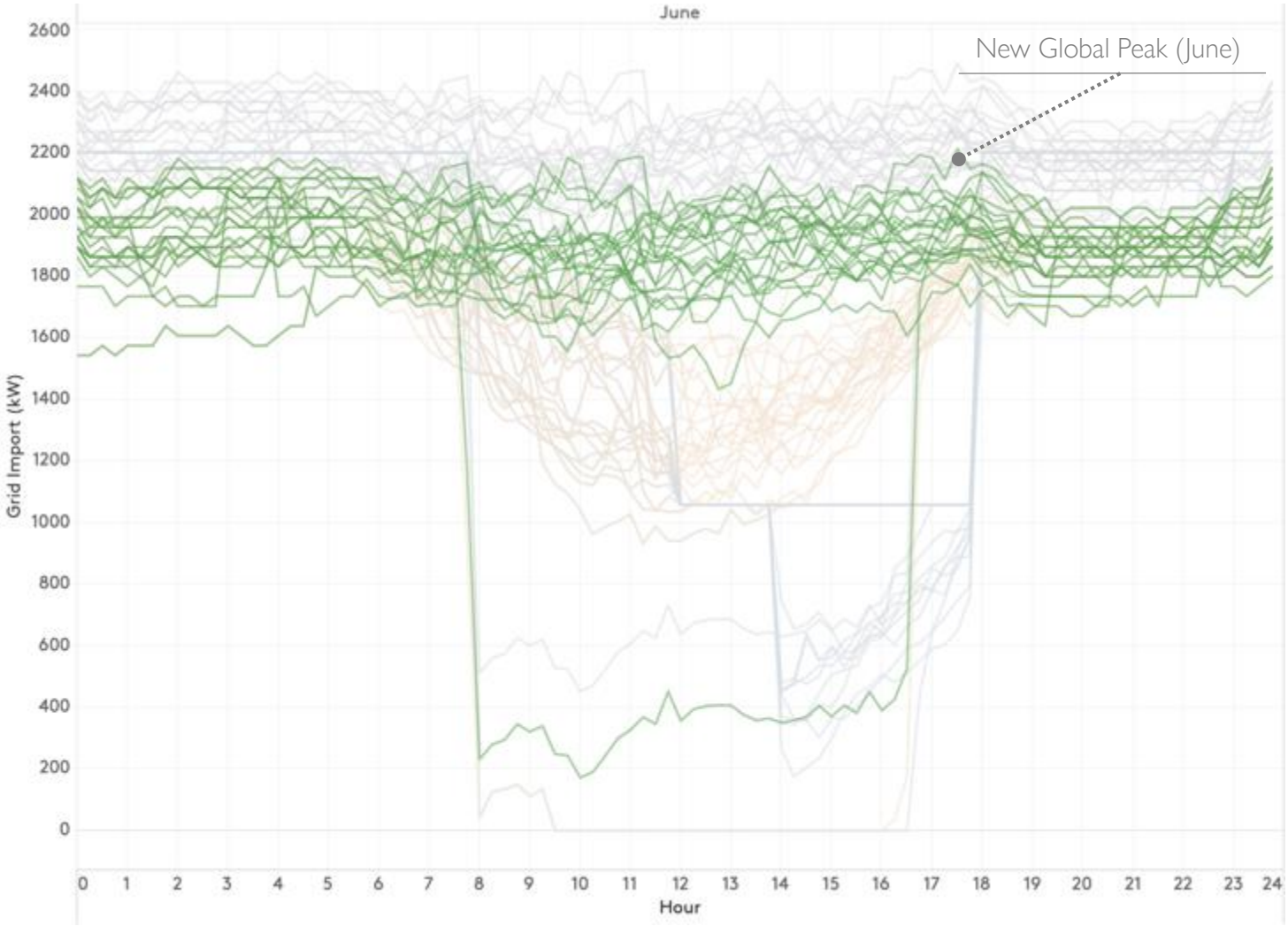
AMS Case Study 1: Water Treatment Plant

Existing Facility Load before Onsite Generation



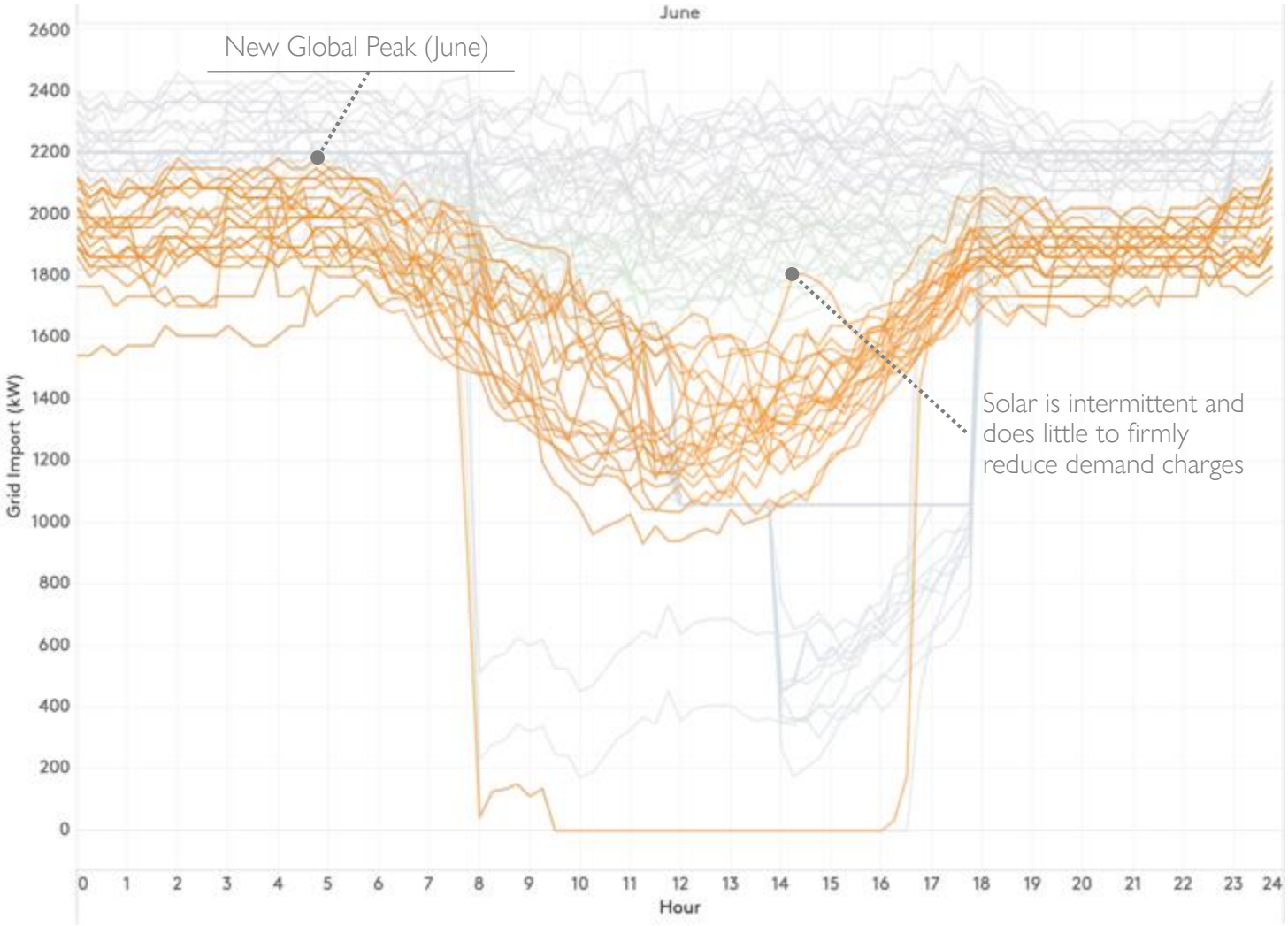
AMS Case Study 1: Water Treatment Plant

Modeled 280 kW Microturbine Operating Year-Round



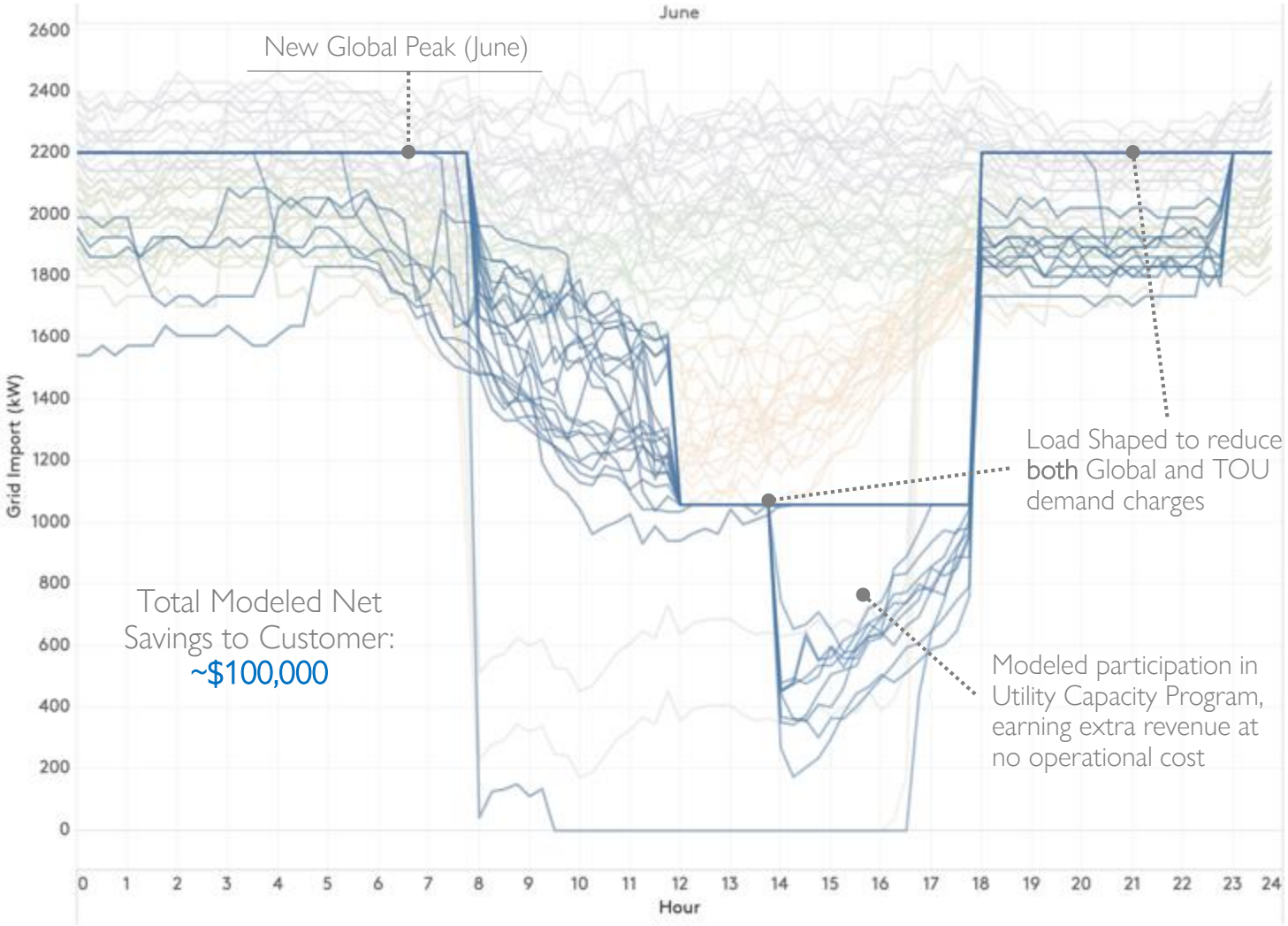
AMS Case Study 1: Water Treatment Plant

Modeled 1 MW of New Solar in addition to microturbine



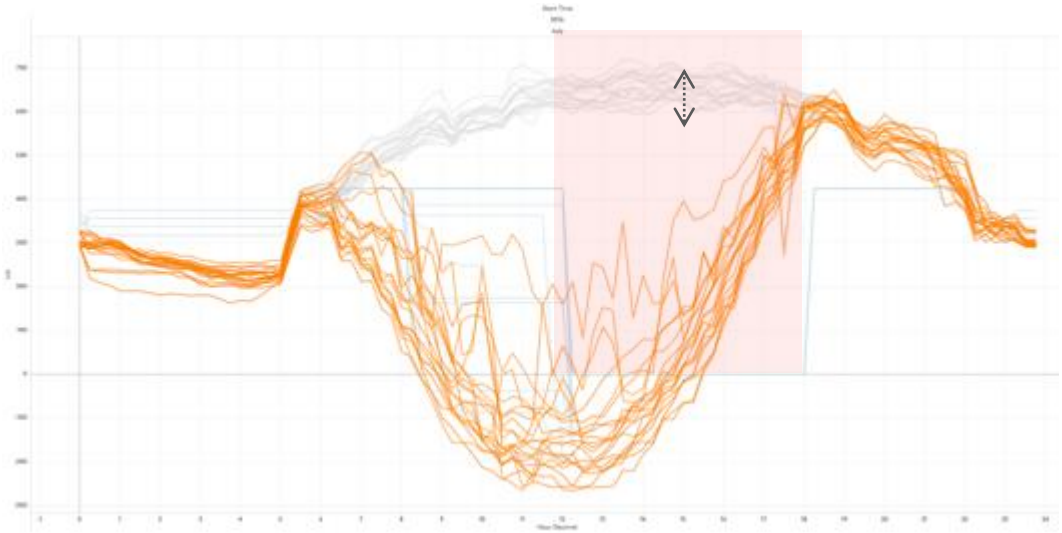
AMS Case Study 1: Water Treatment Plant

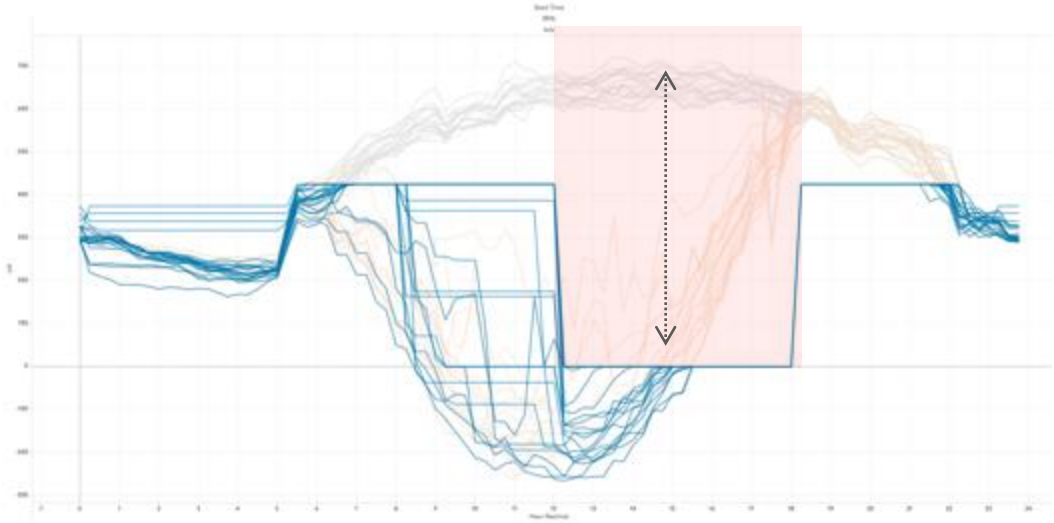
Modeled incremental storage system w/ optimal size 1,000 kW | 6,000 kWh



AMS Case Study 2: University

Batteries + Solar modeled as complementary systems



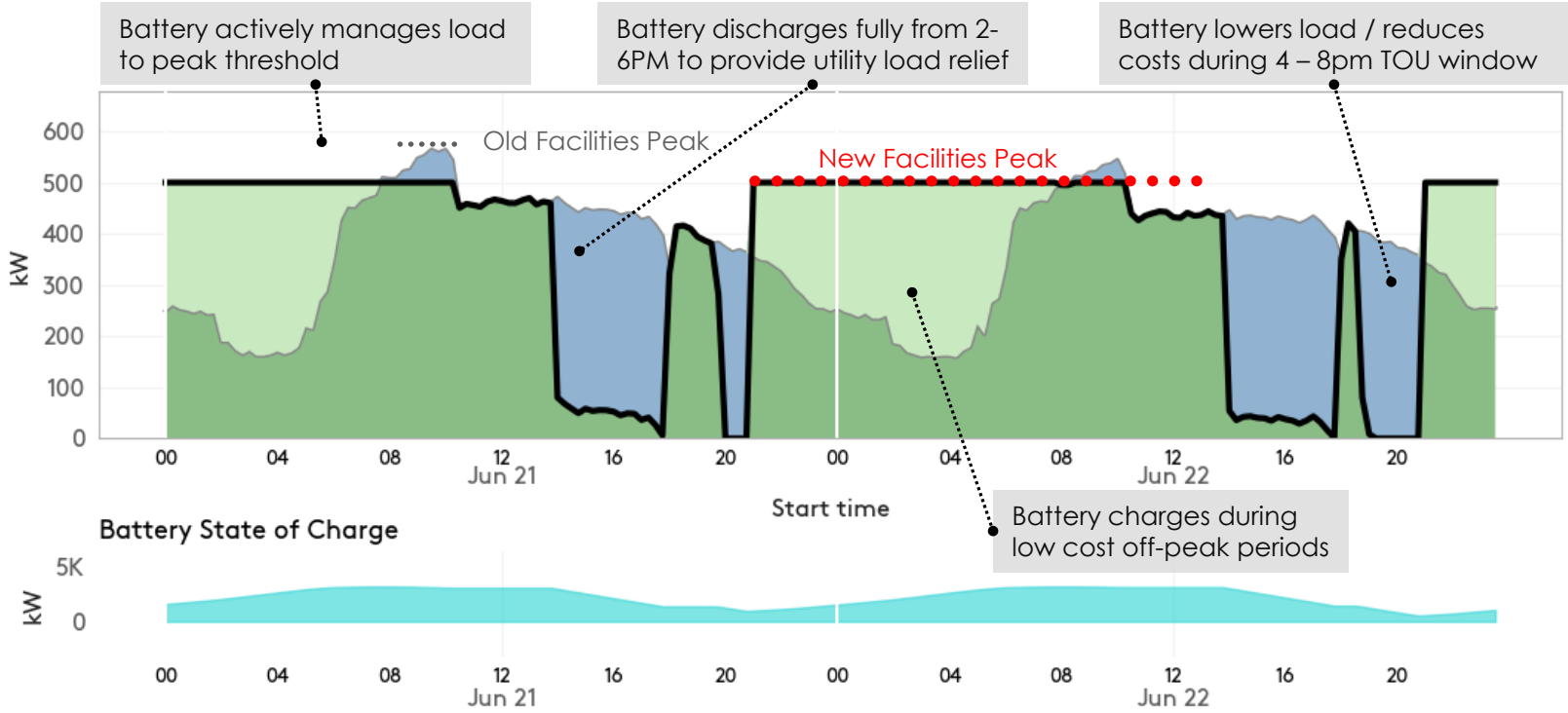


- Solar output wanes in the afternoon, exactly when energy is most expensive.
- AMS designs solar & storage to complement each other. **Storage finishes what Solar Started.**
- AMS sizes storage systems to be large enough to hedge. When TOU periods begin to shift further outside daylight hours, **storage will drive all the TOU savings.**

AMS Case Study 3: Commercial Real Estate

Modeling Impact of Future Tariff Changes help find optimal system size

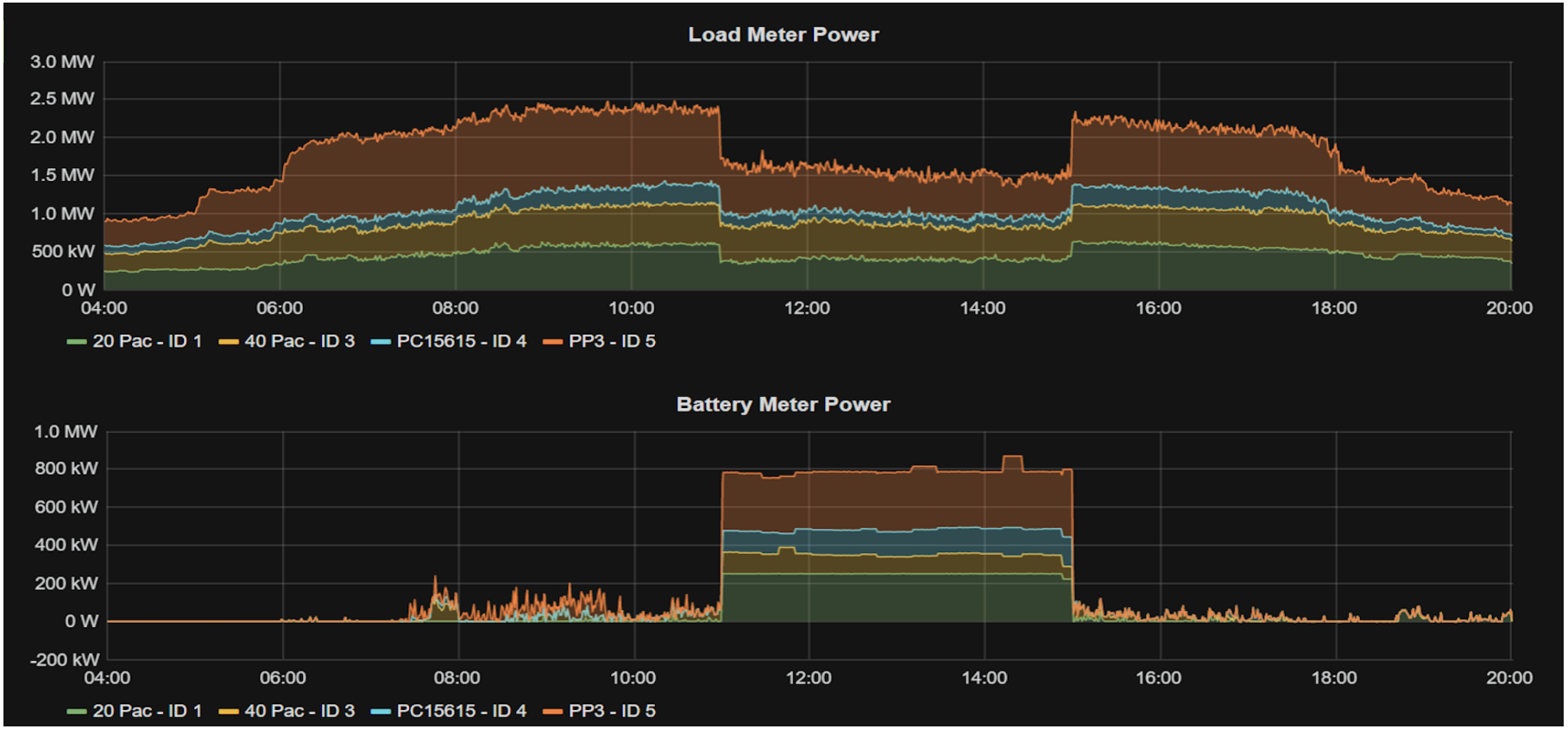
- Customer eligible to participate in Utility Product for SCE
- AMS Analytics modeled multiple potential tariff changes to assess impact on Host Customer Savings
- Energy Storage is remarkably resilient to tariff changes



Optimized Portfolio Dispatch for Grid Services

Solar operations are predictable

Battery operations must be **determined.**



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