



SINGAPORE: Solar “trees” produce electricity at a city park. They also provide shade and collect rainwater for watering plants.



Going Solar

Why more and more homes and businesses are powered by the sun



» As you read, think about some of the benefits and challenges of using solar energy.

CROATIA: People walk on solar panels installed on city pavement.

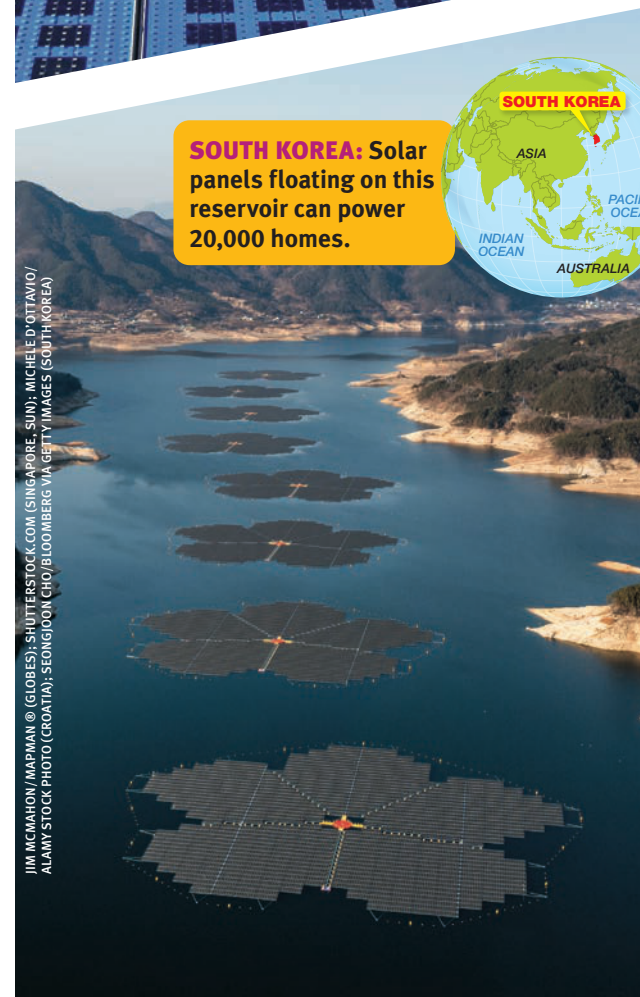


Flip on a light switch, and a light goes on. Have you ever wondered where the electricity that powers that light comes from?

Most electricity comes from burning **fossil fuels** like natural gas, coal, and oil. But this releases gases that contribute to climate change. Plus, fossil fuels will eventually run out.

That’s why scientists say it’s urgent that people switch to **renewable energy**. The U.S. government set a goal for the country to use mostly renewable energy by 2035.

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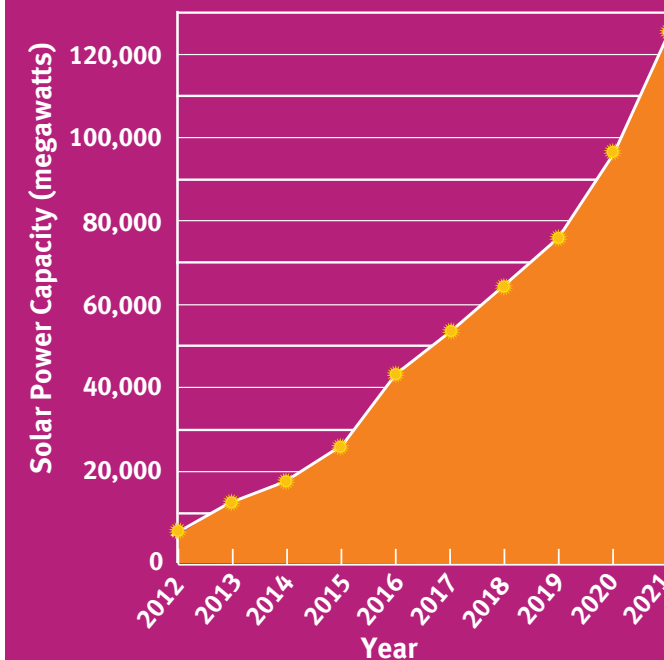


SOUTH KOREA: Solar panels floating on this reservoir can power 20,000 homes.



Solar Takes Off

As more solar panels are installed, the amount of solar power the U.S. can produce is growing fast.



💡 **Think:** Which year showed the fastest growth?



ITALY: Solar panels collect sunlight and create shade for cars in a parking lot.



More and more U.S. homeowners are installing solar panels on their roof or in their windows. That can turn your home into your own personal power plant!



One promising source is **solar energy** collected from the sun.

Today just 4 percent of the nation's electricity comes from solar energy. But that number is growing, says Dr. Destenie Nock. She's an engineer who helps communities switch to clean energy like solar.

Sun Power

Solar energy starts with the sun. Its light and heat are absorbed by devices called **solar cells**. They convert the sun's energy

into electrical energy. That electricity then travels along a network of wires to homes and businesses (see *How Solar Farms Work*, page 15).

Power plants that burn fossil fuels are often located far from cities. That can cause problems. In 2021, Hurricane Ida knocked out power lines, causing the city of New Orleans to lose electricity for 31 days.

But solar cells, arranged in groups called solar panels, can be installed almost anywhere: in parking lots or fields, on rooftops, or floating on lakes. Solar panels located closer to communities may provide a more reliable source of energy, says Nock.

Challenges Ahead

Solar energy presents both benefits and challenges. Solar panels work only when the sun shines. And they perform best in direct sunlight. Solar

panels also need to be at mild temperatures of about 25°C (77°F). If they get too hot, they don't work as well.

So other renewable energy sources will be needed, experts say. Wind turbines could be used at night, when the wind blows strongest! Hydropower, or electricity produced by moving water, is another option.

Today renewable energy is more expensive than energy from fossil fuels. But as the country invests more money in renewable sources, the price will go down, says Nock. She thinks the U.S. can get up to 40 percent of its energy from the sun by 2050.

But that will depend on how quickly energy companies build new technology. "A mix of renewable energy sources will be important to make sure everyone can use the electricity they need," Nock says.

—Deborah Balthazar

MICHELE D'OTTAVIO/ALAMY STOCK PHOTO (ITALY); JIM MCMAHON/MAPMAN © (GLOBE); ADAMKAZ/GETTY IMAGES (ROOF)



MORE TO EXPLORE

How Solar Farms Work

Solar farms can contain thousands of solar panels. These devices collect energy from the sun and convert it into electricity that can be used by homes, businesses, and communities.

1 Solar panels convert sunlight into electrical energy.

2 Devices change the form of electricity so it can be carried on power lines.

3 Wires carry electricity to businesses, schools, and homes.



Think: Why might placing solar panels near communities make electricity more reliable?



GO ONLINE for a step-by-step Hands-on Activity

Planning Solar Panels

Where would be the best site for solar panels near your school? Use this activity to observe which areas receive the most sunlight throughout the day.

Directions: Follow the steps below. Record your observations on a separate sheet of paper.

PLAN: Decide on two or three times throughout the day when you will observe where the sun is hitting an area.

OBSERVE: With your teacher, carefully walk around the school building. Which areas are in sunlight? Which areas are in shadow?

COMPARE: With your teacher's permission, place your hand on areas in light and in shade. Observe and record differences.

EVALUATE: Repeat steps 2 and 3 during a different time of day. Which areas were in sun at both times? In shade both times?

CONCLUSION: Based on your results, which spot would you recommend for solar panels? Why?

