

Demand Charge Management with Solar + Storage for the Commercial Customer

Energy Storage Summit

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Adding Storage to Solar Can Boost Economic Value for Commercial Customers Today



NREL Image Gallery



NREL Image Gallery

Two Components of Electricity Bill

Energy Charges
(kilowatt hours)



Demand Charges
(kilowatts)

Operational Use Cases of Storage

Utility controlled for distribution system benefits	Utility controlled for distribution & market benefits
Shared customer and utility controlled for bill savings & market revenue	Customer-controlled for customer savings

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Benefits the Customer, Utility and Other Customers

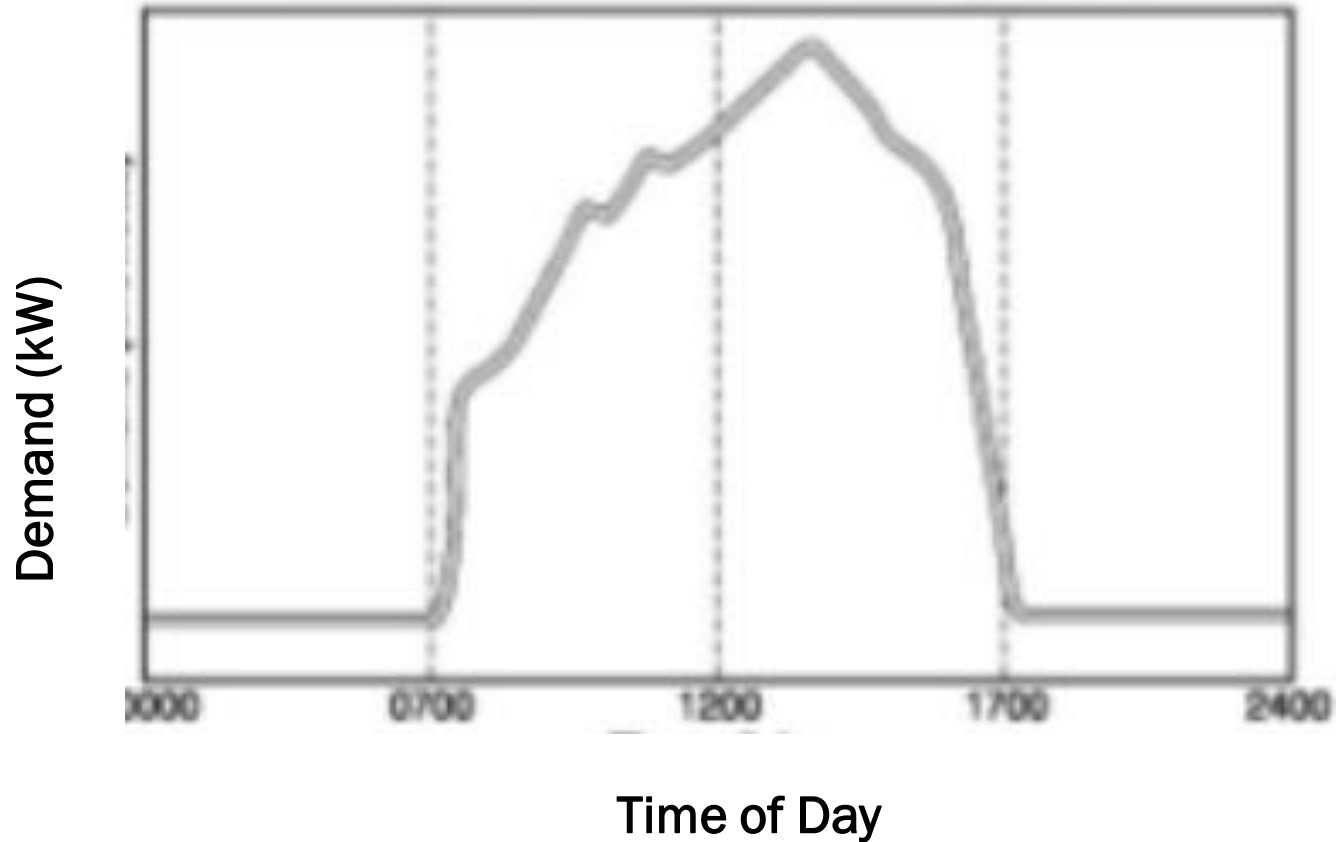
Customer reduces

- Demand Charges
- Demand Ratchet Charges
- Power Factor Charges
- Rates through increased curtailment

Utility and other customer benefits:

- Increased grid efficiency
- Reduced demand charges
- Deferred capital investment (grid upgrades)

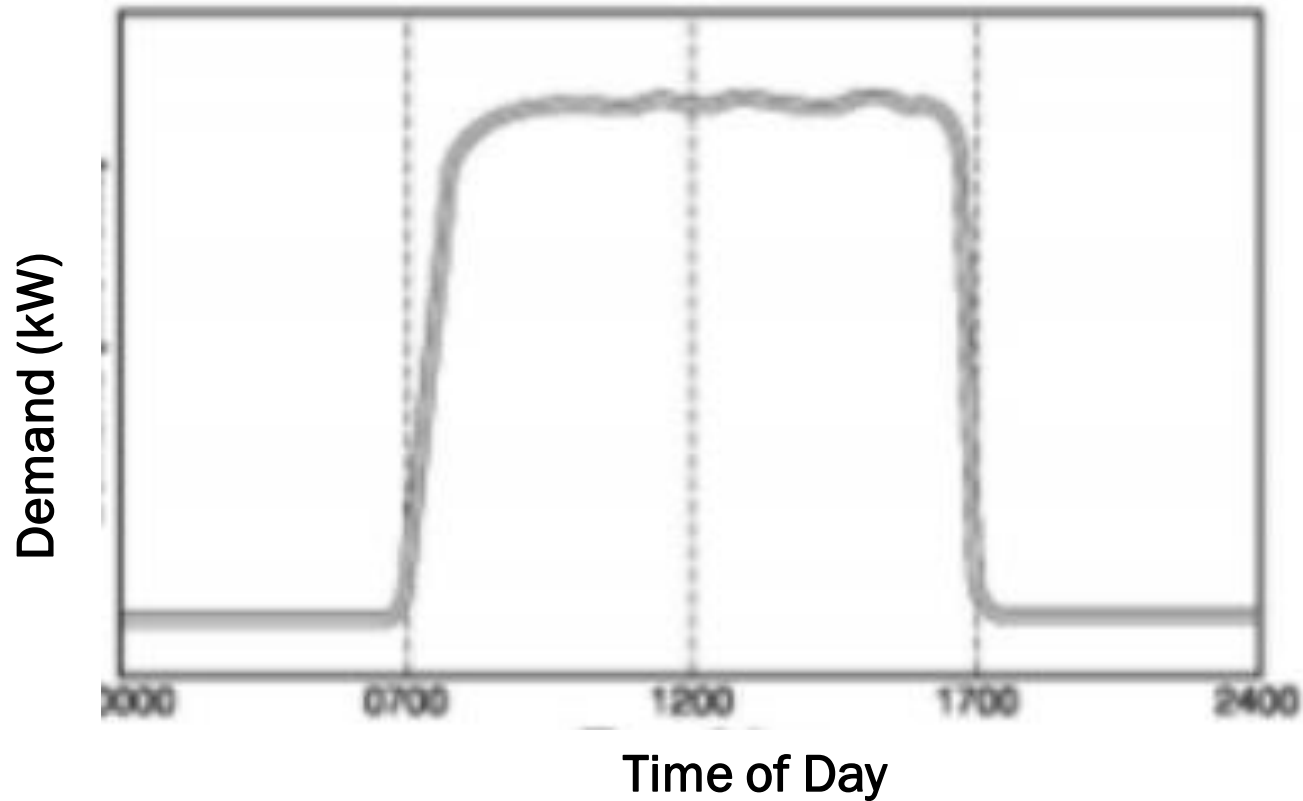
Demand Profile with Sharp Peak



Demand need only be reduced during the early afternoon to achieve demand savings.

USDA Tech Tips Dec 2000

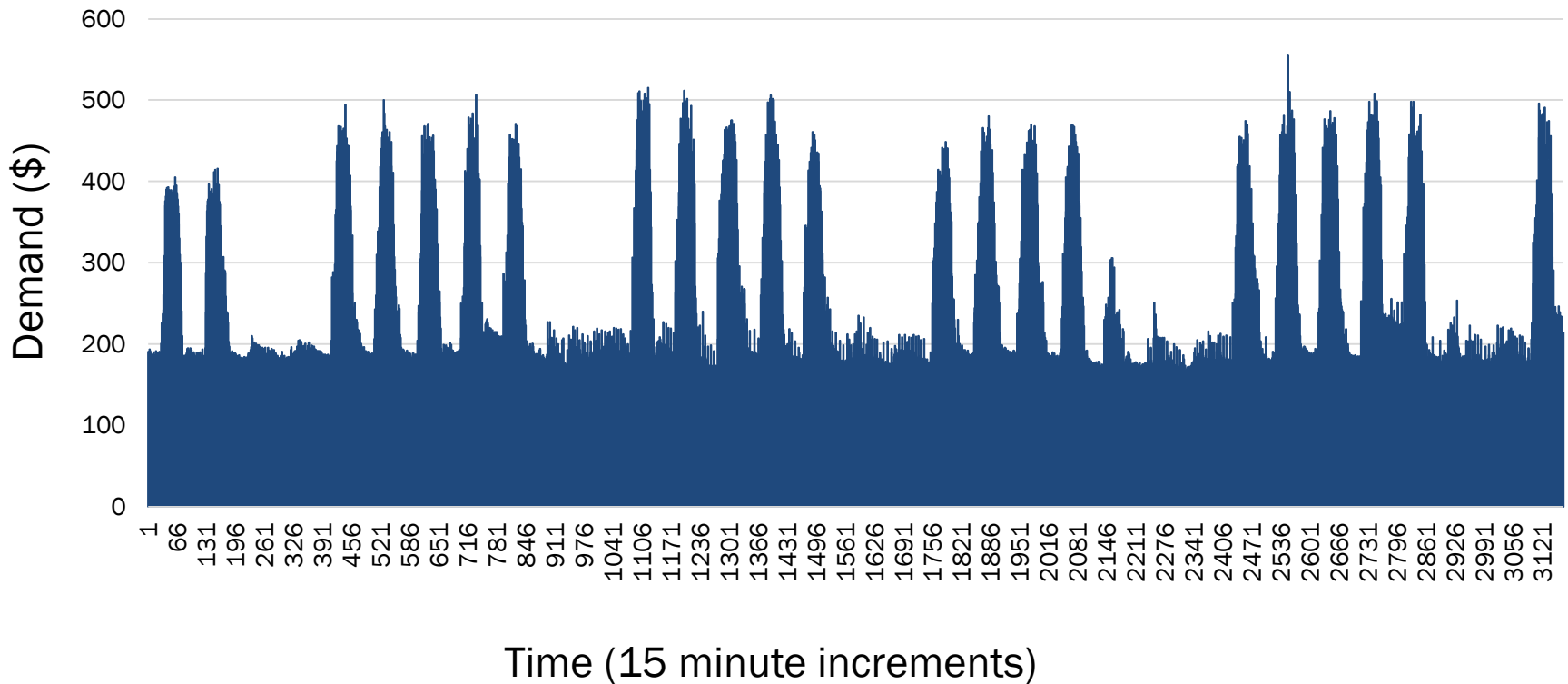
Demand Profile without Sharp Peak



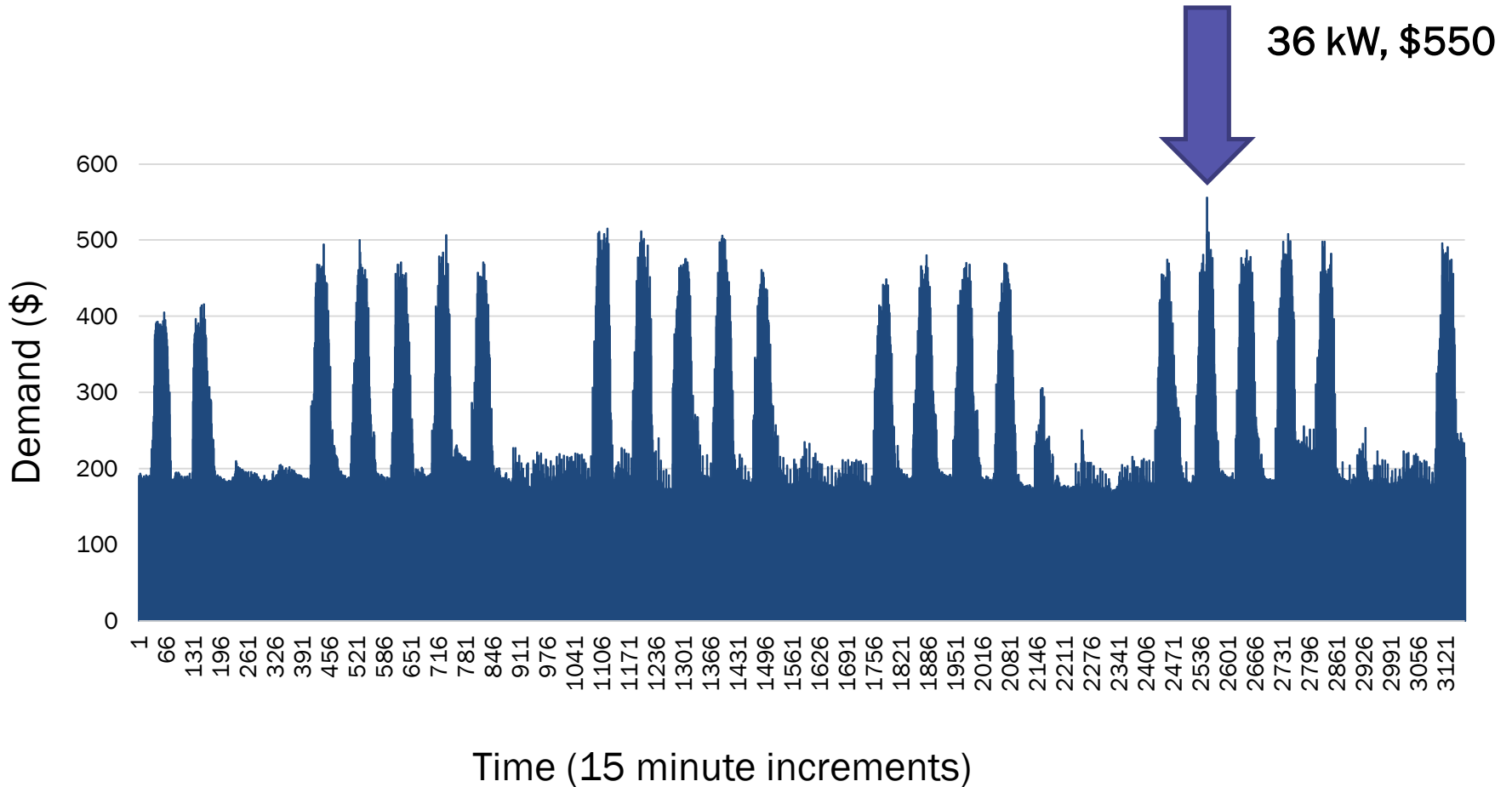
Demand must be reduced during the entire workday to result in demand savings. NOT a good candidate for demand savings from storage.

USDA Tech Tips Dec 2000

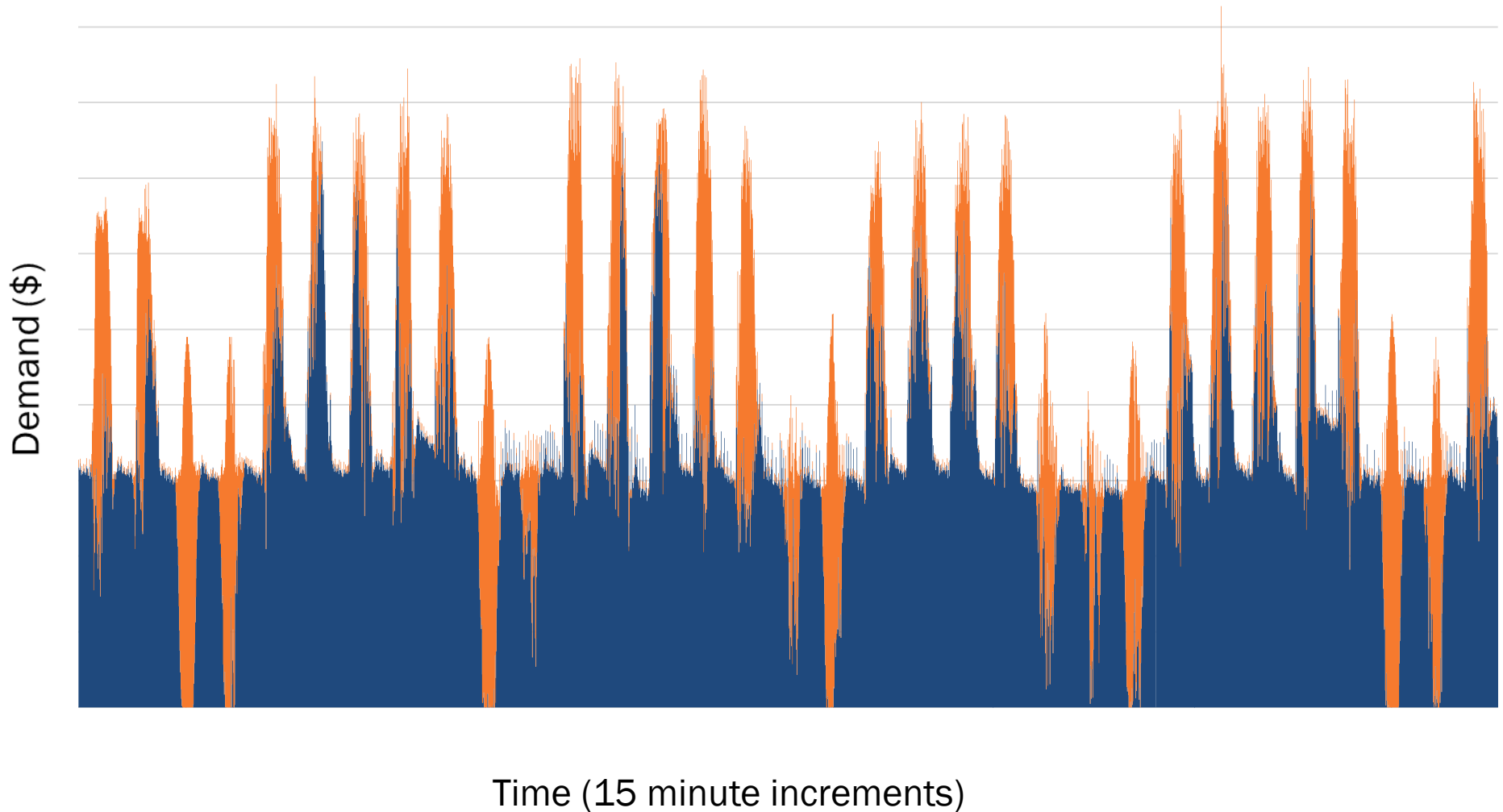
Building Demand June–July



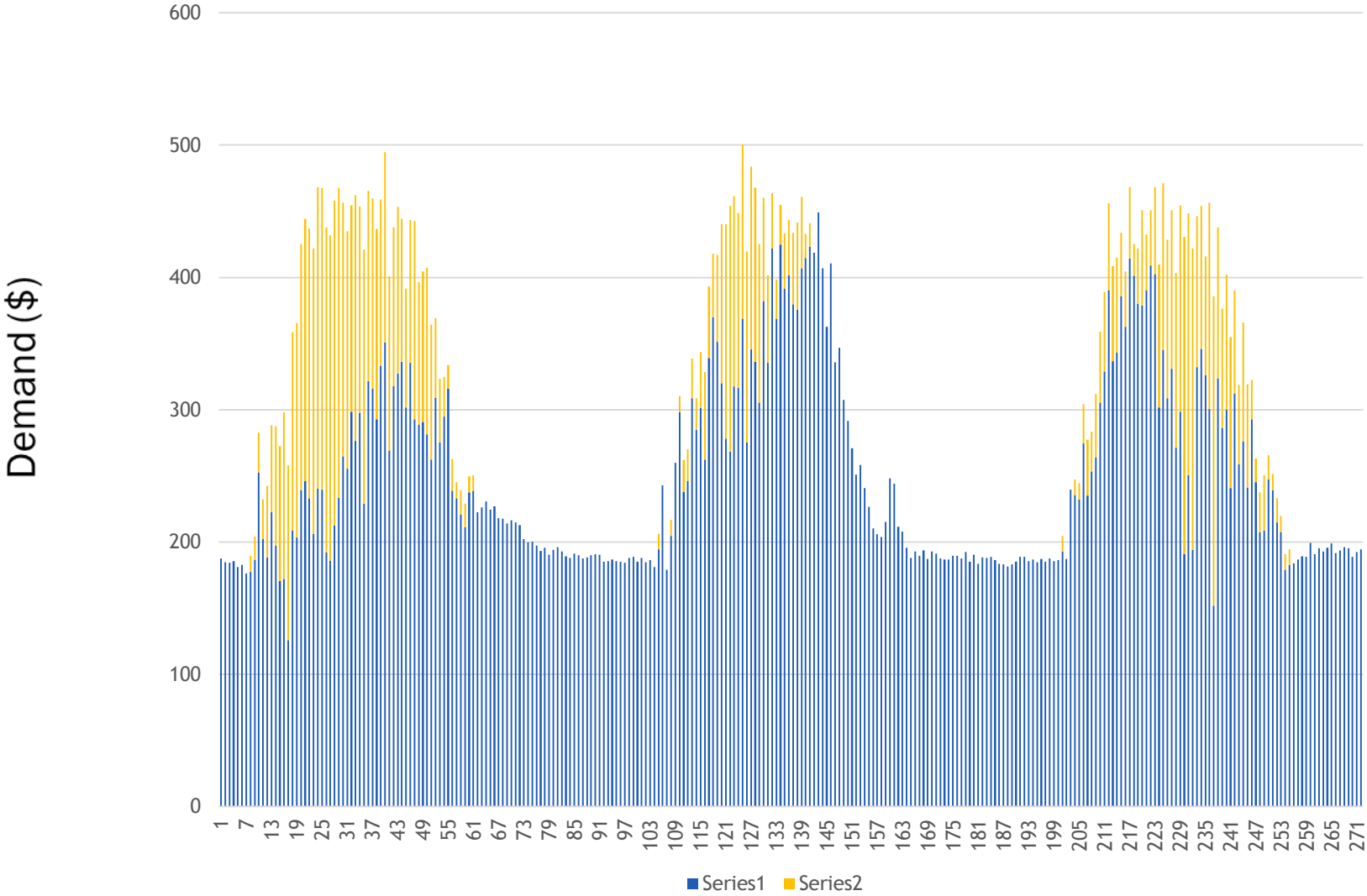
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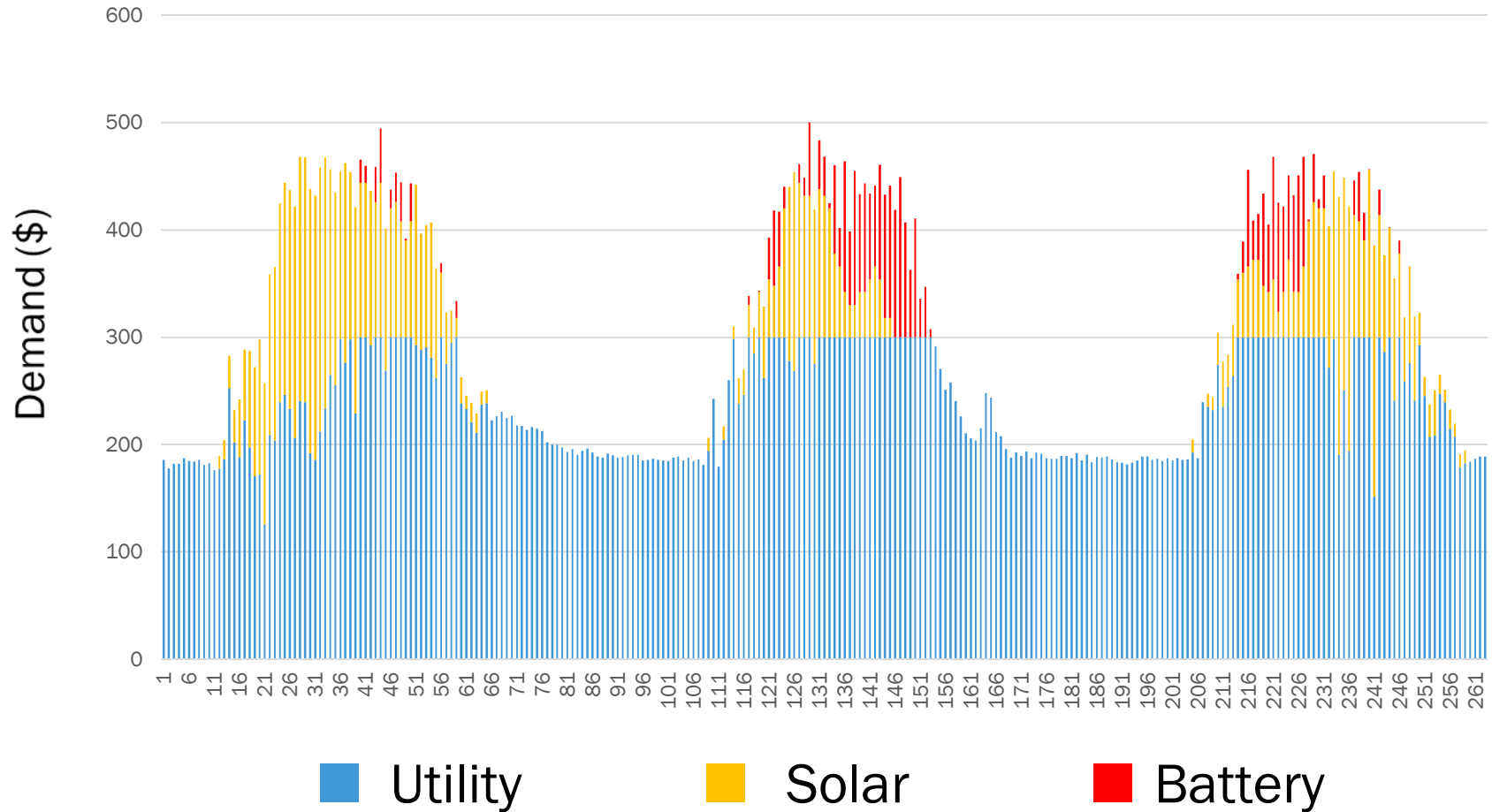
Solar + Utility June–July



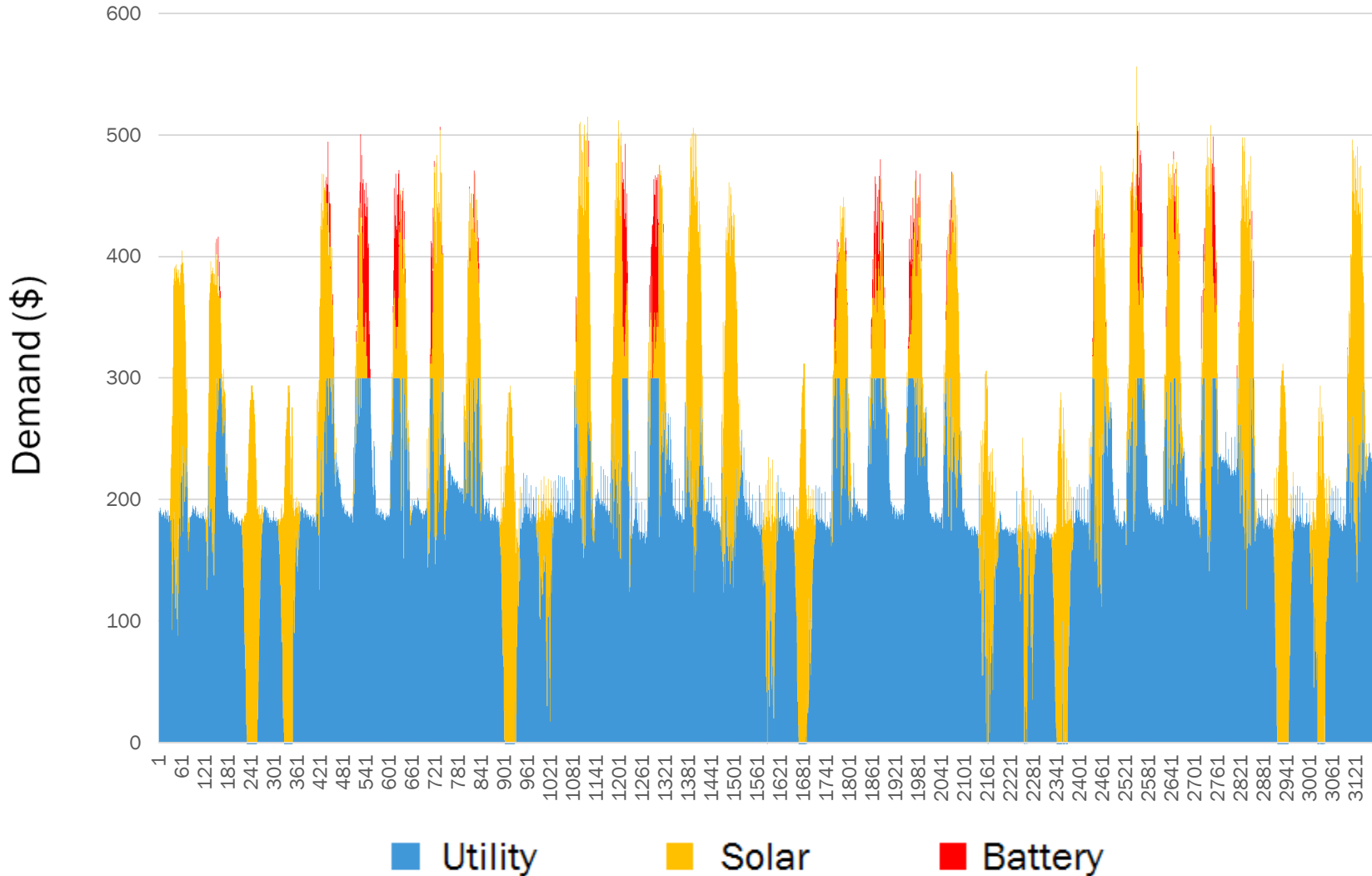
3 Day Solar + Utility June–July



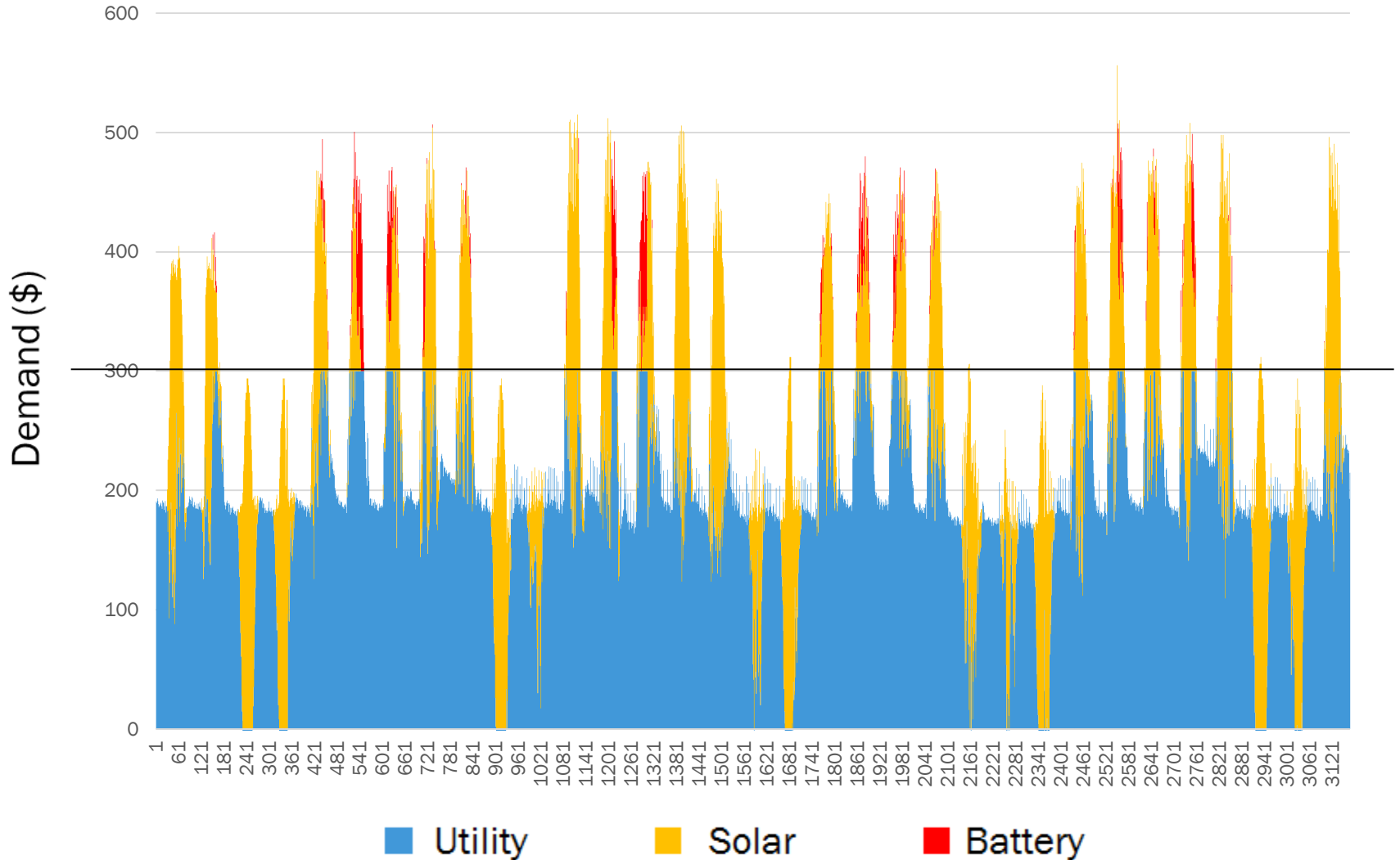
Battery Reduces Utility Demand



Solar + Battery Contribution

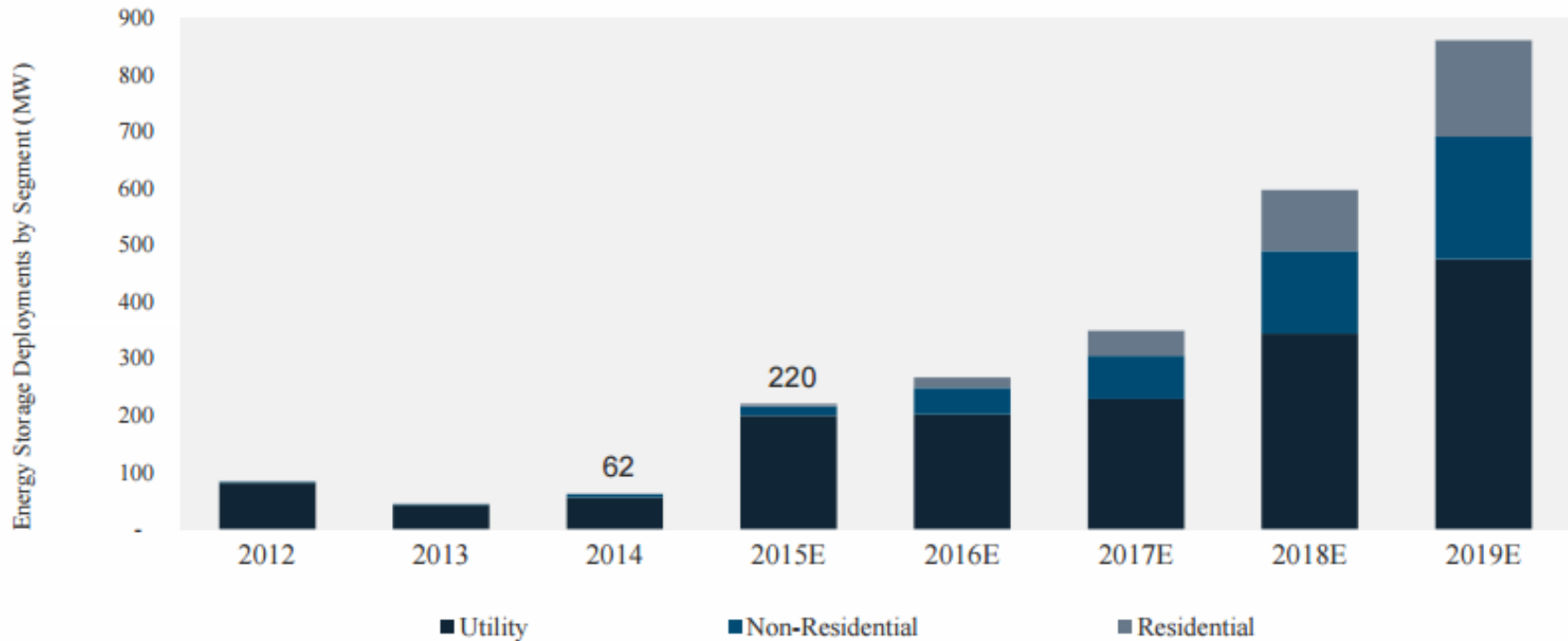


Solar + Battery Contribution





RESEARCH Next 5 Years Will See Rapid Growth



GTM Research forecasts that 220 MW of energy storage will be deployed in the U.S. in 2015, more than three times the amount installed in 2014.

After a short-term lull in utility projects in 2016, growth will resume and remain steady through 2019, resulting in over 800 MW of installations in 2019 and cumulative deployments of 2.5 GW

Source: GTM Research/ESA U.S. Energy Storage Monitor

Customer Benefits from Storage

Demand Control

Peak shaving

Load shifting

Power Factor Correction

Back Up Power

Customer Benefits **Solar + Storage**

Demand Control

Peak shaving

Load shifting

Power Factor Correction

Back Up Power

Peak Reduction

GHG Emissions Reductions

Thank you!

Stacy Miller
Solar Policy Specialist

