



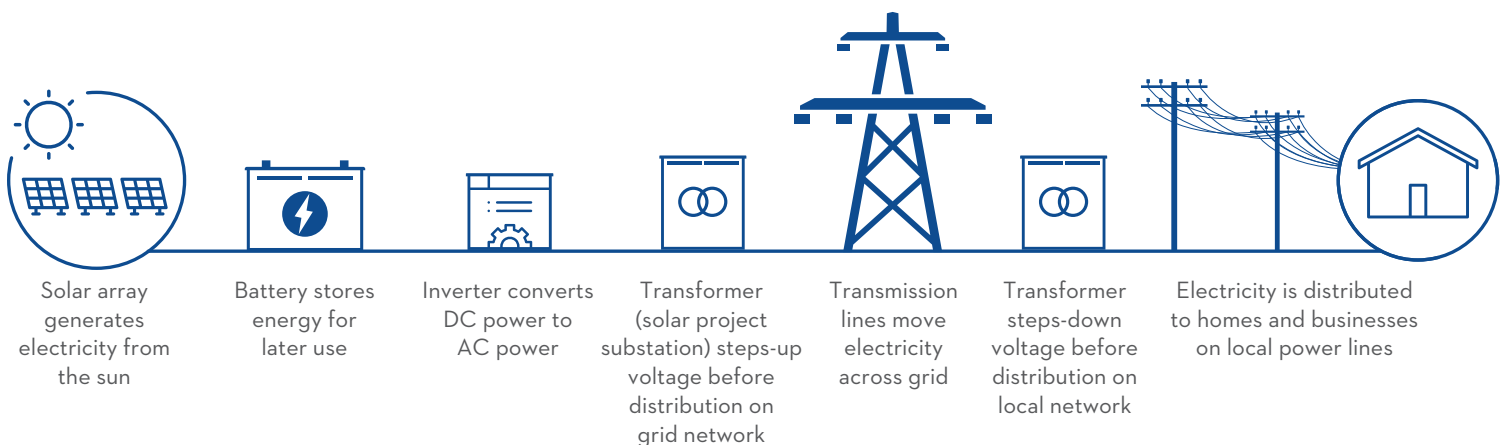
Elk Creek Solar is committed to helping to educate the community by providing regular communications, hosting local office hours, and engaging in local events. In this addition of the Elk Creek Solar Newsletter, we are pleased to provide information about Battery Energy Storage Systems; otherwise known as “BESS”.

## HOW DO BATTERIES WORK? HOW DO THEY SUPPORT THE PROJECT, THE COMMUNITY, AND THE GRID?

Battery Energy Storage Systems (BESS) store energy for use at a future time. For the Elk Creek Solar Project, a battery system would assist in providing power to the grid during high demand and could be utilized as backup power in the case of a grid outage. Battery systems support the grid by providing it with a reliable source of generated electricity to be used as demand from the grid is needed .

Energy storage is the capture of produced energy, stored for use at a later time to help minimize imbalances between energy production and energy demand. Batteries are a form of energy storage. Although there are different kinds of battery chemistries, lithium-ion batteries (similar to the ones in phones and laptops) have been the most commonly used technology for both residential and utility applications in the United States because they offer the best combination of safety, reliability, price and operational efficiencies.

## BATTERY STORAGE FROM SOLAR TO DEMAND





## WHAT IS THE VALUE OF LARGE-SCALE BATTERY STORAGE?

There is a lot of value with large-scale battery storage including bolstering grid resilience, providing and supporting grid stability, and strengthening grid flexibility. The electric grid functions by continuously matching supply and demand for electricity. Demand for power fluctuates constantly, which means the grid requires significant flexibility to manage those fluctuations. Adding battery energy storage to the electric grid provides that flexibility to offer energy for use at times when other generation is slow to ramp up or not otherwise available.

Batteries can deploy power during times of high electricity demand, such as periods of extreme temperatures. They may shorten customer outage time and provide backup power during grid outages. Batteries can also help support the grid during intermittent weather patterns where energy sources such as wind or solar may have certain windows to generate clean, renewable energy – i.e., cloudy weather, calm winds, rain & snow, shortened days, etc. Energy storage can create a more stable power grid with increased flexibility and less frequent interruptions to the power supply.

While solar does not need to be paired with batteries to be beneficial and cost effective, co-location (having both on the same site) can be advantageous. When paired with renewables, which have variable production, batteries can help allow for more renewables on the grid by allowing power to be used at different times than production. The predictability and relatively regular generation patterns of solar arrays effectively pair with battery storage because battery systems are limited in the length of time they can discharge power before needing to recharge. Having a ready source of energy from the solar array and a 24/7 ability to use it from the batteries results in an optimized large-scale project. Batteries are also particularly valuable because they can absorb or release electrical power almost instantly, turning on and off in fractions of a second, which enables them to support grid balance.

The future of our electric grid includes the predictability, ability for rapid deployment, and flexibility that battery systems provide.

<sup>1</sup> <https://www.energy.gov/eere/solar/solar-integration-solar-energy-and-storage-basics>

<sup>2</sup> <https://www.energy.gov/energysaver/articles/how-lithium-ion-batteries-work>

## STAY CONNECTED:

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