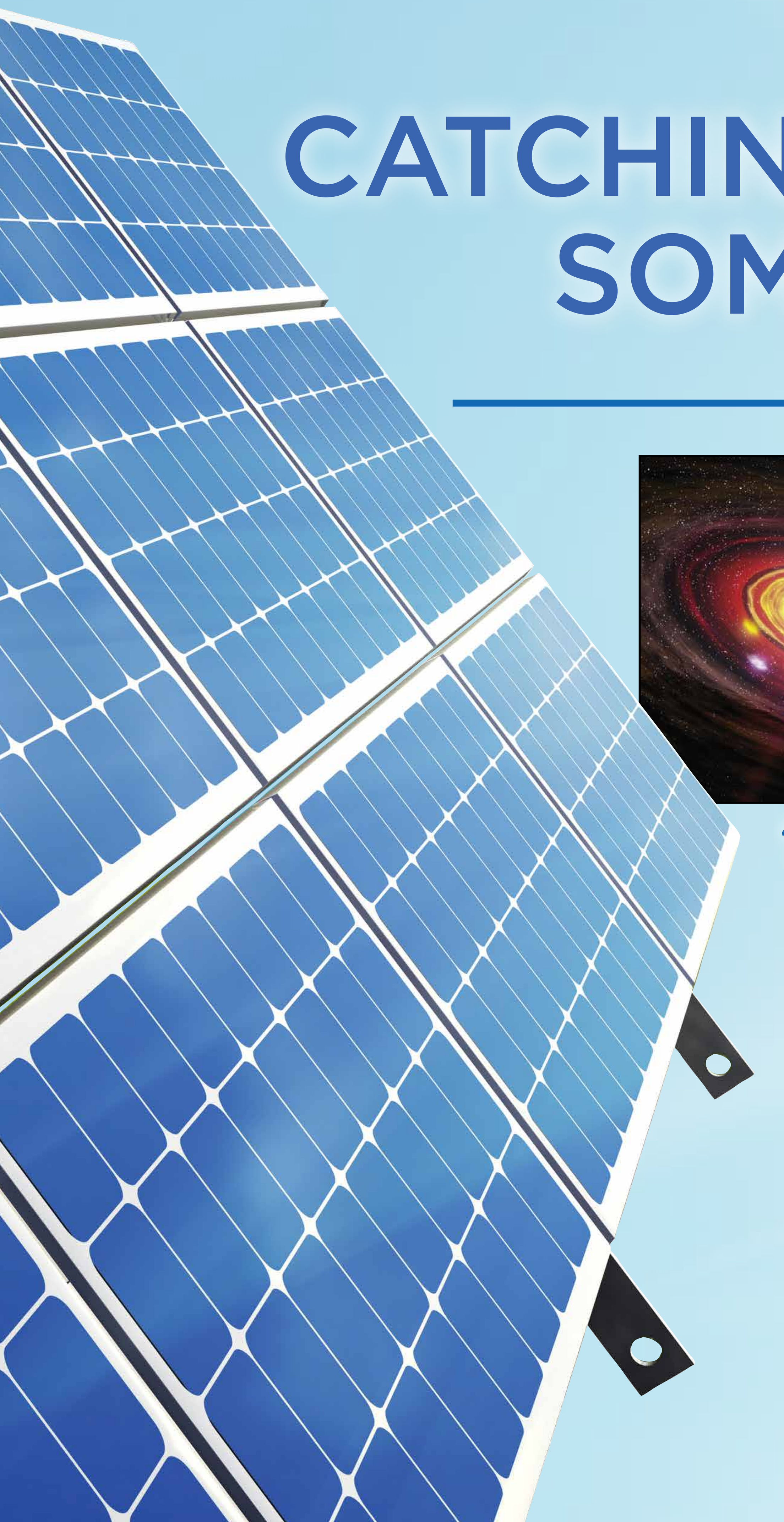


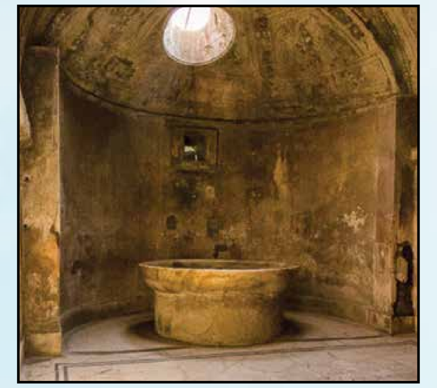
CATCHING SOME Rays

A SOLAR POWER TIMELINE

4.5 billion years ago
Birth of our sun and solar system.

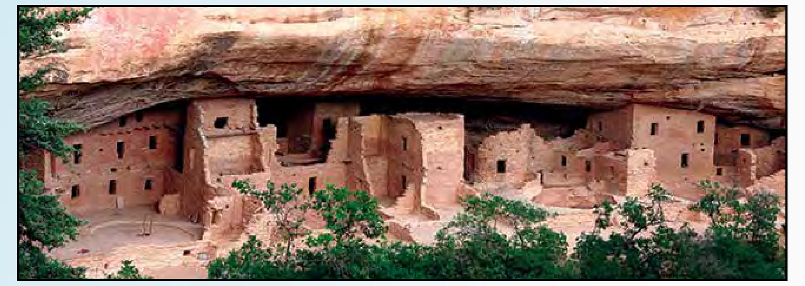
7th century, BC
Magnifying glass used to intensify sun rays to make fire and burn ants.

3rd century, BC
Greeks and Romans use mirrors to ignite torches for religious purposes.



6th century AD
Sunrooms providing warmth to houses and public buildings are common and Roman law creates 'sun rights' to ensure individual access to the sun.

1200 AD
Ancestral Pueblo people of North America build cliff dwellings facing south to capture winter sun.



1767
Swiss scientist Horace de Saussure builds first solar collector or 'hot box' that can cook food.

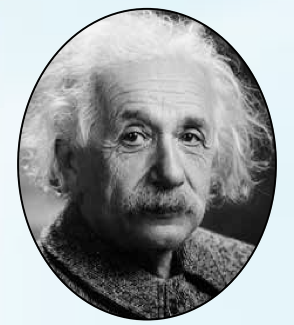
1839
French physicist Alexandre Edmond Becquerellar demonstrates the photovoltaic effect — the ability of a solar cell to convert sunlight into electricity.

1876
London professor William Grylls Adams and student Richard Evans Day discover that selenium exposed to light produces electricity, proving that a solid material could convert light into electricity without heat or moving parts.

1883
U.S. inventor Charles Fritts creates world's first rooftop solar array in New York City with selenium-coated panels.

1891
Baltimore inventor Clarence Kemp patents first commercial solar water heater, called the Climax.

1905
Albert Einstein publishes paper that explains the photoelectric effect — the process of how light produces electricity — and is awarded the Nobel Prize in Physics in 1921 for his work.

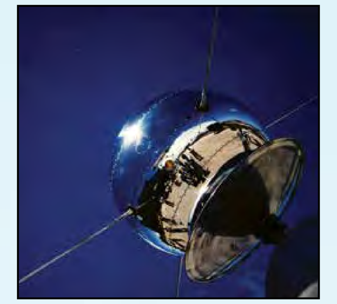


1947
Energy shortages during World War II popularize passive solar buildings in U.S., and Libbey-Owens-Ford Glass Co. publishes 'Your Solar House,' profiling 49 top American solar architects. Among them: Louis Kahn, who later designs the Kimbell Art Museum in Fort Worth.

1954
Daryl Chapin, Calvin Fuller, and Gerald Pearson of Bell Labs develop the modern silicon photovoltaic (PV) cell, the first solar cell that could convert enough sunlight into power to run everyday electrical equipment.

1956
The Solar Building in Albuquerque, N.M. opens as first commercial office building with solar water heating and passive solar design. The headquarters of the Bridgers & Paxton engineering firm stands today and is listed in the National Historic Register.

1958
The U.S. Naval Research Laboratory launches the Vanguard I test satellite, the first spacecraft to use solar panels (which power radios).



1962
NASA launches Telstar, the first television satellite powered with solar cells.

1966
NASA launches first Orbiting Astronomical Observatory, powered by a 1-kilowatt photovoltaic array, to provide astronomical data.

1974
U.S. Congress passes Solar Heating and Cooling Demonstration Act requiring solar heating and cooling in federal buildings by 1977 to introduce the technology to the public.

1977
U.S. Department of Energy creates Solar Energy Research Institute in Golden, Colo., a federal facility dedicated to harnessing power from the sun. Now called the National Renewable Energy Laboratory.

1977
President Jimmy Carter installs 32 solar panels on the White House during the Arab oil embargo; his successor, President Ronald Reagan, removes them.

1981
American Paul MacCready builds Solar Challenger, the first solar-powered aircraft, and flies it 163 miles from France to England, aloft for more than five hours.

1982
Australian Hans Tholstrup drives Quiet Achiever, first solar-powered car, nearly 2,800 miles between Sydney and Perth in 20 days.

1983
ARCO Solar opens 6-megawatt photovoltaic substation in central California to supply Pacific Gas & Electric with enough power for up to 2,500 homes.

1990
General Motors organizes biennial, multi-day solar car cross-country endurance race for college students; now known as American Solar Challenge.

1998
American scientist Subhendu Guha leads invention of flexible solar shingles for rooftops that convert sun rays into electricity.

2000
International Space Station astronauts begin installing solar panels on largest solar power array in space. Each 'wing' of the array has 32,800 solar cells.

2001
Home Depot begins selling residential solar power systems.

2005
U.S. Congress passes Energy Policy Act, allowing businesses and homeowners to deduct from federal taxes 30 percent of cost of solar energy system installation.

2014
President Barack Obama brings solar panels back to White House rooftop.

2015
Google announces Project Sunroof, a pilot program that uses aerial maps and weather data to calculate a home's usable sunlight and cost savings to install solar energy roof panels. (Not yet available in Texas).

2016
Solar Impulse 2, a Swiss single-seat, fixed-wing aircraft powered only by solar energy, completes a 16-month, multi-stage circumnavigation of the globe—26,000 miles. Alternating as pilots were Solar Impulse co-founders André Borschberg and Bertrand Piccard.

2016
Solar Energy Industries Association trade group estimates more than 420,000 Americans will work in the solar industry by 2020.

2016
U.S. hits 1 million solar installations (enough to power 5.5 million homes), and the Solar Energy Industries Association estimates the number will grow to 2 million installations by 2018.

Sources: AmericanSolarChallenge.org, Bridgers & Paxton Consulting Engineers, Inc., California Solar Center, CBS News, Dwell magazine, George Washington University Solar Institute, Institute for Energy Research, Kimbell Art Museum, NASA, National Renewable Energy Laboratory, New York Times, RenewableEnergyWorld.com, Smithsonian Institution's National Air and Space Museum, Solar Energy Industries Association, State of California, University of New Mexico, and U.S. Department of Energy

Timeline written by Denise Gamino; design by Joe Stafford