SA SOLAR

NEWSLETTER
September 2023 | Volume 1

WELCOME to the SA Solar Newsletter. We are excited to share project and industry related facts regarding utility-scale solar and look forward to continuing our efforts to educate and provide information about the benefits of solar energy to our Sumter County Community.

SOLAR HISTORY

Humanity utilizes the sun as a resource for light, heat, and of course, electricity. From the Greeks and the Romans utilizing mirrors to capture sunlight to ignite torches, to the discovery of electricity being produced when certain elements are exposed to light, the sun has been a resource for generations and there are countless opportunities for us to utilize the sun's energy to benefit our homes, businesses, and communities. Here are some interesting historical facts about the technology:

- The Nobel Prize in Physics 1921 was awarded to Albert Einstein "for his services to Theoretical Physics, and especially for his discovery of the law of the photoelectric effect"
- In 1954, Daryl Chapin, Calvin Fuller, and Gerald Pearson developed the first silicon photovoltaic (PV) cell, capable of converting energy from the sun into power that could run every day electrical equipment.
- In 1958, the Vanguard I satellite used a small solar array to power its radios. Solar arrays continue to successfully power our satellites today.
- In 1966, Japan installed a 225-watt photovoltaic array on a lighthouse, which was the largest array at that time.
- In 1978, NASA's Lewis Research Center installed a 3.5-kilowatt photovoltaic (PV) system on the remote Papago Indian Reservation located in southern Arizona, which was used to provide water for pumping and residential electricity in 15 homes. Unconnected from the nearest power line, this was the first solar electric village.
- In the 1980's, solar technology continued to advance as solar arrays were used to power homes and businesses and were now being manufactured at a larger scale.
- In the 1990's, the first grid-supported photovoltaic system was installed in Kerman, California.

Since the start of the 21st Century, solar development and installation has advanced tremendously as solar becomes more efficient, cost-effective, and continues to be the cleanest form of energy production. Solar has been used to power homes, businesses, small communities, large communities, commercialized industries, cars and much more.[1]

[1] *https://www.energy.gov/solar*

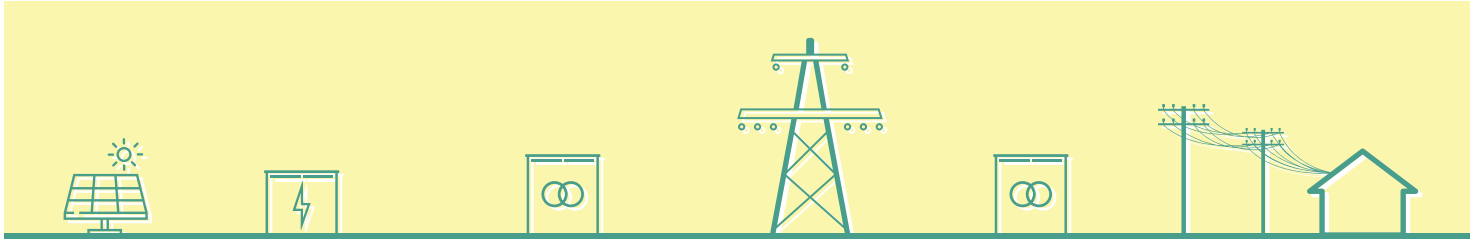
HOW SOLAR WORKS

In an hour and a half, enough sunlight strikes the earth's surface to handle the entire world's energy consumption for one year (energy.gov). By utilizing photovoltaic (PV) solar panels, we can capture a fraction of this energy to power our homes, businesses, and communities. This may raise a question, however – how does solar work and how do we use it?

Solar panels used for utility-scale solar projects, such as the proposed SA Solar Project, are mounted on tilted single-axis tracking systems that follow the sun from east to west, capturing the sun's energy throughout the day. As the sun shines onto a solar panel, the energy from sunlight is absorbed by the PV cells. The energy absorbed by the cells creates electrical charges that move in response to an internal electrical field within the cell – allowing electricity to flow (energy.gov). The energy absorbed by the panel, producing direct current (DC), is then transported through underground cabling to an inverter. The inverter will convert the direct current (DC) to alternating current (AC), which will then be transmitted to a substation to supply nearby power lines with locally sourced renewable energy.

The solar power that is absorbed and produced by the array can power homes, businesses, and communities in the area. This energy flows similarly to water by utilizing the path of least resistance, meaning that if there is energy demand close to the solar array, then power from the array and other available energy resources will flow from the grid to fulfill that need. Once the need for energy at that source is fulfilled, energy will continue to flow down the line to meet additional energy demand. Power can also be directed by the local grid operator to ensure that power is being appropriately distributed across the grid. Adding power to the electric grid, sourced from a local array, allows our county and state to harness energy from our most abundant resource – the sun.

https://solartechnologies.com/solar-101-solar-energy-work/



Solar array generates electricity from the sun	Inverter converts DC power to AC power	Transformer (solar project substation) steps-up voltage before distribution on grid network	Transmission lines move electricity across grid	Transformer steps-down voltage before distribution on local network	Electricity is distributed to homes and businesses on local power lines

STAY CONNECTED FOR THE LATEST INFORMATION ON THE SA SOLAR PROJECT:

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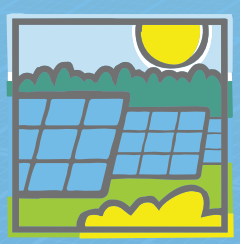

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