



Renewable Energy. Sustainable Future.™



150+ Projects
North America

5 Billion kWh
And Counting

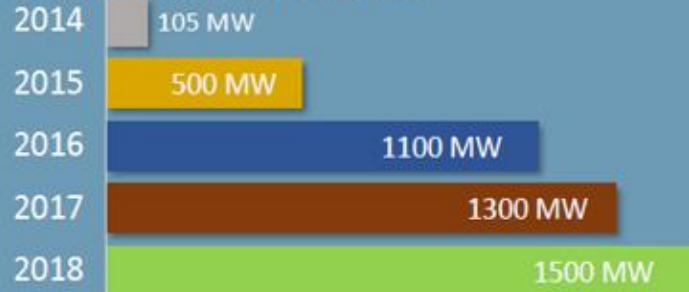
1.3 GW
Operating Assets

13+ GW
Operating | Construction | Pipeline

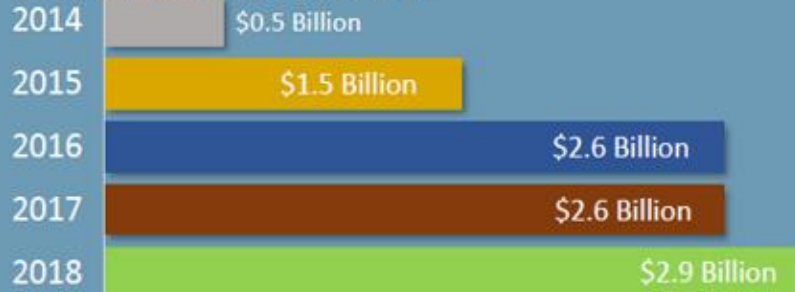


Intro to sPower

OPERATING PORTFOLIO



BALANCE SHEET ASSETS



ACQUISITIONS | PLANNING

- Closed on 640 MW PPAs and 2 GW dev asset.
- Diversified technology with wind power.
- Initiated 4.8 GW+ new pipeline in 2016.

ORIGINATION

- Secured 65+ PPAs for over 2 GW.
- Initiated 8 GW+ of development.
- Expanded geographic, offtaker markets.

PERMITTING | LAND | INTERCONNECTION

- 40,000+ acres site control.
- Received land use approvals for 4+ GW.
- Filed new interconnection positions for 10+ GW.



EPC

- Installed 4,000,000+ solar panels.
- Conducted 100+ individual groundbreakings.
- Commissioned 25 projects in 2017 (+770 MWdc).

OPERATIONS | AM | O&M

- Built, staffed NERC-compliant control room.
- Managing 178 operating assets (1.5 GW).

WIND PORTFOLIO

- Commissioned two wind farms; installed 73 turbines.
- 140MW operating.

TAX EQUITY | DEBT FINANCING

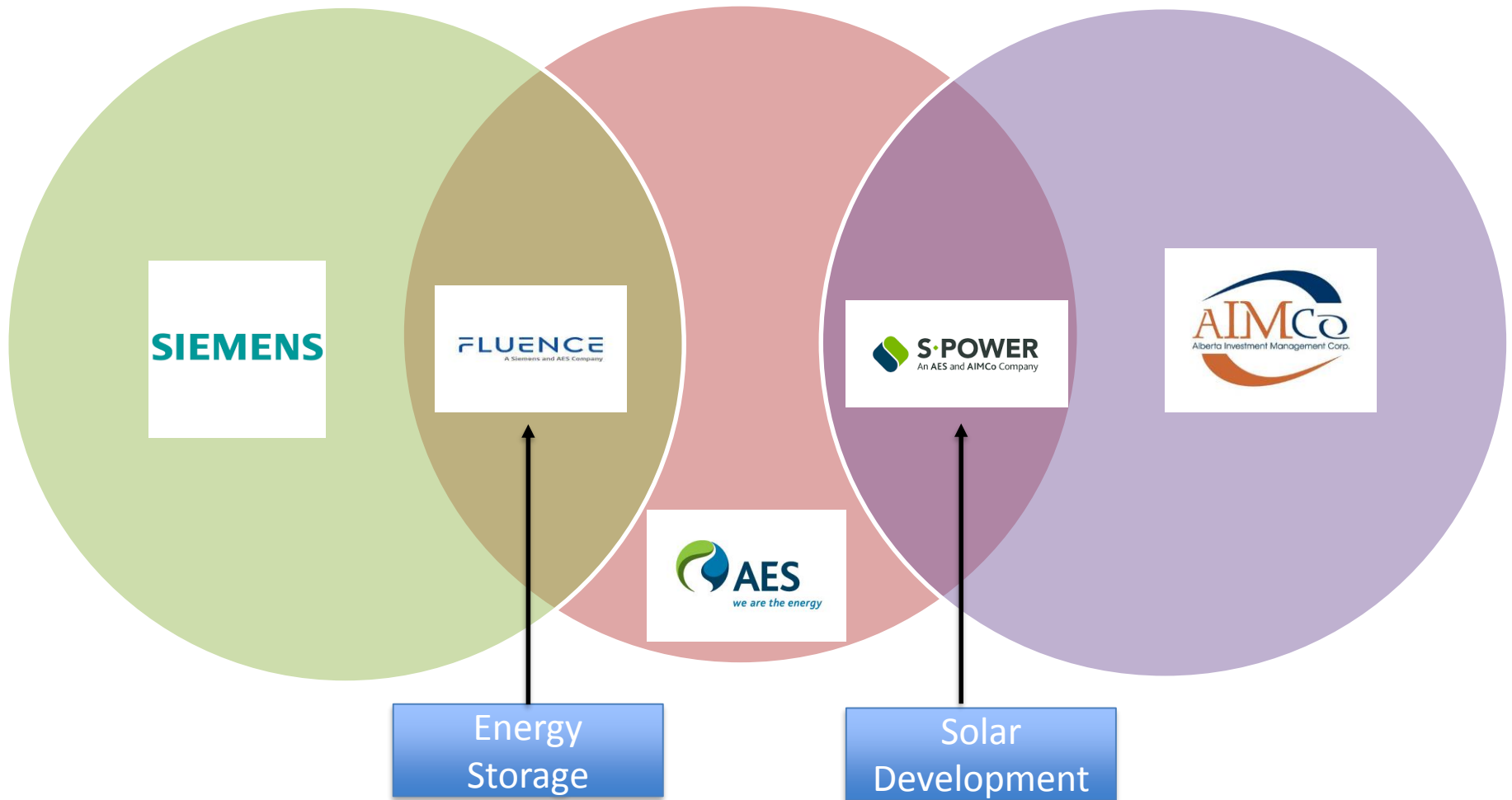
- \$3B+ tax equity and debt funded and committed
- 18 separate funding transactions.



Solar+Storage Application

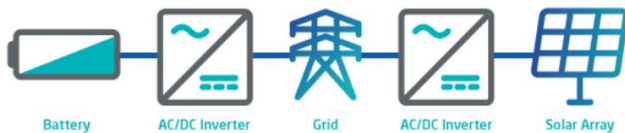
AES, sPower and Fluence

SOLAR & STORAGE COORDINATION



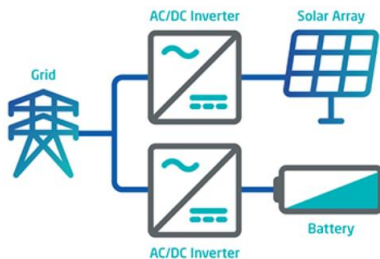
Choosing the Right Storage Configuration

STANDALONE VS. COLLOCATED, AC VS DC COUPLING



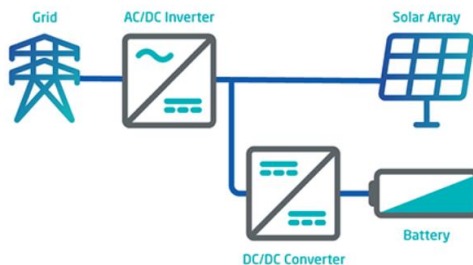
AC-coupled, Standalone

- Site closest to load and capacity needs
- Exclusively charge from grid



AC-coupled, Co-located w/Solar

- Shares some balance of plant costs with solar
- Take advantage of ITC



DC-coupled, Co-located w/Solar

- Oversize DC-to-AC ratio to maximize firm energy
- Minimize inverter, MV switchgear, BOP and other costs
- Take advantage of ITC

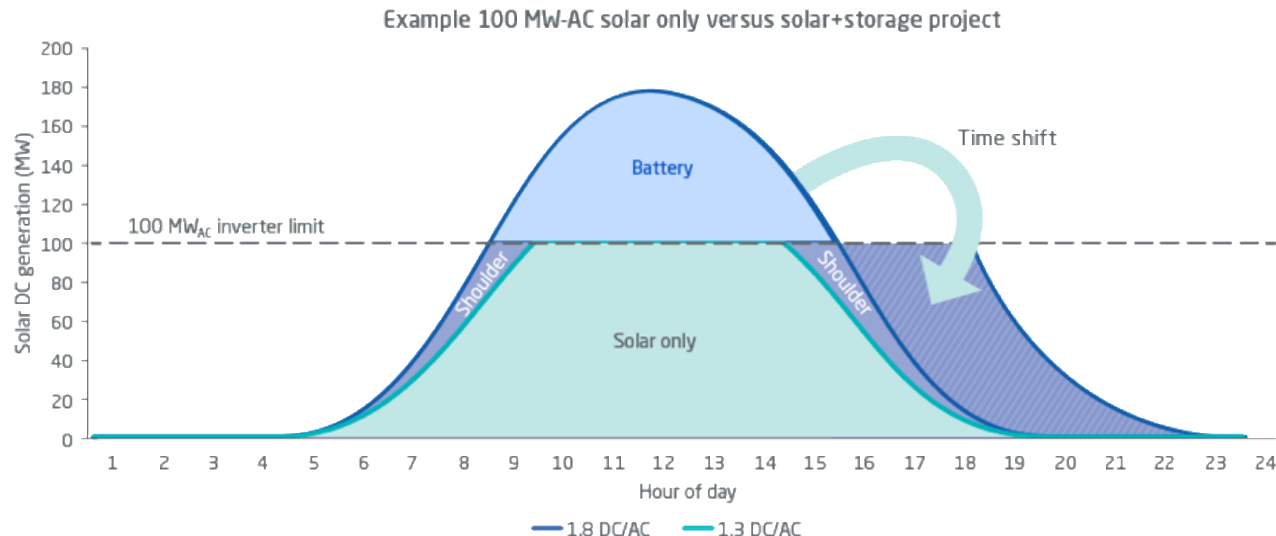
sPower Storage Strategy

BESS VALUE PROPOSITION

- sPower and AES/Fluence storage teams working together
 - AES/Fluence to be preferred tech provider, sPower to be developer/owner
 - sPower is also looking at alternate technologies (e.g. Flow Battery) to maximize value for off-takers

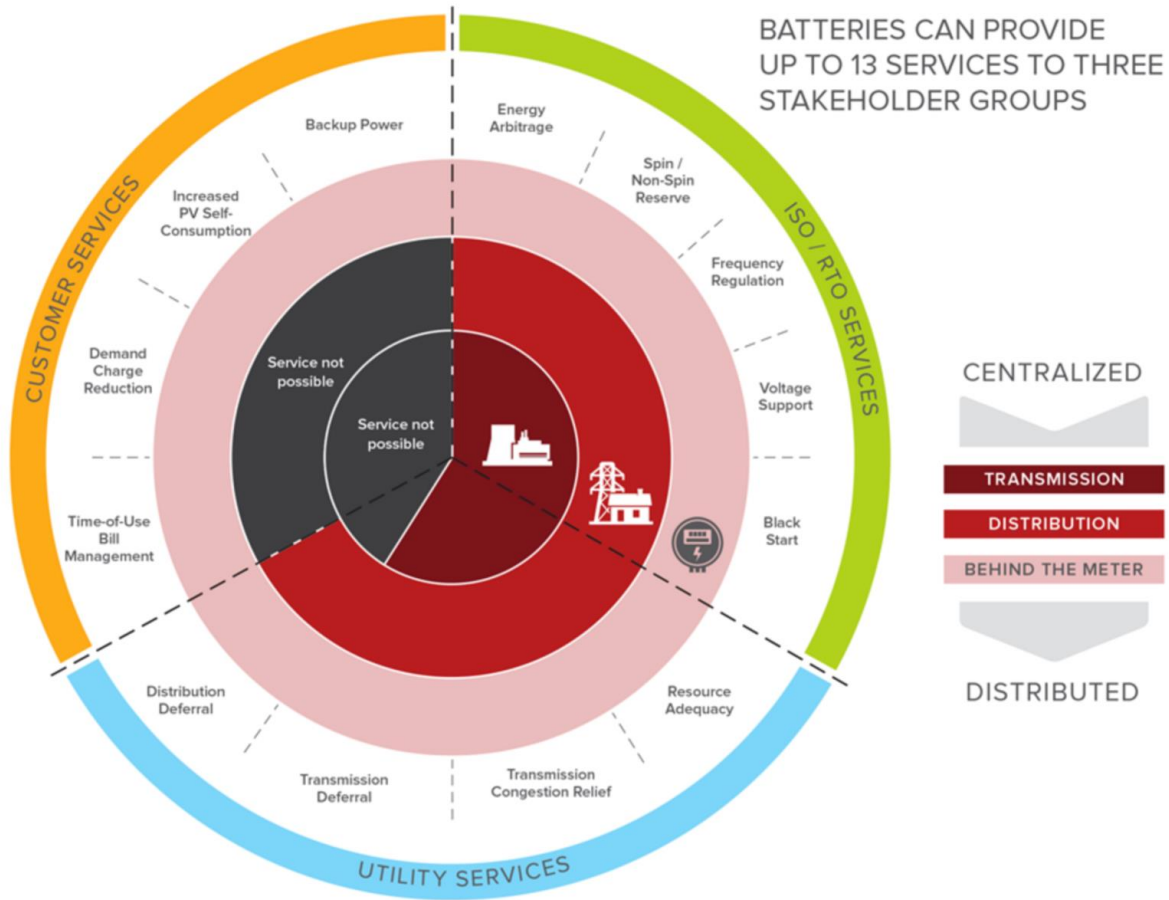
Significant Opportunities Emerging

- Many electric Utilities, Cities and Co-ops are seeking storage proposals to support sustainability goals
- Pricing for solar is coming down at a faster rate
- Storage can claim ITCs if charged co-located solar project
- Storage is looking promising to support block energy product by offering longer discharge duration



Benefits of Storage

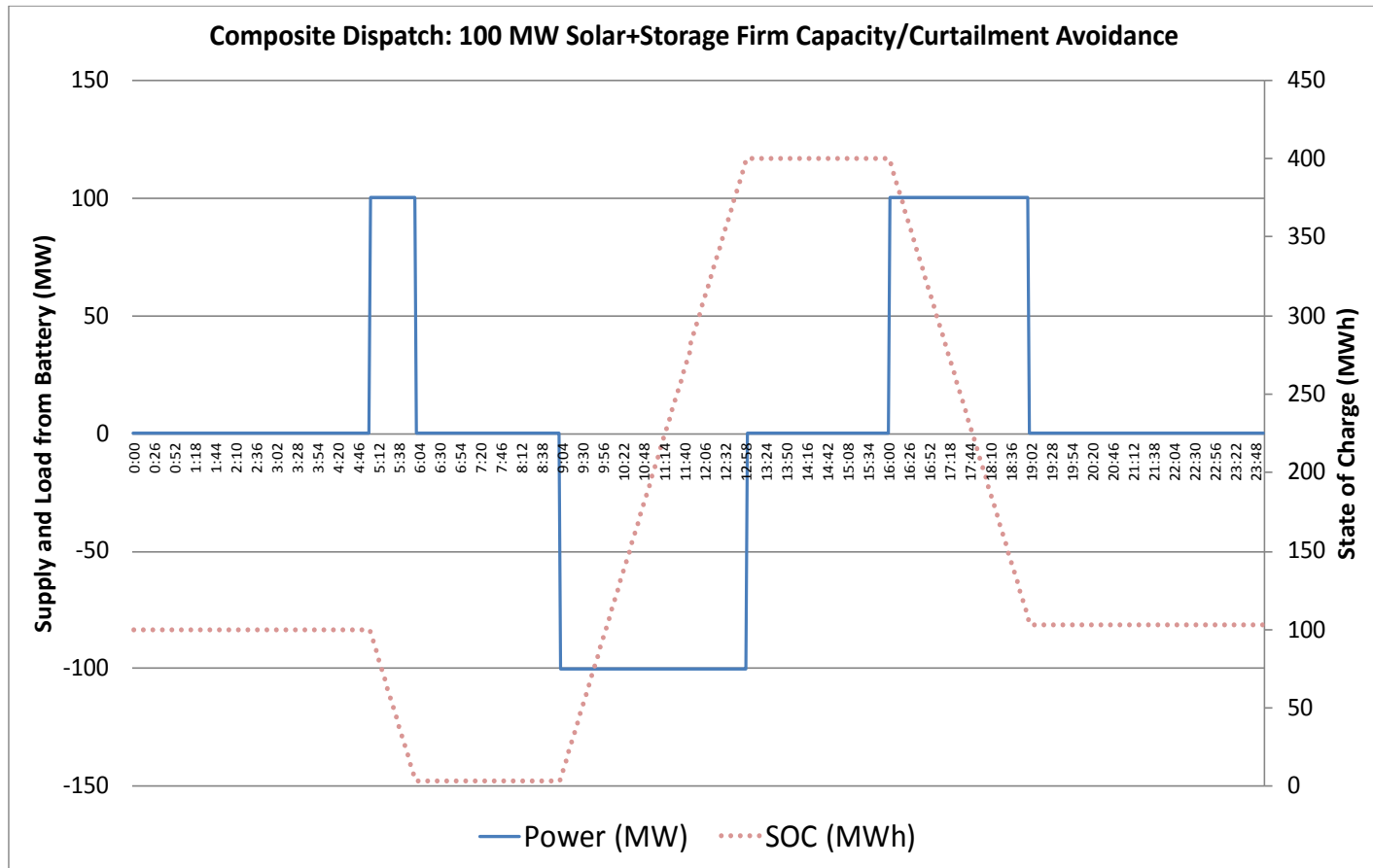
ADDING STORAGE WITH SOLAR



Source: [Rocky Mountain Institute](#)

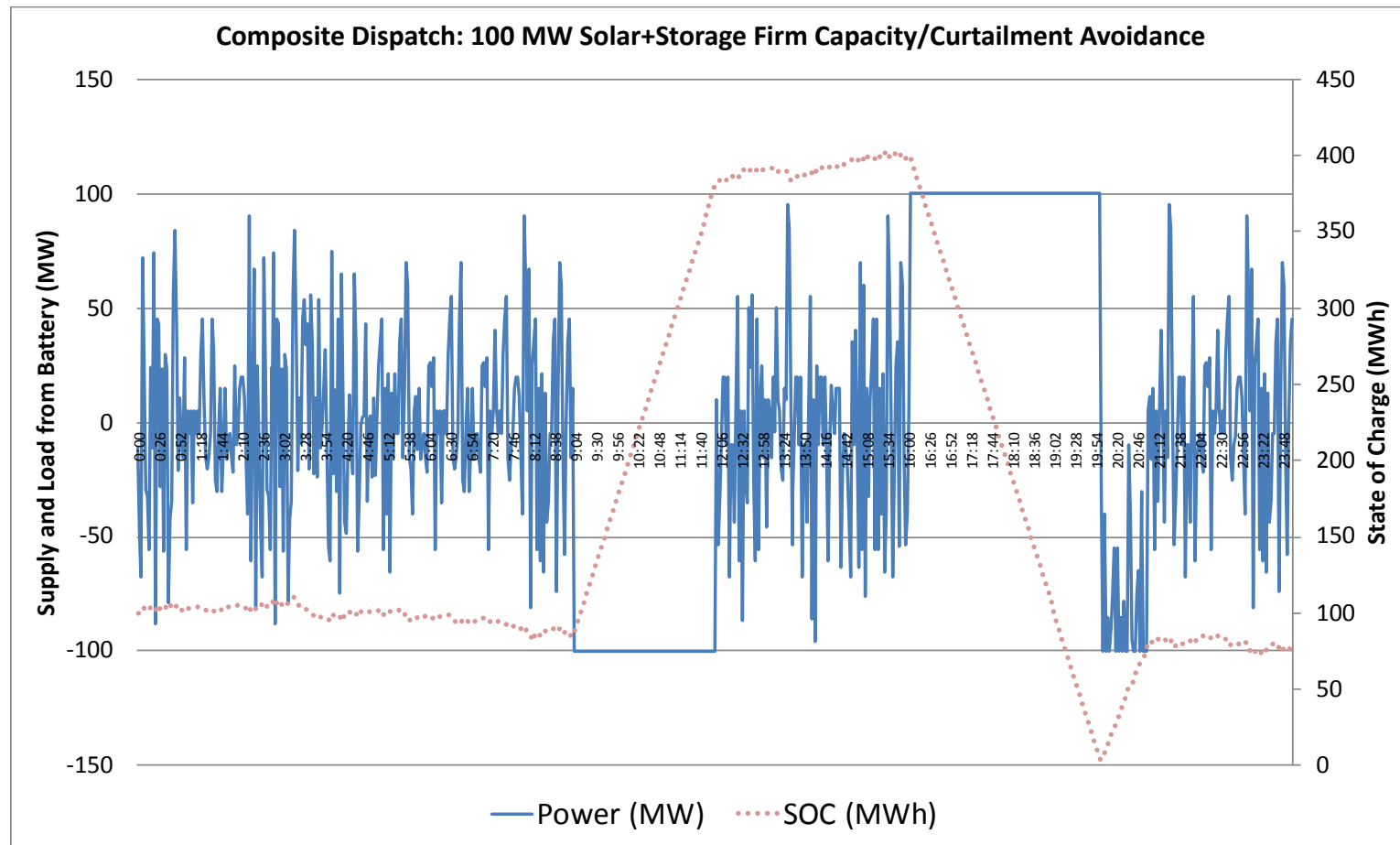
Ancillary service from solar+storage

FIRM CAPACITY AND SPINNING RESERVE



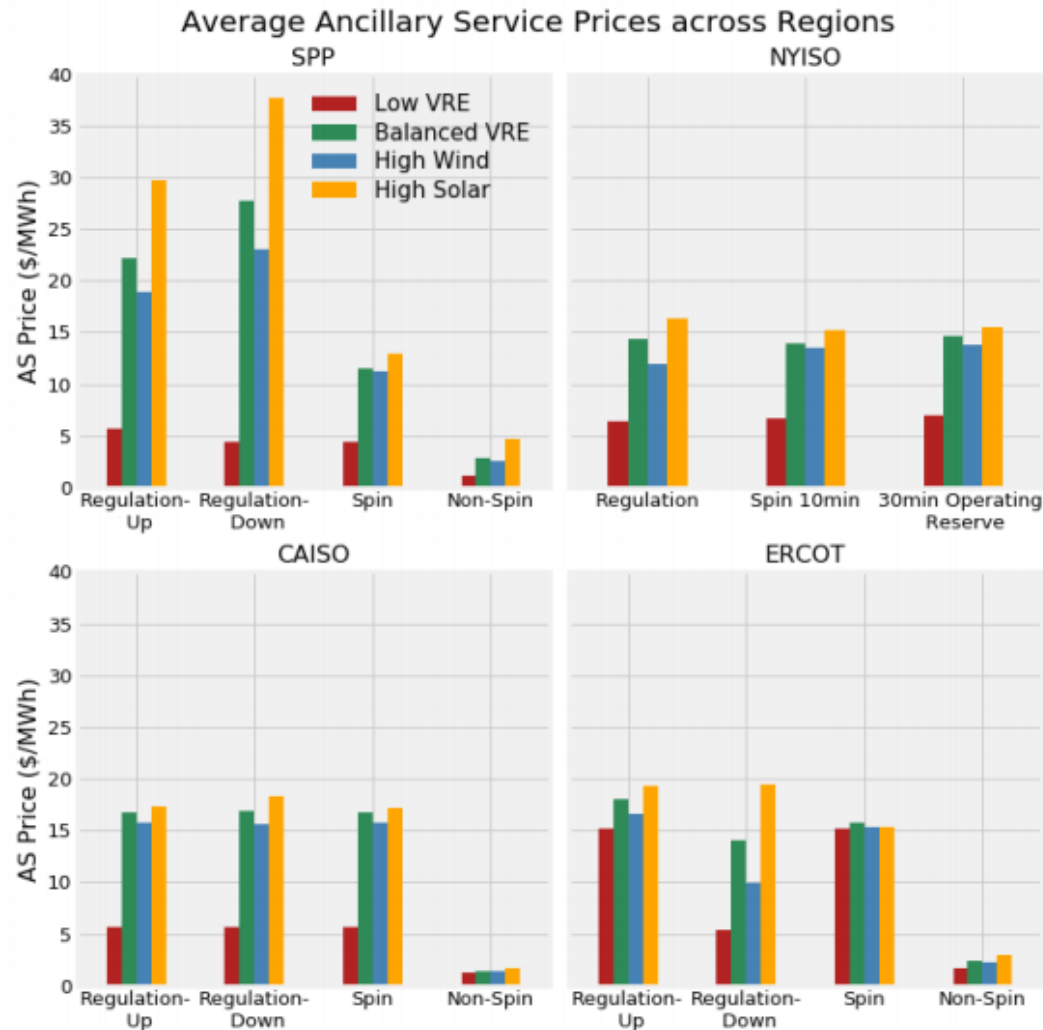
Ancillary service from solar+storage

FREQUENCY REGULATION



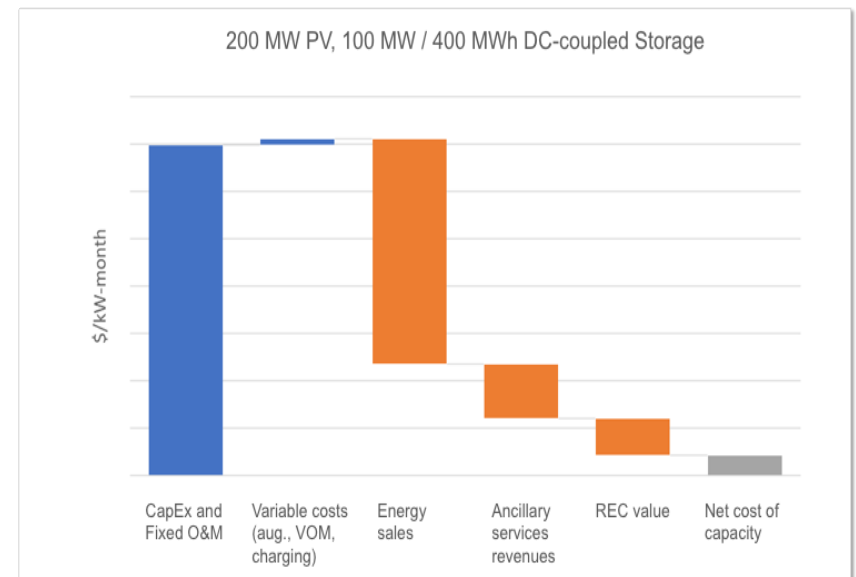
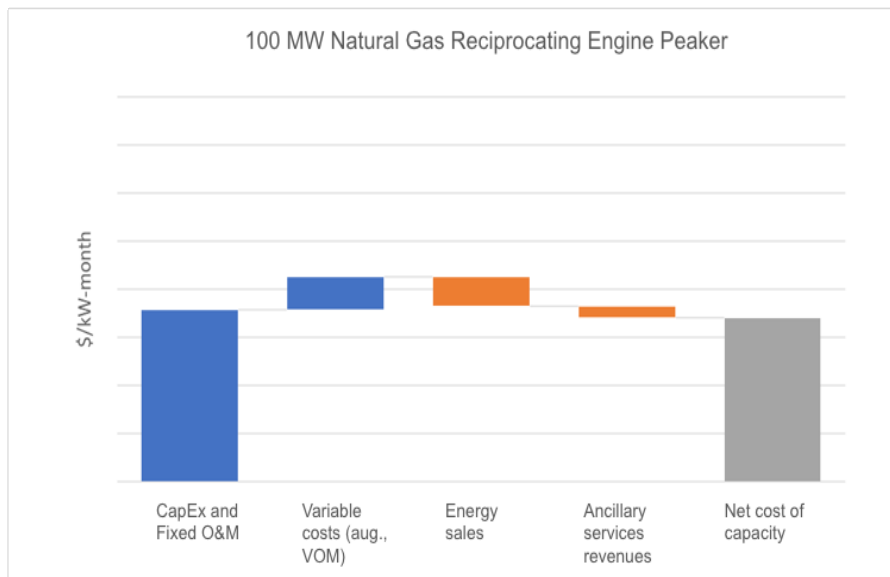
Anticipated AS Value in Various Markets

BASED ON BERKLEY LAB STUDY REPORT (MAY 2018)



Can Solar and Storage replace need for Gas Peaker?

COMPARING TRUE COST OF STORAGE



Summary and Conclusion

- High penetration of wind and solar in specific markets have created a stress on Electric Grid
 - Suppressed Pricing
 - Transmission congestion
 - Operational/Reliability issues
- Energy storage paired with solar will play a critical role as utilities keep taking advantage of low cost renewables in the coming years
 - Up to 4 hr discharge can provide energy arbitrage, ancillary services and transmission project deferral
 - Li-Ion remains the lead technology but other technologies are emerging
- Energy storage continue to face challenges from the financing point of view
 - Energy arbitrage is not a sufficient revenue stream to justify investment
 - Long term ancillary service forecast will be crucial
 - Storage in combination with Solar on the DC side would provide attractive value proposition for utilities to avoid building the Gas Peaker
- FERC Order 841 is definitely a good news for Energy Storage industry
 - However, expected to take more than 2 years to implement the details



Contact Details:

Mak Nagle
Sr. Director, Origination
(804) 533-6032
mnagle@spower.com

Richmond Office
4200 Innslake Dr.
Suite 302
Glen Allen, VA 23060

Corporate Headquarters
2180 South 1300 East
Suite 600
Salt Lake City, UT 84106