**Solar Power Basics (Text Version)**

Below is the text version for the Solar Power Basics video.

*The video opens with the words "Solar Power Basics" and a close-up image of the sun.*

The sun is a vast source of energy.

*Image of a large flaming sun with a smaller Earth.*

The solar energy that reaches the Earth in one hour is about as much as the total energy used by everyone on the planet for an entire year.

*Illustration of how greenhouse gases interact with solar rays in a blue sky with clouds. Solar rays reach the earth, with some deflected by clouds. And the rays heat the earth, reflect off the surface, and then hit greenhouse gases that are represented by dots and are partially reflected back to earth and partially allowed to disperse out into space.*

Solar power drives our weather, fuels plant growth, and interacts with greenhouse gases to heat our planet to a temperature that sustains life.

*Photos of houses with solar panels on the roof and a solar dish and words* “Heat and Electricity*.”*

Today we are harnessing solar power for heat and electricity, using both direct and diffuse sunlight.

*Illustration of a blue sky with dots representing particles in the atmosphere that scatter, or diffuse, sunlight and photo montage of home in the desert, concentrating solar troughs in a field, and solar panels on the roof with the snow-capped mountains in the background.*

Diffuse light occurs when particles in the atmosphere scatter some of the direct sunshine.

The most intense direct sunlight is in areas that have clear skies and low humidity. But all 50 states can take advantage of solar power.

*Illustration of a house with arrows representing the sun’s energy coming into the house.*

Passive solar designs for buildings use floor and wall materials that absorb and store the energy from sunlight. They slowly release the energy as heat at night.

*Illustration of black solar panels that are connected to a house.*

We use solar hot water thermal panels to heat water for homes, offices, and swimming pools.

*Photo montage of solar power tower and rows of photovoltaic technologies with words* “Solar Electricity: Photovoltaic (PV) and Concentrating Solar Power (CSP).”

To help provide electricity, we use two types of solar systems: Concentrating Solar Power (or CSP) and Photovoltaic (or PV).

*Photo montage of concentrating solar power technologies with words* “Concentrating Solar Power*.”*

Concentrating Solar Power uses the sun’s energy to create enough heat to generate electricity.

*Illustration of concentrating solar power plant with troughs and engine.*

Mirrors focus direct sunlight to produce very high temperatures that turn water to steam. The steam spins a turbine, which drives an electric generator.

CSP systems can store heat during the day, and then use it to make electricity during cloudy periods, at night, or whenever people need it.

*Photo of a power tower.*

Concentrating Solar Power works best as large-scale installations that provide electricity for entire communities, cities, or regions.

*Photos of photovoltaic modules that are mounted on roofs and ground and the words* “Photovoltaic*.”*

Photovoltaic systems are another solar electric technology.

*Illustration of solar module powering a television.*

Unlike Concentrating Solar Power, PV can use diffuse sunlight, as well as direct light. PV converts sunlight directly into electricity using specially engineered materials. PV can power applications having electrical needs that are very small to very large.

*Photo montage of calculator, school sign, homes, fields of photovoltaic modules, and concentrating solar power technologies.*

Starting small with solar-powered calculators and remote school crossing signals. Then applications can increase to homes and businesses, all the way up to the large-scale needs of a city. Today’s solar technologies are proven, reliable, and increasingly affordable.

*Photo of CSP troughs*

Large-scale Concentrating Solar Power systems have operated continuously with excellent reliability since 1985.

*Photos of PV installed on homes.*

And photovoltaic modules have warranties for 20 to 30 years.

*Illustration of global map, zooming into the United States, with the words* “A Secure Energy Supply*.”*

Solar power is strengthening our energy security by reducing dependence on fossil fuels.

*Photo montage of solar being installed on residential and commercial roofs with the words* “More Innovation and Jobs*.”*

Solar technologies are strengthening our economy by creating thousands of new jobs in manufacturing, construction, installation, and operation.

*Photo montage of water and solar technologies with the words “Cleaner Air and Water, Lower Carbon Footprint.”*

Solar technologies are good for our environment. They are quiet and have no harmful emissions during operations. Even taking into account construction, the overall carbon footprint for generating solar electricity is 30 times less than using coal.

*Illustration of the sun with $0 radiating from it and the words* “Always Free*.”*

And our sun provides an abundance of solar fuel at a low price: Zero. Better yet: this fuel will always be free.

*Illustration of chart with yellow bar declining and a black bar slightly ascending.*

The cost of the equipment needed for capturing the sun’s energy and generating electricity has come down rapidly while installations have increased dramatically.

*Photo montage of the sun and installed solar technologies.*

The sun is by far our greatest source of energy and we’re putting it to work. Solar power is benefitting the United States and countries around the world—everywhere the sun shines.

*Video closes with music and credits.*