



Energy Poverty 101

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What is energy poverty?

An estimated 1.6 billion people, concentrated in sub-Saharan Africa and South Asia, do not have access to electricity. And even more people—a staggering 2.4 billion—use biomass such as wood or dung as their primary source of cooking and heating fuel. These individuals are living in energy poverty, which means they lack access to modern energy services.

Burning biomass for fuel can pose significant health risks from indoor air pollution, including death. It also shortens workdays according to daylight and forces women and children to collect fuel instead of allowing women to engage in income-generating activities or children to pursue an education. These drawbacks reinforce a household's inability to escape the energy poverty cycle.

Access to modern energy is a fundamental service that enables economic growth and contributes to the success of international efforts to eradicate poverty. Yet solving energy poverty entails its own risks.

We cannot allow the energy poor to base their economic growth on dirty energy sources. It ignores health concerns, ties development to volatile imports, and goes against international efforts to slow global warming.

Alleviating energy poverty must therefore address each of these challenges while simultaneously providing access to clean, affordable, and reliable energy services.

How does energy poverty harm human health?

The World Health Organization estimates that 1.6 million people die from the adverse effects of indoor air pollution each year, or one person every 20 seconds.

Billions of people—nearly half the global population—have to depend on wood, dung, agricultural residue, and coal to meet their cooking and heating needs, which they mostly

burn indoors over open fires and stoves. The smoke has no escape, and women and children are trapped with it while meals cook.

The particulates—commonly known as black carbon—are so concentrated and small that they travel deep into lungs, causing chronic respiratory problems, lung cancer, pneumonia, and other health complications. [Recent research](#) also reveals that black carbon is the second major contributor to global warming after carbon dioxide emissions.

Clean energy can be a catalyst in reversing energy poverty and air pollution deaths. A common example is the solar stove, which uses the sun's energy to generate heat for cooking. Solar stoves save money that would go toward fuel, save time spent collecting wood, and avoid black carbon emissions. They can save lives while avoiding global warming pollution.

How does energy poverty hinder economic growth?

Global warming is real, and we are already feeling its effects. The United States and other developed countries bear responsibility for most of the historic greenhouse gas emissions that cause global warming, but the future landscape is strikingly different.

Projected 21st-century trends show that energy demand is growing most rapidly in developing countries—and not just in China and India. The [Energy Information Administration estimates](#) that energy consumption in South America, Africa, and the Middle East will grow 60 percent above existing levels by 2030.

Yet spending on dirty fuels is both economically and environmentally unsustainable for developing countries. [Analysis by the Center for American Progress](#) shows that spending on oil imports offsets major debt relief efforts in many of the Heavily Indebted Poor Countries—countries that the international community has identified as saddled with high levels of severe poverty. Therefore the need to find clean-energy alternatives for growing economies is urgent.

Clean energy should lead economic growth in the least developed countries in order to prevent dependence on energy sources that could plunge them further into debt and heighten contributions to global warming.

How can we alleviate energy poverty without contributing to global warming?

Alleviating energy poverty means providing affordable and reliable energy services—ideally from clean-energy sources—that will promote good health, a prosperous environment, and a stronger economy.

Affordability

Renewable energy technologies such as solar water heaters can have high initial capital costs, yet the cost of fuel is practically negligible. This kind of technology brings a cleaner, more stable energy source to families while saving them money.

The South African government realizes that even households with access to services cannot always afford to pay for electricity. The government began to offer the Electricity Basic Service Support Tariff in 2003, which provides 50 kilowatt hours of free electricity to grid-connected (mostly urban) households each month. However, data on consumption and fuel source trends suggests that even with this perk, households struggle to pay for electricity.

But the day when renewable energy is a cost-competitive option is not far, particularly with focused policies and investment. A [working paper from the Center for Global Development](#) demonstrates how, given modest subsidies over 10 years, solar thermal electricity built and commercialized in North Africa and the Middle East can rival fossil fuels in affordability in local and European markets.

Reliability

What good is the Internet when you have an impossibly slow connection? Or cell-phone service when the coverage is spotty and regularly drops calls? Or a light switch when there is a blackout?

The United States relies on baseload, or consistent, power from huge power plants to supply us with a stream of electricity. Rural areas of developing countries are much more likely to use small energy facilities located on-site, also known as distributed generation. This can be an effective power source for those who can access the technologies. Domestic energy policies and international financing efforts should recognize that distributed generation is a practical and affordable solution for the rural energy poor who are most plagued by a lack of modern energy services.

Yet urban blackouts are still too common in developing countries, and large-scale renewable electricity—such as concentrated solar, biomass, and geothermal energy—can help solve this and promote economic growth. Developing nations, like developed nations, need to build and integrate solar, wind, and geothermal resources as modern solutions to ensure consistent and reliable electricity. Policies must also emphasize increased efficiency, similar to our energy priorities in the United States.