

# COMBINED CAPACITY ASSET PERFORMANCE PROJECT

May 2016

# WHAT IS C-CAP?

The Combined Capacity Asset Performance Project (C-CAP) is a pilot program to find ways to preserve and enhance the role of demand response in the PJM capacity performance market by combining resources to make the whole greater than the sum of the parts.

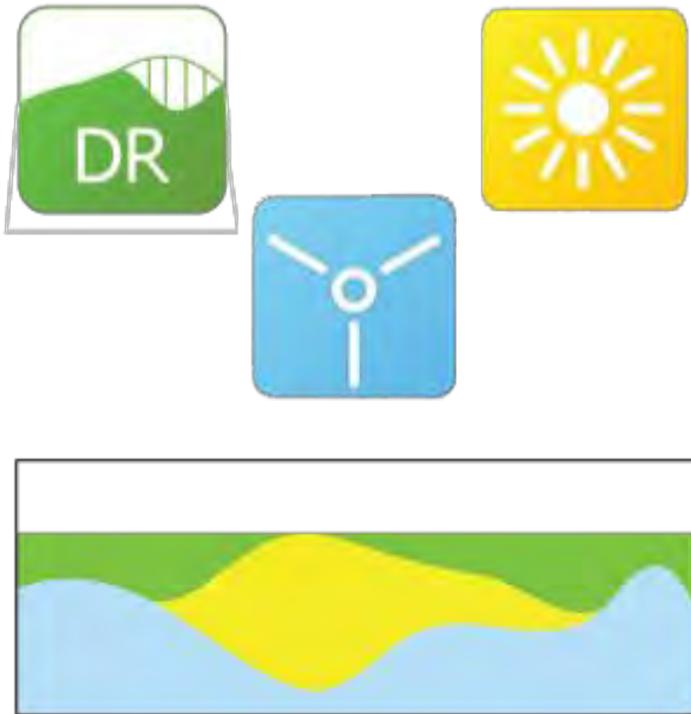
## C-CAP Partners

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**THE ACCELERATE GROUP** | LLC



# WHAT IS C-CAP?



The idea behind C-CAP is simple: If a building, energy storage, or renewable energy site can't meet the stringent year-round Capacity Performance market requirements on its own, it can combine with other buildings or off-site distributed energy resources to create a combined asset that fills in each others' gaps.

Through the C-CAP collaboration, we will create dynamic clusters of buildings, home thermostat programs, wind and solar farms, and energy storage projects that will layer their capabilities together to be able to meet their combined commitment at any hour of the year.

# WHAT IS C-CAP?

## PHASE I



### LARGE BUILDING PILOT

Single Asset  
Single Site

**The team** will work with 60 Chicago large office buildings in Chicago to evaluate the ability of those buildings to provide year-round response and pair with other resources. **CUB** will be working with its 20 residential DR pilot buildings.



### LARGE MULTI-USE FACILITY PILOT

Multiple Assets  
Single Site

**The team** will demonstrate how Chicago's Shedd Aquarium and other multi-use facilities can combine its HVAC, motors and pumps, solar PV, and energy storage as a single resource.

## PHASE II



### RESIDENTIAL PILOT

Single Asset  
Multiple Sites

**The team** will evaluate how to combine residential controllable thermostat programs with large buildings and renewable resources to create a year-round resource.



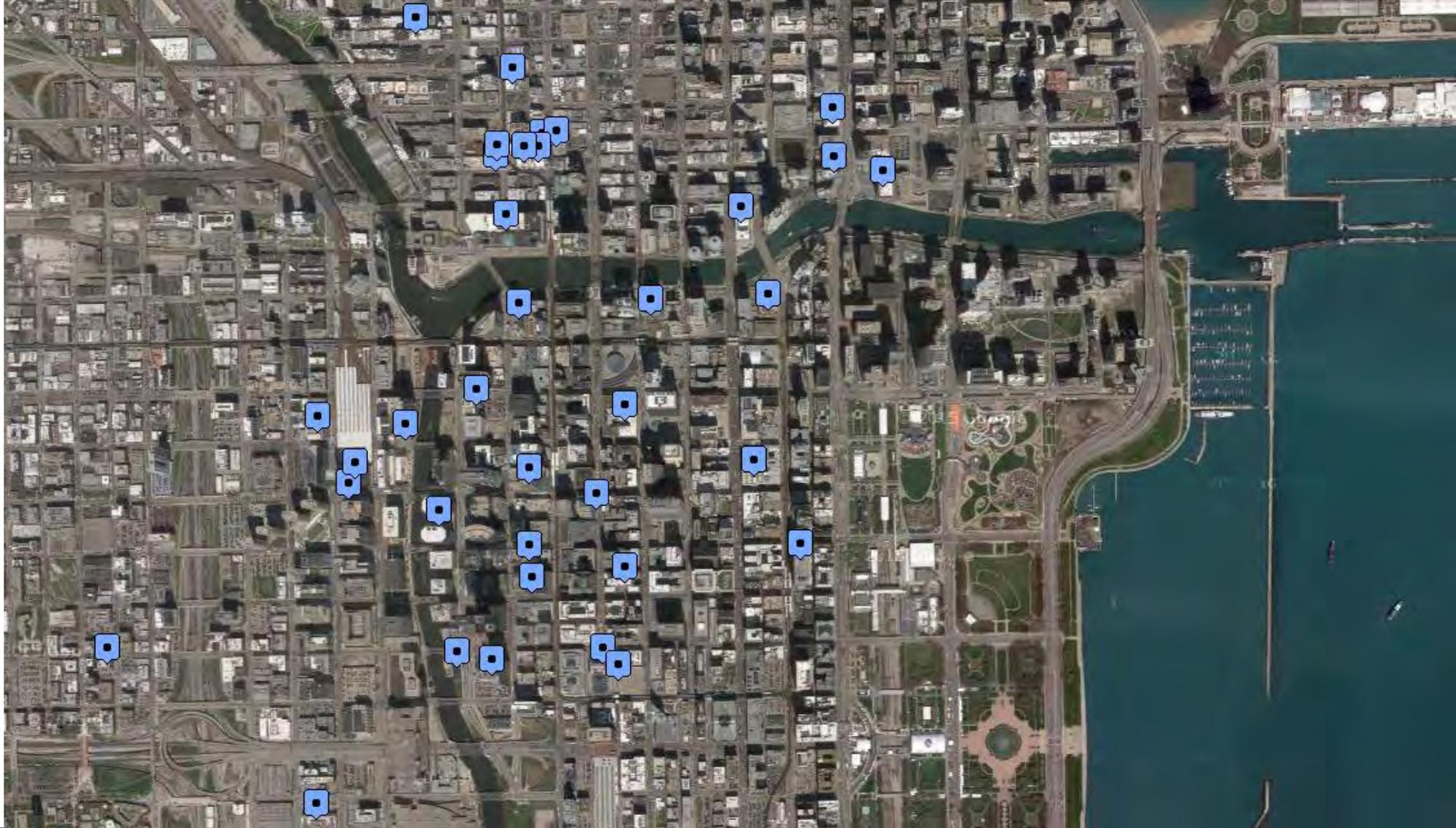
### MICROGRID PILOT

Multiple Assets  
Multiple Sites

**The team** will analyze data from the load mix and proposed demand-side resources to determine the role a Microgrid could play as a capacity performance resource.

# OVERWHELMING RESPONSE

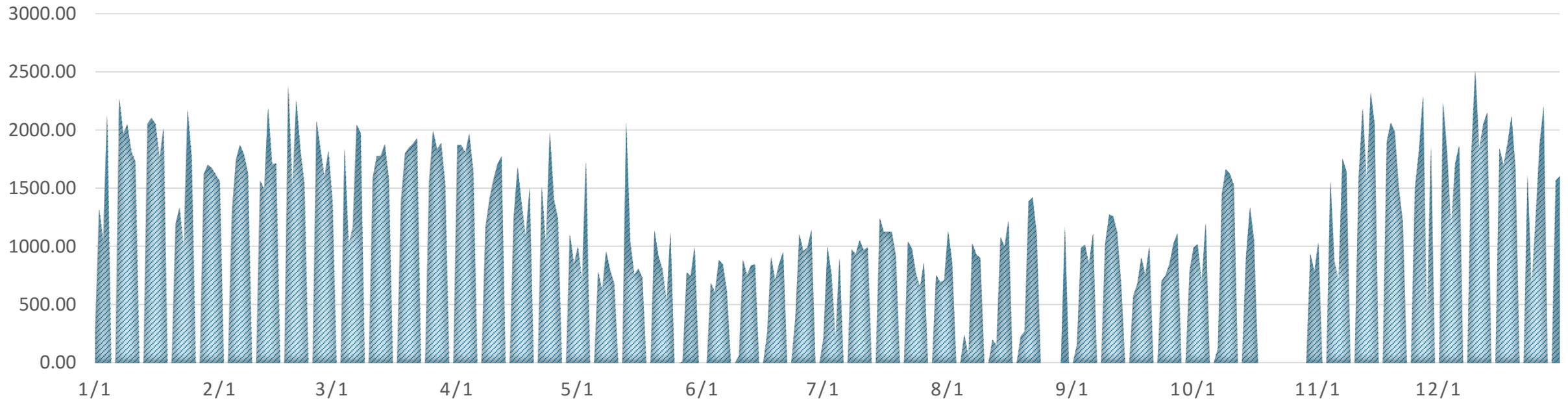
60 BUILDINGS



# STEP 1: DETERMINE DAILY LOAD SHED POTENTIAL

1. Conduct analysis to determine how buildings can best reduce demand during Winter, Spring and Fall
2. Compare buildings to find their relative capabilities, strengths, and weaknesses

DAILY LOAD SHED POTENTIAL

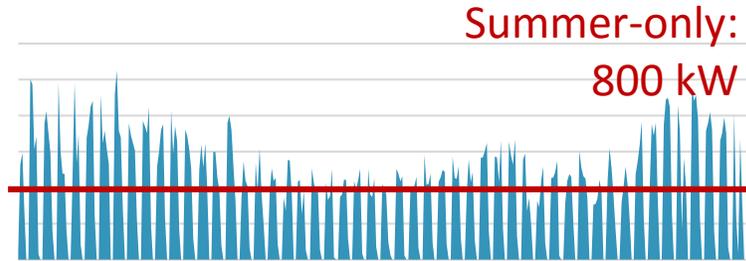


# STEP 2: PROVIDE BUILDINGS ANALYTICS

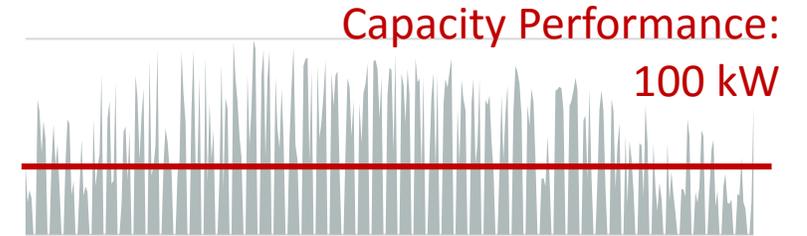


# STEP 3: EVALUATE COMBINED ASSETS

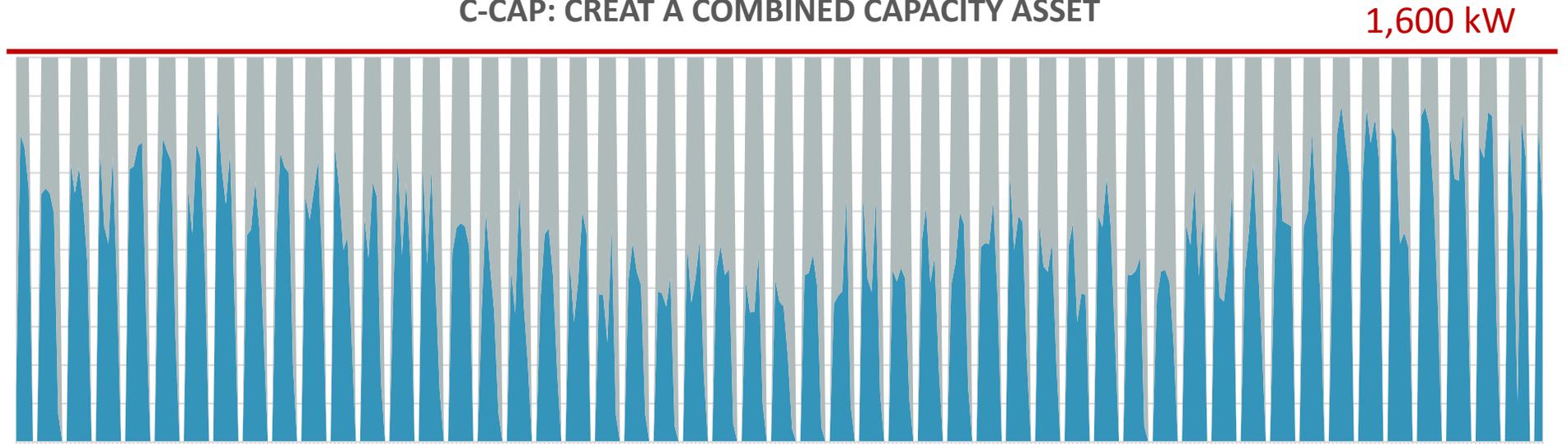
**BUILDING 1**  
DAILY DEMAND RESPONSE POTENTIAL



**BUILDING 2**  
DAILY DEMAND RESPONSE POTENTIAL

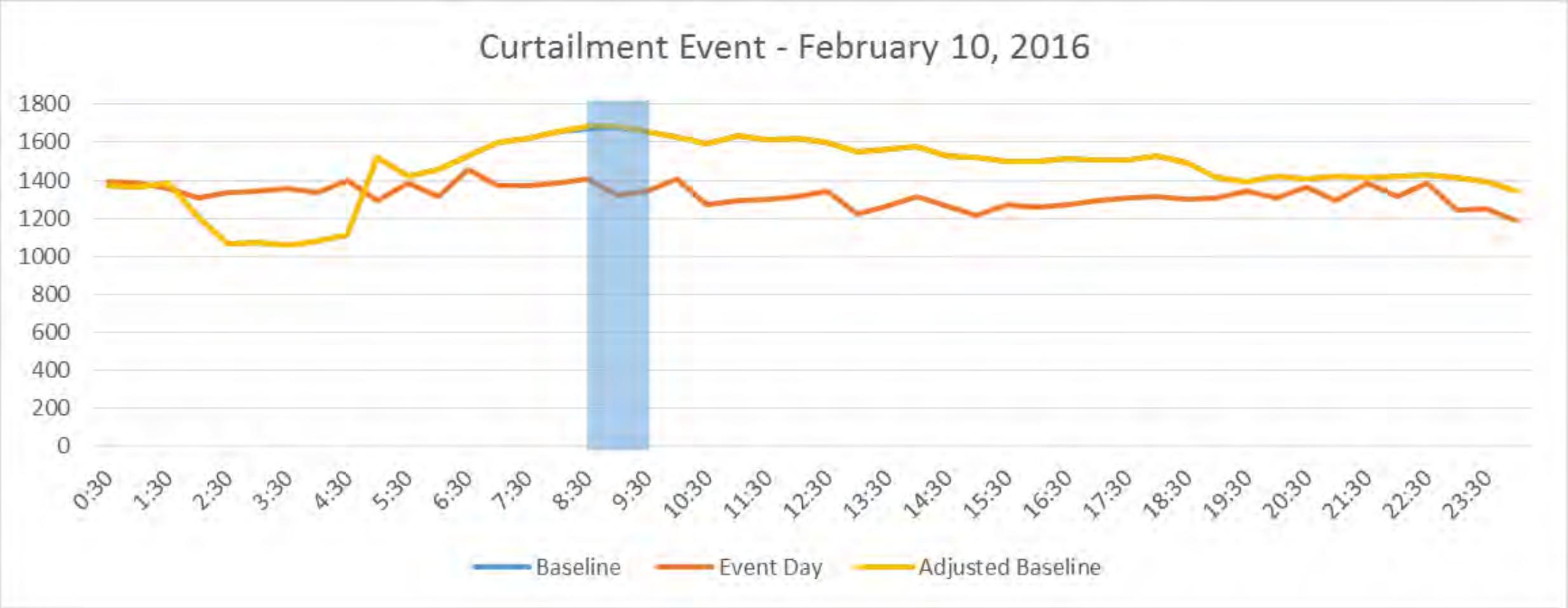


**C-CAP: CREAT A COMBINED CAPACITY ASSET**



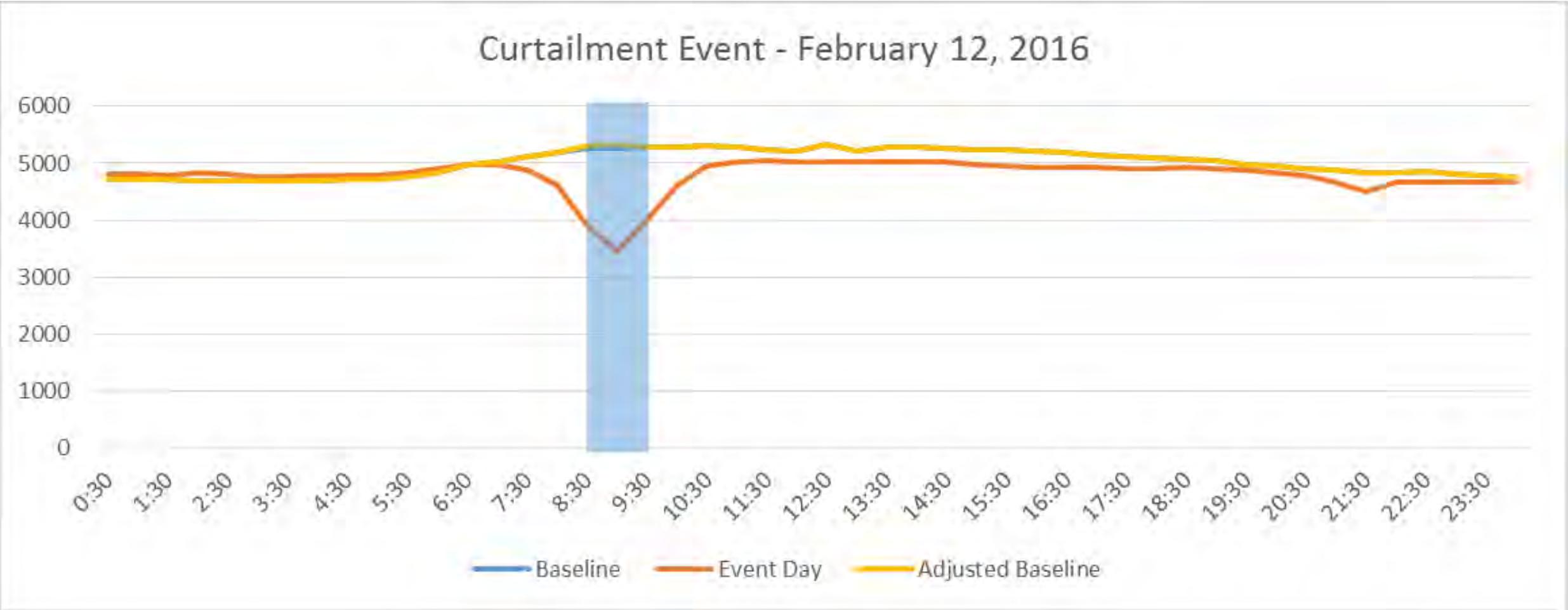
# BUILDING A6: WINTER TEST EVENT

EVENT PERFORMANCE: **312 kW**



# BUILDING A9: WINTER TEST EVENT

EVENT PERFORMANCE: 1,639 kW



# BUILDING A12: WINTER TEST EVENT

EVENT PERFORMANCE: **631 kW**

