



Optimize PV Systems



Repower PV Systems



DC-Coupled Storage



Monitoring and O&M



DC-Coupled Storage with Ampt String Optimizers

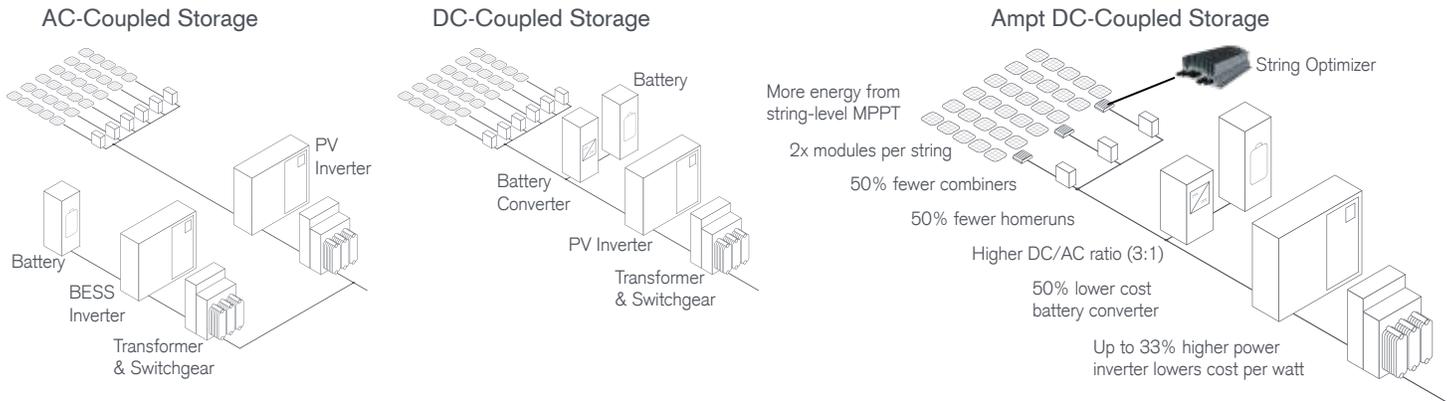
Lower Cost and Higher Performing Large-scale PV+Storage Systems

Ampt String Optimizers are DC/DC converters with patented features that lower the cost of energy. Some of the largest PV plus DC-coupled storage systems in the world are using

Ampt optimizers to save on electrical BOS components, battery converters, and inverters while generating and capturing more energy to increase project ROI.

- Enables 3:1 DC/AC ratio for optimal system design
- Lowest capex per kWh delivered
- Higher performance

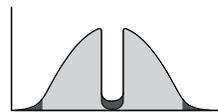
Cost Savings with Ampt



Performance Improvement with Ampt



Storage Roundtrip Efficiency
Achieve higher roundtrip storage efficiency while increasing the operating efficiency of the inverter and battery converter.



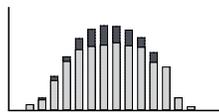
Low Voltage Harvest
Charge the battery storage system when the array voltage is below the inverter turn on voltage to maximize energy production.



Clipped Energy Harvest
Charge the battery when the PV inverter is clipping output power. Ampt enhances this benefit with higher DC/AC ratios (up to 3:1).



Mismatch Recovery
Deliver more energy by recovering mismatch losses from various sources with string-level maximum power point tracking (MPPT).



Curtailment Harvest
Capture array power that would normally be lost by charging the battery during periods of AC power curtailment.



Mitigate Degradation
Recover energy losses caused by variable degradation of PV cell and modules within a system to improve lifetime system performance.

Ampt's Patented Features Increase System ROI

MPPT per string – Ampt String Optimizers put maximum power point tracking on each of its two input strings of PV modules. This mitigates or eliminates mismatch losses to deliver more energy under changing environmental and system conditions over the lifetime of the power plant.

String Stretch® – Ampt's patented String Stretch® technology puts voltage and current limits on the output of each optimizer which doubles the number of modules per string and allows for smaller conductor sizing per kilowatt delivered to save up to 50% on electrical BOS costs.

Ampt Mode® – Inverters with Ampt Mode® operate in a fixed or narrow input voltage range that is closer to the maximum system voltage. This allows the inverter to deliver a higher AC output voltage at the same current which raises the rated output power of the inverter to lower the inverter's cost per watt.

V-match™ – Ampt's patented V-match™ technology allows the optimizer output to automatically match the DC bus voltage while delivering full available power from the PV modules.

Direct-to-Converter™ – Direct-to-Converter™ technology allows the DC bus to operate at a higher fixed voltage so the converter only needs to buck when charging and boost when discharging. This simplified operation reduces battery converter costs by 50% with less circuitry and a higher power density.

High DC/AC – Ampt's unique combination of output current limits and a higher DC bus voltage means system owners and designers can achieve optimal DC/AC ratios (up to 3:1) to lower capex and enable longer storage durations.

Wireless Communication – Ampt String Optimizers incorporate optional wireless communication to provide string-level data that is highly accurate, synchronous, and scalable to improve O&M.