

# The Peculiar Politics of Energy

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Imagine that you could wave a magic wand and provide everyone in the world with easy access to clean and affordable energy. In one stroke you would make the world a far cleaner, richer, fairer, and safer place. Suddenly, a billion and a half of the world's poorest people could discover what it is like to turn on an electric light in the evening. The looming threat posed by climate change would largely disappear. From the South China Sea to the Middle East to the Arctic, geopolitical tensions over energy resources would fade away. Human health would benefit, too, as vaccines and perishable foods could be refrigerated the world over. And many of the world's most corrupt government officials could no longer enrich themselves by bleeding their countries dry of revenues from fossil fuel sales.

It may seem implausible that improving the performance of a single sector of the global economy could by itself have such extraordinary benefits, until we consider how central the energy sector is to the global economy. Energy is the means by which all else happens. The Industrial Revolution was, in essence, a transformation from economic systems reliant on human and animal power to ones based on far more concentrated forms of power. As the Nobel economics laureate E. F. Schumacher noted, energy as we understand it today is “not just another commodity, but the precondition of all commodities, a basic factor equal with air, water, and earth.”<sup>1</sup>

This centrality makes the provision of energy services a matter of basic distributive justice, which the world is failing to achieve. And the dysfunctional means by which energy services are currently provided raise a host of additional ethical dilemmas, imposing heavy environmental and social costs on those who benefit least from such energy services and who are least able to cope with such costs.

There is nothing inevitable about the current situation. It would not be technologically impossible to transform the energy sector into one that does a much better job of meeting energy needs without imposing such great costs. A plethora of

credible reports and road maps show ways to apply existing technologies and quickly develop new ones that can dramatically improve the global energy system.<sup>2</sup> And in a wide range of global agreements, declarations, standards, and codes the world's governments have largely agreed that what is needed is an energy system that simultaneously achieves four goals:

- Energy security
- Alleviation of energy poverty
- Environmental sustainability, particularly but not only related to climate change
- Good domestic governance free of high levels of corruption<sup>3</sup>

The means to achieve these goals are not yet in place, due to widespread and deep-rooted failures of energy governance at both the national and global level. This essay will examine the problems created by those governance failures, explore why the failures persist, and investigate new governance approaches that exploit a variety of potential points of leverage that could help transform the existing energy system.

## THE PROBLEMS

An extraordinary array of the world's most pressing problems flow from the current entrenched and dysfunctional energy system. Governments, businesses, and citizens alike tend to focus on the short-term imperative: to get enough energy supply, now, to keep our highly fossil fuel-dependent economies functioning and growing. This goal is generally referred to as "energy security," defined as reliable and affordable access to energy supplies. Such a goal does not begin to address the environmental and distributional issues. But even if energy security, defined in these narrow terms, were the sole appropriate goal, the current global energy system creates major problems for both military security and economic prosperity.

Fossil fuel sources, particularly oil, are not equitably distributed around the globe. Oil in particular is concentrated in a relatively small number of countries, many of which are considered unstable and most of which control their oil exports via state-owned companies. Oil still accounts for roughly a third of the primary energy supply worldwide, and transportation systems everywhere remain overwhelmingly dependent on petroleum-based fuels. It is also, importantly, the

energy source most relevant to national security, critical for fueling the movements of modern military forces. Substitutes for the convenience and high-energy “punch” of liquid oil have been hard to come by in the transport sector.

Data about the true extent of proven oil reserves is murky at best, and new discoveries have been announced from Myanmar to Brazil, so questions about how much oil will actually be available on global markets and at what prices are difficult to answer with confidence—and this uncertainty creates pressures on consuming countries to ensure that they continue to enjoy access to oil. In addition to the all-too-familiar regional and geopolitical conflicts that have wracked the Middle East over many decades, exacerbated in no small part by that region’s large share of global oil and gas deposits, we are also seeing what may be the beginning of new geostrategic jockeying over energy resources in the South China Sea.<sup>4</sup> In that region, China is embroiled in disputes with a half dozen Southeast Asian states over conflicting territorial claims to energy-rich areas, with the United States weighing in on behalf of the Association of Southeast Asian Nations states. Additionally, increasing ice melts have triggered a new scramble for resources in the Arctic as well—a scramble that may extend to any part of the global commons where energy resources exist but are not yet clearly owned.<sup>5</sup>

A second problem stems from the vulnerability of the infrastructure that transforms fossil fuels into useable power. That infrastructure is highly centralized, tightly coupled, and easily disrupted by causes both innocent and malign.<sup>6</sup> As leading energy analyst Daniel Yergin warned more than fifteen years ago in discussing this infrastructure’s vulnerability to deliberate attack,

In the United States alone, there are more than 140 refineries, 4,000 offshore platforms, 160,000 miles of oil pipelines, facilities to handle 15 million barrels of oil a day of imports and exports, 10,400 power plants, 160,000 miles of high-voltage electric power transmission lines, and 1.4 million miles of natural gas pipelines. None of the world’s complex, integrated supply chains were built with security . . . in mind. . . . The challenge of energy security will grow more urgent in the years ahead, because the scale of the global trade in energy will grow substantially as world markets become more integrated. Currently, every day some 40 million barrels of oil cross oceans on tankers.<sup>7</sup>

A third threat to this traditional notion of energy security comes from oil’s rising and extraordinarily volatile price. It is the energy commodity most traded across borders and is often the benchmark for natural gas prices (although recent growth

in available natural gas resources, particularly in the United States, is attenuating that link).

The high oil prices of the past decade largely reflect structural changes in the global economy that portend long-term increasing demand coupled with the likelihood of more expensive sources of supply. Global demand has grown sharply as the emerging market economies continue to follow fossil fuel-based models of economic growth. On the supply side is the unpleasant fact that the world has already extracted and burned a large share of the oil that is easily and therefore cheaply extracted. What is left lies offshore (often *deeply* offshore), exists in the form of tar sands, or for other reasons is much more expensive to access than the conventional oil sources that fueled the twentieth century.

Price volatility reflects not only the ups and downs of economic demand but also the unpredictability of a large number of major producers, among them Iran, Iraq, Libya, Nigeria, and Venezuela. That volatility threatens energy security not just in the short term when prices peak and make energy less affordable, but also over the longer run. Oil prices ranged from \$30 to over \$140 a barrel in the past decade. Such sharp swings make planning for future energy supplies very difficult. Investments aimed at developing energy supplies, whether fossil-based or renewable, generally require long-term planning that must take into account projections of future oil prices. Efforts to develop commercially competitive alternatives to oil may make sense if the price of oil is projected to be above a threshold amount, but not otherwise. This is what makes questions of fossil-fuel supply security directly relevant to the development of renewable energy alternatives—that is, investors demand a reasonable degree of predictability regarding the high price of fossil fuels before they are willing to risk their money on “green” alternatives.

In short, energy security, in its conventional meaning of affordable and reliable access to energy supplies, is not provided effectively by the existing global energy system. And it has long since been clear that this conventional definition is inadequate, as it fails to include a third key component: the sustainability of that access. An energy system that warms, cools, lights, and transports us in the short term but threatens to massively disrupt human civilization in the slightly longer term is not a system that can be considered secure. Some two-thirds of the greenhouse gas emissions contributing to global climate change come from energy, via the burning of fossil fuels that releases carbon dioxide into the atmosphere. To date, despite numerous promises and pledges, there is little sign of

large-scale, intensive efforts to decarbonize the energy sector in the ways needed to prevent global warming of more than 2 degrees Celsius—a figure widely agreed to be the maximum safe level of warming above the preindustrial global temperature. As the well-regarded International Energy Agency (IEA) has been saying with increasing desperation in its annual *World Energy Outlook*, we have already committed ourselves to almost all of that warming. Power plants and factories last a long time, and existing facilities already ensure that emissions will reach at least 80 percent of the total that risks bringing about a 2 degree rise. In 2011 the IEA warned that planned construction in the next five years will cause us to cross this threshold unless those new facilities are switched to low-carbon technologies—something that does not appear to be part of most countries’ plans.<sup>8</sup>

As a recent article in *New Scientist* pithily summarized:

The reality is that the 2 degree Celsius target is technically and economically feasible, but politically impossible. Saleem ul Huq of the International Institute for Environment and Development says that countries would have to go to a war footing to do it. He compares the situation to the Second World War, when nations like the U.K. transformed their economies to deal with an overwhelming threat. This single-minded commitment can work miracles, but no country has any such plans.<sup>9</sup>

Although fossil fuel proponents often argue that we cannot decarbonize quickly because the world’s poor deserve the relatively cheap energy services that the rich already enjoy, the current global energy system actually fails to reach the poorest of the poor. Economic poverty is frequently due to and/or indistinguishable from energy poverty—that is, the lack of access to modern power sources. The 1.4 billion people who rank as the world’s most destitute cannot access electricity from any source. This means that they cannot do something as simple as carry out chores that require vision once the sun goes down. An even larger number, some 2.4 billion, cook and heat their homes with traditional, dirty forms of “biomass” fuels, severely threatening their health. Indeed, the particulates from such indoor burning kill an estimated 2.5 million people a year.<sup>10</sup> Finding a way to provide energy access for the poor without exacerbating the environmental crisis (from which the poor suffer disproportionately) is one of the great challenges of our times.

The modern energy system is a dirty business in the metaphorical as well as the literal sense. The correlation between oil wealth and bad government is so strong that it has become known as the “resource curse”: when oil revenues flood in, few

government officials fully resist the temptation to pocket the cash rather than invest the proceeds in their countries. Multinational corporations risk becoming complicit when they contract with governments in these countries. The extractive industries obviously must go to where the resources are located, and they are sometimes accused of colluding with corrupt officials. Transparency International's "Bribe Payer's Index" has ranked the oil and gas sector as the fourth worst sector (out of nineteen) for bribing public officials.<sup>11</sup> Moreover, extractive industries such as oil are frequently accused of complicity in gross human rights abuses.<sup>12</sup>

## THE CAUSES

Humanity did not set out to create an energy system with such flaws. The system exists in its current form as the result of a huge array of largely uncoordinated choices made over the past century and a half, most of them made with the very good short-term result of demonstrably improving the quality of life. Life with the kinds of services made possible by modern energy is clearly much better than life without them. The benefits are immediate and widespread. The costs have only slowly become apparent.

But apparent those costs have indeed become, leading to a great deal of talk about the need for an energy "transition" from carbon-intensive, dirty, insecure energy sources provided through vulnerable centralized systems to cleaner, safer, and more secure ones. That talk, however, has yet to be met by action on any significant scale. Why is something that is so desirable not happening—or at least not happening much faster? Is it in fact possible to have the benefits of modern energy services without such high costs? Is energy justice even within our grasp?

The short answer is: yes. But it is important to acknowledge that no known or readily foreseeable energy technology will be free of all social and environmental costs. The initial excitement over carbon-neutral biofuels (crops that absorb carbon dioxide while growing, then release it when they are burned for energy) has given way to concerns about deforestation when land is cleared for those crops and about their competition with food crops needed to feed the world's growing population. Nuclear energy's twin dilemmas of proliferation risks and potential environmental damage are well known. Hydropower's large dams displace large numbers of people and can wreak havoc on local environments. Even the

apparently greenest energy sources are not perfect. Solar photovoltaic cells and the batteries needed to store their energy both contain toxic materials. Wind turbines are often produced by non-green processes.

But although the magic wand to create clean and affordable energy may not exist, existing and near-term technologies to move the world much further toward a sane energy system certainly do. The International Energy Agency's biennial *Energy Technology Perspectives* lays out scenarios and road maps for necessary policy changes and plausible technological developments that could bring about very substantial progress.<sup>13</sup> Numerous scholarly and policy publications show that a wide range of reasonable technological options in fact exists.<sup>14</sup> And, as will be discussed below, some quite important efforts are indeed under way to deploy existing technological alternatives and to develop new ones. However, these steps are nowhere near adequate to deal with the range of security, environmental, and social issues outlined above.

Why are we not seeing a more rapid transition? The world's energy system is in many ways counterproductive because of the way energy is governed. The rules for producing, processing, transporting, and deploying energy sources have grown up piecemeal around individual fuel sources, not in a rational process about how to provide energy services. At both the national and the international level, energy governance is badly flawed.

There are two types of problems with energy governance at the national level. First, almost no country has a coherent and sensible energy policy implemented by a well-designed set of institutions. Instead, there are such situations as that in India, which has five distinct energy ministries divided up by fuel sources. Thus, there is a coal ministry, a renewables ministry, and so on—but no institutionally effective system to produce a coherent overall energy policy.<sup>15</sup> Dividing up energy governance by fuel source in such ways makes little sense. No country needs any particular fuel source—it needs energy services—and as long as the services are provided without undue costs, there is no rational basis for preferring one source to another. The standard practice of focusing on particular fuel sources creates bureaucratic turf wars that make coherent energy policy all but impossible.

Other countries do have energy ministries or other central bodies whose role should be to create coherence, but they rarely have the necessary institutional clout. China, now the world's largest energy consumer,<sup>16</sup> has a coordinating body—not even at the level of a ministry—that lacks the bureaucratic power and resources to rein in other parts of the government or the state-owned enterprises

that are setting up energy deals around the world.<sup>17</sup> In the United States, the Department of Energy is currently headed by people with a strong progressive vision as to the direction in which U.S. energy policy ought to go, and they are having some degree of success. But that success is sharply constrained by the nature of the American political system, which has allowed vested interests in various traditional energy industries to hold sway, and which is preventing serious attention from being given to the country's aging and dilapidated energy infrastructure. In these and other cases, the multifaceted policy domains of energy—from securing sea lanes for oil shipments to providing clean energy to destitute villagers—are addressed, if at all, in separate bureaucratic silos.

## GLOBAL GOVERNANCE

Things are no better at the international level, where a great deal of cross-border rule making is needed but is not occurring. Traditional energy security based on fossil fuels requires that international oil and natural gas markets—and, increasingly, coal markets—function reliably, but these markets are notorious for their opacity. International trade rules and policy need clearly to forbid subsidies to the wrong kinds of energy systems and simultaneously promote any needed subsidies to the right kind.<sup>18</sup> Transitioning to a low-carbon energy future will require massive investments in the development and widespread deployment of new technologies and their associated infrastructure, a feat that will necessarily involve new partnerships across financial actors in many countries. Internationally, there is no overarching framework within which key actors regularly come together to talk about the full range of priorities, and little effective discussion about how to transition to a more desirable and sustainable energy future. The existing global energy governance framework is, not coincidentally, just as fragmented and incoherent as the national governance systems upon which it rests.

The term “global governance” often has people immediately thinking about a “global governor” or even a “global government”—a single organization tasked with setting and enforcing the rules. No such entity exists for most issues on the international agenda, and one certainly does not exist for energy. The International Energy Agency is the closest the world currently comes to a comprehensive energy organization, but it is far from being an energy agency for the world.<sup>19</sup> The IEA was set up in 1974 by what were then the world's major oil-consuming countries in North America and Europe, and by Japan, under the



auspices of the Organisation for Economic Co-operation and Development in Paris. Essentially, it was the response of oil-consuming countries to the price hikes imposed by the newly invigorated producers' cartel, the Organization of Petroleum Exporting Countries (OPEC).<sup>20</sup>

Under the terms of the treaty that established the IEA, its member countries all agreed to create oil stockpiles equivalent to sixty days (later raised to ninety days) of net oil imports that could be drawn upon in case of disruptions to global oil supplies. The agency's initial purpose was to coordinate its members' actions in drawing on those stockpiles, a task that the agency has continued to fulfill as recently as 2011 in response to the conflict in Libya. However, the founding agreement also called on the agency to play a broader set of roles, which have also been expanded over time to make the IEA the world's leading source of energy statistics, a key interlocutor on energy policy and technology options, and one of the few places in the international system where any effort is made to think systematically about how to achieve the goals of the competing priorities for global energy governance.

As of 2012, the IEA has found itself in a somewhat peculiar position. Although known for its technical competence in a wide range of energy issues, it remains a tiny agency, with a staff of less than 250. Shifts in oil consumption (and particularly the rise of China and India as consumers) mean that a very large percentage of consumption is now happening in countries that are not part of the IEA system of managed stockpiles and that have shown little inclination to join. Although the agency, starting in 2005, has become the most important source of expertise on climate change for the G-8, the G-8 has largely been superseded by the G-20, whose membership overlaps much less with that of the IEA. All this leaves the IEA as a key actor in global energy governance, but one with a somewhat uncertain future.

In terms of managing global oil trade, one obvious approach would be for the producing and consuming nations to get together and agree on at least some arrangement for increasing transparency and for stabilizing prices. Volatile prices are as disruptive for producers as they are for consumers. The existence of a producers' organization and a consumers' organization—OPEC and the IEA—would seem to make it relatively straightforward for the two sets of countries to deal with each other. But of course nothing in global politics is straightforward.

For the first two decades of the IEA's existence (OPEC was established a decade earlier), the two organizations did not interact. That changed, however, in the

early 1990s. After the 1991 Gulf War, the IEA brought together technical experts from both importing and exporting countries in a series of conferences. These conferences evolved into the International Energy Forum (IEF), a biennial meeting of energy ministers that became an organization with a secretariat based in Riyadh, Saudi Arabia, and a membership that extends well beyond the memberships of the IEA and OPEC. The IEF has not, clearly, solved the problem of oil price volatility, although it has made a bit of progress toward increasing the transparency of the oil sector via the Joint Oil Data Initiative.

The IEF is just one attempt out of a large and growing number to close some of the gaps in global energy governance. Another such attempt is the International Renewable Energy Agency (IRENA), which was established in 2011 (largely at German instigation) to bring together the world's governments and many other stakeholders in support of renewable energy. IRENA is one of the very few formal intergovernmental organizations to be created in recent decades. As of 2012, some ninety-two governments (plus the European Union) are members, with another sixty-five on their way in, making IRENA far more representative of the international community than the twenty-eight-member IEA.<sup>21</sup> But IRENA is new, untested, and small—its 2012 Work Programme proposes a budget of just \$28.4 million and a total staff of seventy-two.<sup>22</sup>

Other initiatives aim to push large users of energy services to behave differently, and to demand cleaner and more sustainable forms of energy, often through innovative uses of disclosure and transparency.<sup>23</sup> The Carbon Disclosure Project, for example, has brought together several hundred large institutional investors to query companies on their carbon emissions in an attempt to push them to pay attention to, and reduce, those emissions. The Carbon Monitoring for Action (CARMA) program of the Center for Global Development focuses on estimated carbon emissions from power plants around the world, publishing those estimates in a database that ranks the facilities by their emission levels. Stock markets are increasingly asking, and in some cases requiring, companies that list with them to report on their social and environmental impacts. While all of these initiatives are in relatively early stages and must overcome serious methodological difficulties related to acquiring and reporting the relevant information, their growing prominence indicates that disclosure-based governance systems are likely to be a significant part of the strategy for improving global energy governance.

The desire to reduce corruption in the energy system has also spawned numerous experiments in global governance. The Extractive Industries Transparency

Initiative (EITI), for example, grew out of a British proposal at the 2002 World Summit on Sustainable Development in Johannesburg, South Africa, that both the extractive industries and governments should publicly disclose audited statements of the payments these firms make to governments. The EITI is up and running, although there is much debate about its efficacy.<sup>24</sup> The United States and the United Kingdom have both taken unilateral steps aimed at increasing transparency in the sector to counter corruption, and the European Union is considering similar rules.<sup>25</sup> Recent years have also seen increased attention to the need to extend energy services more equitably so that they reach the poorest of the poor. The United Nations General Assembly has designated 2012 as the International Year of Sustainable Energy for All,<sup>26</sup> a step intended “to raise awareness about the importance of increasing sustainable access to energy, energy efficiency, and renewable energy at the local, national, regional and international levels.”<sup>27</sup> All of this adds up to small-scale and piecemeal approaches. In short, the current system of global energy governance is a mess, with many actors, many priorities, little coherence, and limited effectiveness. The fitful progress seen to date demonstrates the feebleness of the governing institutions and the strength of vested interests and entrenched habits. But that progress, however fitful it may be, does at least provide a basis for moving forward. To look for ways to accelerate the energy transition, one promising approach is to obey the journalists’ rule of thumb: follow the money.

## POINTS OF LEVERAGE

The IEA now estimates that the world will need to invest \$26 trillion simply to meet market demand for energy out to 2030, and these estimates keep rising as global energy demand continues to rise. Notably, these figures do not take into account the steps needed to shift to low-carbon energy—which the IEA thinks will require an additional \$10 trillion—or the additional energy infrastructure needed to bring energy services to the world’s poor. Given that global gross domestic product in 2011 was roughly \$70 trillion, energy investments will clearly continue to be a very significant share of global economic activity.<sup>28</sup> Deciding where that money may come from and what energy systems to invest in provides policymakers with potentially enormous points of leverage to change the direction of the global energy system.

National governments will clearly play key roles in directing such new energy investment within their own countries, and they have many tools available to

channel investments in socially desirable directions. They can act directly via tax provisions, regulations requiring or forbidding certain behaviors, and subsidies (which currently primarily support fossil fuels and nuclear power, although there is some subsidy of green energy as well); they can set rules around “inward” investment, setting standards for the foreign investments that will be allowed in their countries; they can structure their electric utility sectors and set rules for power purchase agreements. All these actions already occur to some degree, but not necessarily with either the intention or the result of constituting a coherent, rational set of policies aimed at bringing about a coherent and rational energy transition.

Much of the money, however, will cross national borders, and thus we must think about global as well as national points of leverage. Sources of capital in one part of the world invest in energy services and energy supplies in other parts of the world. If large quantities of cross-border finance need to be raised for energy, that provides an excellent opportunity to think about how to invest those funds intelligently, rather than simply to build on the systems that are already in place. This draws our attention to a number of actors not usually thought of as “global governors”: the funders, investors, and government regulators who shape how this money gets invested.

Funding for energy projects is shaped by both public sector entities and through a host of private actors.<sup>29</sup> On the public side, the most important actors are the export credit agencies of national governments and the intergovernmental multilateral development banks, such as the World Bank and the Asian Development Bank.

Export credit agencies (ECAs) are potentially among the best points of leverage for shifting energy investments in new directions.<sup>30</sup> The job of a national export credit agency is to help companies from that country to invest or export abroad. Investors tend to be nervous about such long-term projects as oil fields or coal mines, with their high up-front costs (particularly in relatively unstable or unpredictable countries), without some means of at least partially recouping their expenses should something go wrong. An export credit agency helps to provide such a guarantee. Most major economies have export credit agencies as mechanisms for supporting their national business communities. But the rules by which these agencies act do not take into account larger questions of the long-term public interest, particularly in the energy realm, where the definition of that long-term public interest is not widely agreed upon. Export credit agencies support massive cross-border investment flows for energy projects, but few make much effort to

ensure that those investments are sustainable in any sense other than the short-term economic one. There is no inherent reason, however, why export credit agencies could not apply such guidelines as to the types of energy projects they will support.

The multilateral development banks loan money to member governments for a wide variety of purposes, including the development of energy sources ranging from coal plants to hydropower dams.<sup>31</sup> But the banks, whose members include both rich and poor countries, find themselves caught between the competing priorities of those member governments. The World Bank, for example, is under pressure from the rich country governments, particularly the Europeans, to support the transition to a low-carbon energy system. Other member governments, including China and India, are pressing hard for project loans to support more traditional energy resources so that they can quickly meet their rapidly escalating domestic energy needs. These countries are primarily concerned with providing energy for economic growth and with ending energy poverty. They argue that such issues as climate change are the responsibility of the rich countries that developed—and continue to sustain—their economies by merrily burning massive quantities of fossil fuel. And, unfortunately, the easiest and cheapest source of energy in many developing countries, including both China and India, is coal—the dirtiest of such fuels. As a result, the World Bank is simultaneously supporting large fossil fuel projects in many parts of the world while also trying to pressure the recipients of its loans to focus on clean energy sources. By and large, most energy loans from the multilateral development banks still overwhelmingly favor fossil fuels.

Nonetheless, the World Bank has had some positive influence on the rules that influence large-scale private lending. In June 2003, ten of the world's largest private banks launched a set of operational standards known as the Equator Principles, which are voluntary standards for project financing to manage the environmental and social impacts of loans to large development projects. The Equator Principles are based on the Safeguard Policies developed at the International Finance Corporation, the private-sector lending arm of the World Bank.

In addition to these established agencies, a number of new partnerships have emerged in recent years to push the global energy system in a different direction. For example, some groups of governments are making progress on cross-border coordination around clean energy. The annual Clean Energy Ministerial, first convened in 2010 at U.S. instigation, has brought together not only energy ministers

but an increasing number of heads of state and other leaders to develop and promote significant and specific initiatives.<sup>32</sup> The third ministerial, in April 2012, included such steps as:

- the Super-efficient Equipment and Appliance Deployment Initiative, which aims to save consumers more than \$1 trillion in energy costs over the next two decades;<sup>33</sup>
- a U.K. pledge of more than \$100 million to promote carbon capture, use, and storage in developing countries;
- a Danish-German-Spanish initiative for an online global renewable energy atlas; and
- a U.S.-Italian initiative, Lighting India, to bring modern lighting services to some 2 million people in India within three years.

Although the money for these initiatives is still coming largely from the United States and Europe, the next two ministerials will be held in Asia—in India in 2013 and in Korea in 2014.<sup>34</sup>

## WHAT NEXT?

Overall, the gaps in global energy governance still loom larger than the initiatives that aim to fill them. One possible approach to filling those gaps is to look at other global governance arenas to see whether energy-related issues can be addressed there. Trade would seem an obvious candidate, but to date there are few trade-related energy rules that can help to resolve energy conundrums. The Doha Round of trade negotiations did include talks on energy services, but the Doha Round has died and is unlikely to be resurrected anytime soon. Many countries have recently joined, or are about to join, the World Trade Organization, and thus will be subject to WTO trade rules. These new members include a large number of major energy exporters, whose possibly WTO-illegal quantitative restrictions on energy exports may now become an issue. WTO rules also affect what subsidies member countries can apply to their industries, raising questions about whether “perverse” subsidies that support fossil fuels may come under fire, but also whether subsidies to green energy ventures may be affected. Given the lack of progress on global climate negotiations, the European Union is looking at the potential use of trade barriers against countries that fail to adopt effective climate policies, which could set the stage for a

significant confrontation between advocates of free trade and those privileging a more robust climate policy.

Within all the dysfunction and uncertainty in global energy governance, there are also a number of creative experiments and explorations under way. One possible type of solution to our broken system of global energy governance is partnerships involving many disparate but relevant actors, including the whole array of organizations described throughout this essay, plus others, such as sovereign wealth funds and private foundations. These actors could mobilize capital to invest in the sustainable energy systems the world now needs. Numerous such partnerships already do exist, including the Renewable Energy and Energy Efficiency Partnership (REEEP), headquartered in Paris, although these hybrids are operating at far too small a scale to bring about a significant and rapid transformation.

## CONCLUSION

The world remains firmly on an unsustainable and dangerous energy path, and the challenges to improving the situation are massive. Somehow, we must simultaneously achieve peaceful energy security for all, eliminate energy poverty for well over a billion people, cut greenhouse gas emissions to stem climate change, design infrastructure that can withstand the climate impacts that are already inevitable, reverse the massive degradation of the planet's ecosystems, mobilize tens of trillions of dollars in new investments, and channel those investments in the right direction.

As daunting as that agenda undoubtedly is, it is not hopeless. There are many points of leverage that could be used to push energy policy in new directions. Governments could require their export credit agencies to develop more stringent standards concerning the types of energy investments they will support, or the export credit agencies could agree on new standards themselves. Investors, many of whom have already supported such undertakings as the Carbon Disclosure Project, could push the business community much harder to drastically reduce energy consumption. Leading businesses, in turn, could use their leverage with governments to push for stricter global standards. And individuals could do a great deal of good by demanding—and paying for—green energy options from their utilities and energy-efficient products from businesses, as well as by voting for leaders prepared to move the world onto an energy path that serves the public good.

## NOTES

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- <sup>2</sup> See, e.g., International Energy Agency, "Tracking Clean Energy Progress: Energy Technology Perspectives 2012 Excerpt as IEA Input to the Clean Energy Ministerial"; [www.iea.org/publications/freepublications/publication/Tracking\\_Clean\\_Energy\\_Progress.pdf](http://www.iea.org/publications/freepublications/publication/Tracking_Clean_Energy_Progress.pdf).
- <sup>3</sup> For a detailed analysis of the objectives of global energy governance, see Navroz K. Dubash and Ann Florini, "Mapping Global Energy Governance," *Global Policy*, Special Issue 1 (2011), pp. 6–18.
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