

TIME IS NOW FOR TRANSITION TO SUSTAINABLE ENERGY FUTURE

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Among the landmark issues affecting the health of the blue planet in 2015 is whether the fracking boom will be leveraged to develop sustainable energy resources for the long run. The trajectory of climate change depends on it. The ability of the United States to increase oil production by approximately 1 million barrels per day during the past several years — causing it now to exceed the production of Russia and even Saudi Arabia — has given an economic boon to the nation, dropped the price of oil and reshuffled geopolitical priorities. This window of opportunity must be put to good use.



As the United States rapidly approaches energy independence, the critical, strategic role once played by the Middle East as a source of crude oil has waned. OPEC's recent decision to maintain production levels allowing oil prices to slide was motivated by the fact that cheap oil will improve global demand and modestly slow increases in the rate of U.S. production year on year.

OPEC's alternative — to drop production and raise prices in the near term — would only have accelerated the increase in American oil production and resulted in both reduced global demand and a smaller market share for OPEC. The debate is how low prices can go before fracking becomes unprofitable.

Although it costs more than simple drilling, technology continues to improve. There is a range in the cost of production depending on geology, the quality of what is being extracted and distance from distribution networks. However, even in North Dakota's Bakken shale region, by some estimates, the break-even point is now under \$42 per barrel.

In addition to crude oil, fracking also produces immense volumes of natural gas. When burned, natural gas is cleaner and releases fewer greenhouse gases but it is still not a sustainable fuel and, like crude, is still a cause of global warming. The fracking process uses large amounts of fresh water and often occurs in places where the water table is limited. When mixed with chemicals to crack open the earth's crust, it also carries the possibility of contaminating groundwater deep beneath the surface. The potential for geological instability is a further concern.

The two principle beneficiaries of cheap oil are the U.S. and, especially, China. By contrast, Venezuela, Iran and Russia are among the most vulnerable. A sustained, severe drop in oil prices could result in substantial instability that is hard to predict.

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In any case, progress toward international agreement on global reduction of greenhouse emissions is moving ahead slowly. As part of an agreement with Xi Jinping of China in November, President Obama announced that the United States would emit 26 to 28 percent less carbon in 2025 compared with 2005 levels. In turn, China pledged to reach peak carbon emissions no later than 2030 by investing in clean energy sources, like solar power and windmills, that would account for 20 percent of China's total energy production by that time.

The United Nations Climate Change Conference last month in Lima resulted in modest incremental progress, but the greatest challenge continues to be the divide between wealthy, developed nations and the more populous developing economies.

The next one will be held in Paris this year. The conference objective is to achieve a legally binding and universal agreement on climate, from every nation. A tall order.

Back at home an early debate is heating up on the proposed \$4.3 billion acquisition of Hawaiian Electric Industries by NextEra. The press release reads, "Nation's leading clean energy company to support Hawaii in achieving a more affordable clean energy future," but some are not so sure.

In any case, the respite in oil prices and America's fast-approaching energy independence is an opportunity to transition to more affordable, sustainable and renewable energy. It must not be squandered. Profits must be directed toward research and development and robust government incentives that result in a smarter, smaller carbon footprint.