

PRESSURE POINT

People Power

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Five ways to enable two billion people to turn on the lights, listen to the radio and pump drinking water.

The world has faced energy crises before, but none like the one confronting us today. An overwhelming reliance on fossil fuels is posing grave consequences for the Earth's climate. At the same time, a large fraction of the world's population — over 2 billion people, by some estimates — still lacks access to at least one form of basic energy supply such as electricity, clean cooking fuel or adequate transportation. How can governments help to meet the needs of these people while making the transition to clean, low-carbon energy supplies?

People in the developing world currently consume on average one-sixth of the primary energy of those living in Organization for Economic Co-operation and Development (OECD) countries (primary energy is an original form of energy before refinement or conversion to another form).

The quality of life for many poor households could be greatly improved with a level of energy consumption far below the average of an industrialized country. For many people, access to only a modest amount of electricity means that they will be able to pump drinking water, listen to the radio and read at night.

Basic household services, along with

community activities such as rural clinics and schools, can be provided for with an average of just 50 kilowatt hours (kWh) per person per year (excluding cooking and transportation). Supplying this level of basic electricity to the 1.6 billion people worldwide who lack it would increase global demand by about 80 billion kWh per year. That is just 0.5% of global annual electricity production.

While providing safe, reliable and affordable energy supplies to people, particularly in rural areas, is important, any new energy supplies should also be clean, low-carbon and sustainable.

The environmental challenge is more complex. Emissions from power plants, automobiles, heavy equipment and industry have led to levels of air pollution that routinely exceed the health thresholds set by the World Health Organization (WHO). Indoor air pollution from traditional fuels used for cooking and heating exposes billions of people to significant cardiovascular and respiratory health risks. While greenhouse-gas emissions from developed countries play an overwhelmingly greater role in climate change, the burdens of global warming are likely to fall disproportionately on developing countries. Their participation in efforts to de-carbonize the world's energy systems is essential as a matter of self-interest and for the sake of the planet.

Of the various technologies likely to play a role in a low-carbon future, renewable sources are particularly relevant to developing countries because they are well suited to rural areas where access to the grid is often prohibitively expensive. Most forms of renewable energy have become substantially cheaper in recent decades. In the early 1990s, for example, only hydropower could compete with conventional plants. Since then, wind and geothermal power have become competitive. Solar photovoltaic technology remains expensive but can compete in places the grid cannot reach. It is likely that the cost of all renewable technologies will drop significantly over the next decade given the rate at which this market is expanding.

The challenge for developing countries is clear. Yet what can they do to meet it? Five basic recommendations could help developing countries shift to a path of sustainable energy production.

The first is to accelerate the transition from traditional cooking methods to the use of clean, efficient cook stoves. This might seem like a narrow objective, but it is worth singling out because improved cook stoves offer enormous health and welfare benefits at relatively

low cost. The WHO estimates that exposure to indoor pollution from the use of fuels like wood and dung causes as many as 1.6 million deaths annually worldwide, primarily among women and young children. Furthermore, gathering fuel can cause local environmental degradation.

The second recommendation is to promote energy efficiency. At first blush it seems insensitive to recommend energy conservation for countries that consume so little by global standards. Yet small, incremental improvements in efficiency over time can deliver enormous benefits by making economies less wasteful, more productive and more competitive.

The third task is to reform energy subsidies. Subsidies for fossil fuels still amount to several tens of billions of dollars in developing countries. The justification usually offered is that they help the needy. Wealthier households that consume more tend to benefit the most. Subsidies also undermine attempts to make energy supplies sustainable by distorting the market and encouraging inefficient levels of consumption.

One area where subsidies might be necessary is in developing renewable energy resources — the fourth priority for developing countries. Many developing countries hold great opportunities for renewable energy, but in most cases government support will be needed to make the best of them.

The fifth recommendation is that developing nations seek support from developed countries for the transfer of advanced energy technologies. One potentially promising approach would be to develop regional institutes that could provide training in basic skills to local organizations as well as independent assessments of alternative technologies.

For developing countries, the job of transforming their energy systems is in many ways more difficult than for developed countries. Yet they also have some advantages. They can learn from the past experience of others and, in some cases, can leapfrog directly to cleaner, more efficient technologies. Much will depend on the extent to which developing and developed countries work together on this challenge. When it comes to energy, we are ultimately bound by the same fate. Sharing that fate in ways that benefit us all is in everyone's interest. ■

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