

POWERING A BRIGHTER FUTURE

More than 1 billion people worldwide have gained access to electricity in the past decade, improving their health, education, and incomes. What's behind this incredible progress, and what else can be done in the coming years?

BY REBECCA ZISSOU

AS YOU READ, THINK ABOUT

How might access to electricity help improve someone's life?

For years, when the sun went down around 6 p.m. in Derrick's* hometown of Rufunsa, Zambia, the whole community plunged into darkness. Without access to electricity, Derrick and his neighbors in their rural village in southern Africa couldn't simply flip

a switch to turn on lights in their homes. There were no streetlamps to illuminate nearby roads, nor was there the glow of cell phones to help brighten a room. The complete darkness made it difficult for young people like Derrick to read, study, or do their homework at night.


But in 2019, a creative solution

VIDEO

Watch a video at [junior.scholastic.com](https://www.junior.scholastic.com) to learn more about why access to electricity has been so important during the Covid-19 pandemic.

changed Derrick's life. That year, a Light Library was put in place at Derrick's school. The program works just like a traditional library, but instead of checking out books, students can borrow small solar lamps to take home with them. Now Derrick is able to sit under the light of the solar lamp for an hour and a half every night to complete his schoolwork. →

*All students' last names have been withheld to protect their privacy.

A young boy in a red shuka stands next to a traditional thatched hut at dusk. He is holding a glowing solar lamp, which illuminates the scene. The sky is a deep blue, and the landscape is dark and hazy. The boy is looking towards the right, and the solar lamp is held high in his right hand. The hut has a thick thatched roof and a wall made of mud and sticks. The overall mood is peaceful and hopeful, highlighting the use of solar power in a rural setting.

Solar power has become a main source of electricity in many communities, including this one in Kenya.

The Light Library was set up by an aid group called SolarAid, and Derrick's teacher, Mutinta Michelo, helps run it. Soon after the program was launched, Michelo began to notice a difference in Derrick. She says he used to struggle in class and had difficulty reading and writing. But since Derrick has been able to use a solar lamp, his grades have improved.

"He has turned out to be the best reader in the school," Michelo says.

Over the past decade, stories like Derrick's have become increasingly common. Since 2010, more than 1 billion people worldwide have gained access to electricity—which has helped improve their lives. In fact, the number of people *without* electricity dropped from 1.2 billion in 2010 to 759 million in 2019. That's according to a report from several international organizations including the World Bank, which is dedicated to reducing poverty.

Experts say expanding access to electricity is key to strengthening economies, improving education

and health care, and creating high-paying job opportunities.

"Energy is really the foundation of everything," says Mark Carrato. He's the coordinator of Power Africa, an organization run by the U.S. government that's focused on electrifying communities in Africa.

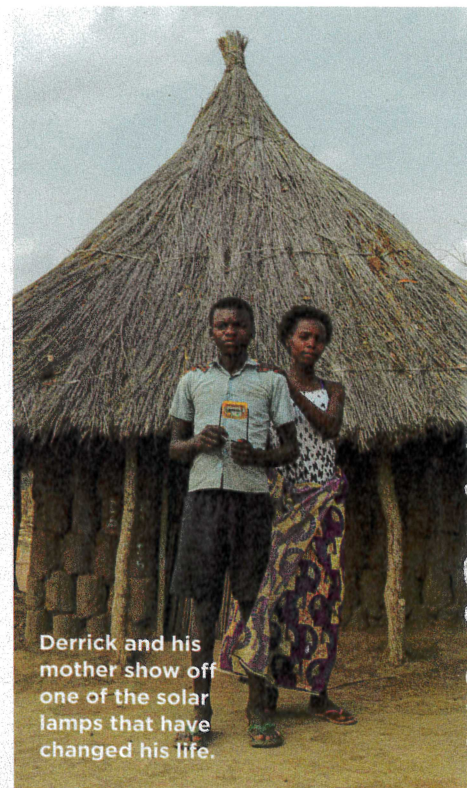
That's why officials around the globe have been working toward an ambitious goal: to bring electricity to *everyone* worldwide by 2030.

The aim is one of the Sustainable Development Goals, a series of targets set by the United Nations (U.N.) that are meant to improve the lives of the world's most vulnerable people (see "What You Need to Know," below). In addition to increasing access to electricity, other goals include ensuring gender equality and combating climate change.

Despite the major challenges ahead, Carrato is optimistic that the U.N.'s electricity goal is within reach.

"It's totally doable," he says.

"But it's going to take a lot of people working together."



Derrick and his mother show off one of the solar lamps that have changed his life.

An Essential Resource

Many people in the United States and other wealthy countries may not realize how important electricity is to their daily lives. You and your friends may not think twice about reaching for a snack in the refrigerator, spending hours in front of the TV, or charging your phone in an outlet.

But without electricity, hundreds of millions of people worldwide can't

One of the U.N.'s goals is to expand access to education, especially for girls.



WHAT YOU NEED TO KNOW

SUSTAINABLE DEVELOPMENT GOALS In 2015, the United Nations adopted 17 goals aimed at solving major global problems by 2030. In addition to universal access to electricity, other goals include ending hunger, improving girls' access to education, and strengthening countries' ability to respond to natural disasters caused by climate change. Over the past six years, world leaders, private companies, and aid groups have been working to achieve these targets. To learn more and find out what you can do to help improve life around the world, visit un.org/sustainabledevelopment/takeaction.

do any of those things, let alone run computers, fans, or microwaves. About 75 percent of them—roughly 570 million people—live in sub-Saharan Africa. The vast majority are in rural areas, many of which aren't connected to an energy grid. (An energy grid is a large network—sometimes hundreds of thousands of miles long—that delivers electricity to homes, schools, businesses, and other places.)

As a result, people in communities like Derrick's often have to light their homes with kerosene lamps, which can be expensive and inefficient. Others burn clumps of grass or use candles, which produce only small amounts of light—and can cause house fires.

Eleven-year-old Alinafe of Malawi, a country in southeastern Africa, for example, once fell asleep while using a candle to study for an upcoming test. The flame ignited the blanket she and her younger brother were lying under—as well as the straw mat beneath them—leaving Alinafe with burns up and down her arm.

“Candles bring accidents,” says a leader in Alinafe's village. “This is a problem for my community.”

Many people without electricity also rely on wood, coal, or charcoal as fuel to cook their meals and heat their homes. Burning such materials releases harmful smoke and fumes, which can lead to serious health problems, including heart disease and lung cancer, and even death.

In addition, some families have to spend up to 10 hours a week collecting wood or other materials to



These kids in Nigeria are able to read at night thanks to solar power.

burn. Such tasks often fall to women and girls, who in many low-income countries are responsible for all household chores. That takes up

MORE THAN 1 BILLION PEOPLE WORLDWIDE HAVE GAINED ACCESS TO ELECTRICITY IN THE PAST DECADE.

valuable time that could have been spent on other important activities, such as schooling, paid work, child care, or even sleep.

Major Energy Success

In recent years, however, governments, private companies,

and humanitarian groups have made expanding access to electricity a priority. As a result, the World Bank estimates, 90 percent of the global population has electricity today, up from 83 percent in 2010. That means more and more hospitals around the world can now run lifesaving medical equipment, farmers can power water pumps to irrigate their crops, and shops can stay open after dark.

Experts say the African nation of Kenya is among the countries that have made the most progress (*see map, p. 11*). One recent government initiative there has helped millions of low-income households connect to the nation's energy grid.

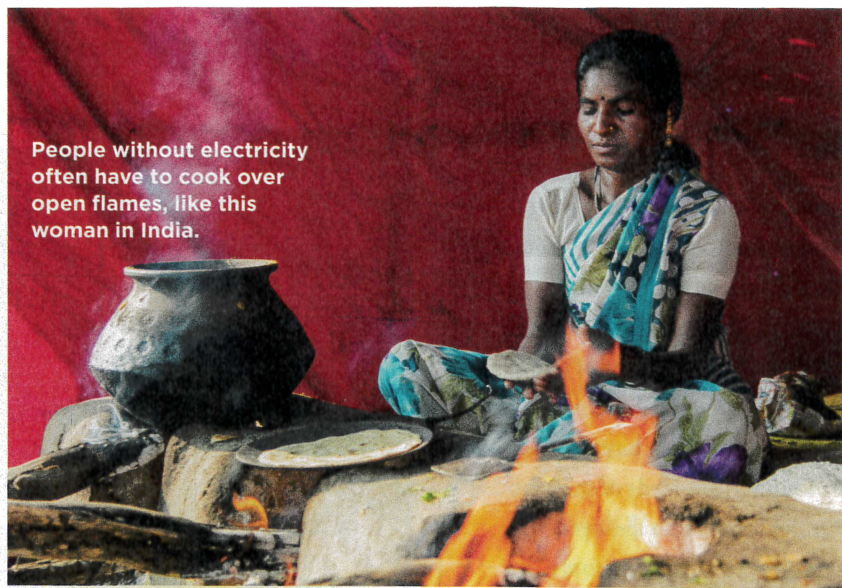
Kenya's leaders have also made huge strides in expanding →

access to renewable energy, including wind and solar power (see “Understanding Renewable Energy,” p. 12). In 2019, for instance, the biggest wind farm in all of Africa opened in northwestern Kenya. It covers 40,000 acres and includes 365 wind turbines—enough to power hundreds of thousands of homes.

Renewable energy has also benefited Malawi. Thanks to a recent partnership between Power Africa and local solar companies, nearly 58,000 families there have been able to install solar panels on their homes. That has helped people like Chrissy Kasawe generate electricity to power lights and appliances.

“My children are now able to get their homework done and study even at night,” says Kasawe. “I am also able to charge my phone and listen to the radio at any given time.”

Hundreds of millions of people in India, a country in South Asia, have



People without electricity often have to cook over open flames, like this woman in India.

“MY CHILDREN ARE NOW ABLE TO GET THEIR HOMEWORK DONE AND STUDY EVEN AT NIGHT.”

gotten power in recent decades as well. Among other initiatives, the government has helped make electricity more affordable and reliable. One program in particular has helped lower the cost of an energy-efficient light bulb from

the equivalent of about \$5.50 to less than \$1. Saving money on electricity has helped many families afford food, clothing, and other necessities.

“This helps immensely,” says Mamta Bairwa, a mother of six who uses some of the money she saves to pay for her daughters’ education.

Overcoming New Challenges

Still, experts note that some of the recent progress in expanding access to electricity slowed last year because of the Covid-19 pandemic.

For one thing, as the global economy suffered, many workers lost their jobs or earned less money. That made it difficult for people to afford power. Governments and private companies faced financial challenges too, and certain electrification projects had to be put on hold.

Many officials, however, have since stepped up their efforts to improve energy access, in part to help respond to the Covid-19 crisis. After all, electricity is needed to refrigerate vaccines and help diagnose and treat the disease. SolarAid, Power Africa, and other groups, for example, have focused



Marianne Mwale works by solar lamp at a health clinic in Zambia.

Turn to page 23
to learn more about
**latitude and
longitude.**

Lighting the World

This map highlights some of the countries around the globe that have made the most progress in expanding access to electricity over the past decade.



on electrifying hospitals in sub-Saharan Africa, where more than 70 percent of health-care facilities lack reliable power.

Such initiatives are extremely important, says Marianne Mwale, a lab technician at a health clinic in a rural part of Zambia. Her workplace recently acquired solar lights—and she says they've made all the difference. →

Map Skills

1. What is the capital of Kenya? What percentage of people in that country currently have access to electricity?
2. Which capital is located at 12°N, 86°W? What percentage of people in that country have access to electricity today?
3. Which labeled capitals are south of the equator?
4. Which capital is located at 35°N, 69°E? What percentage of people in that country had access to electricity in 2010? What percentage have access today?
5. What is the approximate latitude and longitude of the capital of India?