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# Implications of a Low-Carbon Future

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**THE WORLD RELIES HEAVILY ON FOSSIL FUELS TO MEET ITS ENERGY NEEDS, AND THE DEVELOPMENT AND TRADE OF THOSE FUELS HAS INFLUENCED RELATIONSHIPS AMONG COUNTRIES THROUGHOUT MODERN HISTORY.** Most reasonable projections of the next several decades anticipate that the role of coal, oil, and gas will be maintained but lose market share to lower-carbon energy sources like wind, solar, nuclear, and greater efficiency.

Despite the continued role for fossil fuels, the push for greater reliance on lower-carbon energy sources has made progress since it began in earnest several decades ago. Nearly \$318 billion was invested in new clean energy sources around the world last year, up from \$60 billion in 2004. Nearly half of this investment took place in large developing economies, particularly China but also Brazil, India, and South Africa.

The policies that promote low carbon energy are spreading as well. According to the United Nations, 39 percent of countries accounting for 73 percent of the world's population and 67 percent of green-

house gas emissions are covered by some sort of climate law or strategy, many of which include support for low-carbon energy. While trade in low-carbon energy sources is still far behind the volume or value of traded fossil energy, investment in nonfossil power generation capacity surpassed that of new fossil-based electric power in 2014, and the supply chains involved in low-carbon energy technology development are global in nature.

Even though the world remains far away from the stated international targets of deep de-carbonization and atmospheric stabilization, the push to create low-carbon economies—societies that function and flourish using low-carbon energy sources—is slowly reshaping the geopolitics of energy in ways reflected outside trade and investment flows.

*Pushing against Barriers between Developed and Developing Economies*

Take one look at the UN Framework Convention on Climate Change (UNFCCC), the main body for climate change negotiations, and it is clear the world is divided into multiple and overlapping blocks of countries with shared and divergent agendas. What was once an organization divided into rich and poor country blocks is now much more complex.

While the developed and developing country divide still prevails, countries are united by a wide array of shared interests such as carbon market mechanisms, fossil-fuel subsidy reform, climate change loss and damage claims, technology transfer agreements, climate finance arrangements, and many more issues. The UNFCCC is indeed saddled with the burden of including every country on Earth, which makes progress difficult to achieve, but it also fosters new alliances that reflect the viewpoints on every side of climate debate and bolster cooperation among previously disconnected groupings of countries.



### *Linking Subnational and Supranational Elements*

Low-carbon energy deployment is facilitated by a combination of policies, investments, and technological advancements. Traditionally those enabling environments have been the purview of national-level governments. In recent years, however, the drive for more rapid diffusion of low-carbon energy sources is driven by a mass diffusion of efforts from the international and national governance structures to subnational and nongovernmental actors.

Today, pressure to act on climate change is not entirely or even mostly an effort led by national governments. States, provinces, local communities and representatives from different sectors of the

economy have banded together to reduce emissions and adapt to a changing climate.

At the supranational level one need not look farther than Pope Francis's encyclical and the statements made by other religious leaders to see how the calls for low-carbon energy development are intended to transcend national and even religious boundaries.

These sub and supranational aspects of the push for low-carbon energy and action on climate change give a multidimensional nature to the climate change issue much like other transnational issues that national governments are working to address.

### *Factoring into Global Institutions and Alliances*

In under a decade climate change has come to

be incorporated into nearly every major international energy, environmental, development, and economic institution. The G-20 has provisions on fossil fuel subsidy reform, energy market transparency and climate finance. The World Bank now takes carbon emissions into consideration when funding energy and infrastructure projects. Recent high-level, bilateral and multilateral gatherings both including and not including the United States have featured cooperation on climate change and low-carbon energy as major points of agreement and future cooperation.

gy alleviates many of the world's more problematic geopolitical dynamics—like the perennial fight about natural gas between Russia and Ukraine, the need for the United States to be involved in regional conflicts in the Middle East, and tension between the United States and a rising China.

Low-carbon energy can assist by providing greater supply diversity and identifying areas of common ground, but it does not directly resolve any one of those issues. Moreover, the policies used to foster low-carbon energy sources may create

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The strategic objectives of these organizations and alliances are subordinate to domestic political and economic priorities, but in many cases low carbon energy has become a priority in those domestic contexts as well. The impetus for low-carbon energy promotion varies within each of these countries and institutions. For many countries the low-carbon nature of energy is second to the local pollution abatement benefits. For others, low-carbon energy represents an area of economic and technological competition. No matter the driver, low-carbon energy and climate change issues have taken on a new level of inclusion and importance in global institutions and multilateral initiatives.

### *The Bumpy Road Ahead*

Folks who are sympathetic to the climate cause may be inclined to believe that low-carbon ener-

some new geopolitical tensions of their own. The starkest example is the prospect for border tariff adjustments that could eventually be imposed to level the playing field between countries with and countries without effective carbon regulation.

The push toward low-carbon energy is likely to intensify as the climate community seeks greater ambition of effort and deeper mitigation commitments over the next 10 years. This will continue to reshape investment and energy trade flows within the context of other global energy and economic trends. The movement to foster these changes will also influence geopolitical alignments in subtle but important ways. □