

City of Tucson/SPG Solar Introduction

Humans have been harnessing radiant energy from the sun for thousands of years. From the greenhouses that grew cucumbers for the Roman emperor Tiberius to the solar powered homes of today, applications of solar technology have been constantly evolving. Along with direct conversion of solar energy to heat or electricity, most of Earth's renewable energy sources, including wind, hydro, biomass and wave power, also originate with the energy from the sun.

Of the 174 petawatts of solar energy that reach Earth's upper atmosphere, roughly half penetrates to the surface of the earth. This is more than enough energy to power human needs many times over. In fact, the Earth receives enough solar energy in one hour to satisfy human energy needs for more than a full year! Some countries are already using solar power to produce large amounts of electricity. For example in Spain and Italy the bright Mediterranean sunshine powers a variety of solar power plants producing tens of megawatts of electricity. In some cases, acres of photovoltaic cells directly create electricity from sunlight. Elsewhere, mirrors that follow the sun focus light onto pipes, heating liquid to power turbines that create electrical power. Even in developing nations, people living far from power grids are able to cook with solar ovens and read by solar power lighting, reducing their dependence on gathered wood and smoky kerosene lamps.

In the United States, twenty-five cities from New England to southern California have been selected as Solar America Cities. These cities have been working to accelerate the adoption of solar energy technologies for a cleaner, more secure energy future. Through federal-local partnerships, barriers to solar energy use are being identified in a variety of diverse locations in order to develop solutions that lead to a sustainable solar infrastructure.