

SUSTAINABLE DEVELOPMENT NEEDS SUSTAINABLE ENERGY FOR ALL

Energy issues are closely linked to the environmental, economic, and social aspects of sustainable development. They concern livelihoods, access to water and sanitation services, agricultural productivity, health, demographics, education, and gender-related issues. In many developing countries, meeting the Millennium Development Goals requires major improvements in the quality and quantity of energy services. Climate change mitigation requires significant investments in energy efficiency and renewable energy technologies, in both developed and (as nationally appropriate) developing countries.

By expanding access to sustainable energy supplies, progress can be advanced along all three dimensions of sustainable development:

- **Economic:** Reliable access to electricity can bring underserved consumers into the global market place. Business formation and employment creation can accelerate—particularly in rural areas, where such energy supplies are most likely to be lacking.
- **Social:** Reliable access to modern cooking and heating technologies can liberate women and children from the drudgery of gathering biomass for fuel. Health and education can be improved by reducing indoor pollution from poorly designed stoves, and by providing health clinics and schools with the heat and power needed for uninterrupted service delivery.
- **Environmental:** Deforestation, and the emissions created by burning soft coal and biomass that contribute to climate change, can be reduced by the expansion of low-carbon renewables.

The Sustainable Energy for All initiative

The UN General Assembly in February 2011 designated 2012 as the year of sustainable energy for all. In response, the Secretary-General in September 2011 launched the [Sustainable Energy for All initiative](#), which seeks by 2030 to:

- Achieve universal access to modern energy services;
- Double the rate of improvement in energy efficiency, globally; and
- Double the share of renewables in the global energy mix.

Energy and sustainable development

- 1.3 billion people—one in five globally—lack electricity to light their homes or conduct business. Where power is absent or unreliable, children do not study after dark, food and medicines are not refrigerated, pumps do not move water, fields are not irrigated, and access to the internet is curtailed. As a result, some 780 million people lack access to safe drinking water, and 2.5 billion lack access to modern sanitation services.
- Nearly 40% of the world's population cooks with wood, coal, charcoal, or animal wastes. Indoor smoke and gases kill nearly two million people a year, most of them women and children. The burdens of gathering and preparing these fuels also fall disproportionately on women and children.
- The Intergovernmental Panel on Climate Change and the International Energy Agency estimate that, in order to limit the rise of average global temperature to 2 degrees Celsius, greenhouse gas emissions must peak in 2015 and fall by at least 50% by 2050. Avoiding potentially catastrophic climate risks therefore requires significant reductions in the consumption of fossil fuels—and major increase in the use of solar, small hydro, wind power, and other renewables.
- Thanks to energy efficiency investments, the 21 member states of the International Energy Agency experienced a 21% reduction in energy used per unit of manufacturing output during 1990-2006. Most of these countries recorded significant declines (of 10% or more) in greenhouse gas emissions during this time, while experiencing continuing growth in manufacturing output as well as improvements in human development indicators. Sustainable development is about extending these gains to other sectors and other countries.

The Sustainable Energy for All initiative has developed a global action agenda focusing on 11 areas, in which the initiative's principles are adapted to national conditions. These 11 areas include:

- Modern cooking appliances and fuels;
- Distributed electricity solutions;
- Grid infrastructure and supply efficiency;
- Large-scale renewable power;
- Industrial and agricultural processes;
- Transportation;
- Buildings and appliances;
- Energy planning and policies;
- Business model and technology innovation;
- Finance and risk management; and
- Capacity building and knowledge sharing.

Barriers to sustainable energy for all—and opportunities

A number of “bottlenecks” to achieving these goals—which are also opportunities for development and commercial partners—have been identified. These include:

- **Political leadership** and high-level commitment at the country level to the objectives of sustainable energy for all and to ensure universal access.
- **Realistic, inclusive national energy access strategies** with clear implementation plans.
- **Willingness to bring multiple stakeholders to the table**, for coordinated action and results.
- **Funding mechanisms and financial instruments** to support the universal access to energy services.
- **Robust financial sectors**, willing to lend to the energy sector, to scale up successful projects, and to provide end-user financing.
- **Legal and regulatory frameworks** that encourage pro-poor investments in the energy sector.
- **The active promotion of project/business opportunities** and a consistent deal flow to attract a critical mass of private sector players and financing.
- **Brokering processes** to match actors with specific projects, particularly via public-private partnerships.
- **Robust and effective public utilities.**
- **Strong internal capacity**, potentially supported by global and domestic technical assistance.
- **Efforts to improve the quality, quantity, and availability of timely information.**
- **Potentially conflicting regional and national energy interests.**

National activities to remove these barriers are underway in dozens of developing countries.

What is to be done?

UNDP has for years been working on promoting universal access to modern energy services, energy efficiency, and the expansion of renewable energy technologies with a special focus on the poor. Our support for the Sustainable Energy for All initiative emphasizes:

- Strengthening policy and institutional frameworks for low-emission, climate-resilient development;

Is solar power a “leapfrogging” opportunity for developing countries?

- The cellular revolution has allowed many developing countries to avoid huge investments in capital-intensive fixed-line telecommunications systems. Cellular technologies require less capital, can be deployed faster, and provide a platform from which many other services—from mobile banking to medical advice—can be delivered.
- Solar energy may soon be able to replicate this “leapfrogging” success story. Recent **World Bank** research finds that the cost of generating electricity from photo-voltaic cells has fallen from \$8 per watt of capacity to \$1.70 during the past five years. Because economies of scale in deploying solar panels are much less significant than for large power plants, solar systems do not need large transmission grids—further reducing start-up costs.
- Off-grid solar can be ideal for developing countries with high levels of solar radiation and without well developed power transmission infrastructure, especially in rural areas. For example, in Peru’s Iquitos region along the upper reaches of the Amazon, the provincial government has worked with NGOs to make solar panels, batteries, and compact fluorescent bulbs available to households at costs that are below those of generator fuel.

- Mobilizing resources and expanding financing options for energy sector development—especially in terms of providing access to reliable energy services for low-income households;
- Removing barriers to energy markets especially for low-income households;
- Scaling up innovations in energy service delivery, by combining innovative, sustainable business models with a wide range of energy technologies;
- Aligning the work of the UN system at the national level behind energy programming that integrates the three strands of sustainable development, via the resident coordinator system; and
- Working with a wide variety of partners, at the global and regional levels, at the national level with governments, the private sector and civil society, and at the local level with local governments, businesses, civil society, and local communities.

These initiatives are financed from numerous sources, including government budgets, official development assistance, the [Global Environment Facility](#), foundations, microfinance, as well as via market-based instruments like feed-in tariffs and carbon finance.

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