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Mapping Global Energy Governance

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Abstract

The challenges inherent in energy policy form an increasingly large proportion of the great issues of global governance. These energy challenges reflect numerous transnational market or governance failures, and their solutions are likely to require a number of global components that can support or constrain national energy policy. Governing energy globally requires approaches that can simultaneously cope with three realities: the highly fragmented and conflictual nature of the current inter-state system's efforts to govern energy; the diversity of institutions and actors relevant to energy; and the dominance of national processes of energy decision making that are not effectively integrated into global institutions.

Policy Implications

- The lack of clarity on and priorities for the objectives of global energy governance impedes coordination and communication.
- The energy landscape is littered with governors and institutions. But because they have emerged in a path-dependent fashion, often in response to serial crisis, the result is an uncoordinated and inchoate landscape. There is now a compelling need to harness this diversity productively.
- An emergent array of partnerships and networks are coming together, particularly with regard to clean energy finance, which provide possible sources of governance innovation but also have the potential for low levels of legitimacy and transparency.
- National decision making continues to drive energy policy, in ways that are poorly coordinated both internally and with regard to global processes of governance. National energy policy processes need enormous improvement and need to be consciously coordinated with global processes. The Asian giants will be crucial actors in this regard.

Why energy is a global governance challenge

Although energy-related policy issues frequently dominate headlines, energy remains a surprising outlier in global governance debates. In the vast literatures on the shifting tides of globalization, the complexities of managing an increasingly multipolar world with a pronounced shift of power to Asia, and the rise of a dizzying array of nonstate actors, energy policy issues at best figure in occasional cameo appearances. We argue that energy policy deserves a leading role.

The challenges inherent in energy policy form an increasingly large proportion of the great issues of global governance. These energy challenges have direct or indirect global components that support or constrain national policy options and private sector behaviors. We frame the range of energy-related global governance issues and briefly assess the current configuration of global energy governors and institutions. We aim to contribute to an emergent global conversation on how the rapid changes in world order shape, and are shaped by, energy-related developments. In this article, we use public goods theory to help identify key energy-related market and governance failures, highlight key obstacles to coherent global energy governance and suggest directions for a broader research agenda.

Framing global energy governance

Only in the past few years have international relations and global governance scholars and policy analysts begun to develop a significant literature on broad frameworks for understanding energy governance beyond the national level (Cherp et al., 2011; Colgan, 2010; Florini, 2008; Florini and Sovacool, 2009, 2011; Goldthau and Witte, 2009, 2010; Keohane and Victor, 2011; Lesage

et al., 2010; Pascual and Elkind, 2010). Global energy governance has been relatively unexplored in the literature, in part because it is hard to conceptualize as a coherent field. Historically, energy governance at both national and global scales has been fragmented by energy source – nuclear, oil and gas, coal, renewable and so on. In addition, energy is closely intertwined with the historical evolution of industrialization, and is a critical input to productive activity and social outcomes such as health, education and habitats. Finally, the consumption of energy comes with pervasive and persistent local and global externalities, notably climate change. All these aspects of energy use are studied, but it is daunting to consider the various interconnections within a single rubric.

A few intrepid scholars have put forward interesting conceptual frameworks that directly or indirectly are applied to the energy arena. Cherp, Jewell and Goldthau (2011), for example, make intriguing use of complexity theory to explore global energy governance. Raustiala and Victor (2004) suggest a 'regime complex' framework for understanding issue areas characterized by multiple overlapping regimes – an approach that may fit well with the variegated and fragmented nature of current global energy governance. Goldthau and Witte (2009, 2010) have engaged in a deep exploration of market mechanisms for oil and gas. The regime complex idea has been applied to climate change by Keohane and Victor (2011) and further extended by Abbot (2011). Such theoretical framing is clearly crucial to research that aims to focus on how energy should be governed at the global level.

Our approach in this special issue and in this article complements the early literature in at least three ways. First, much of the literature cited above takes as its starting point the existence of considerable challenges that require global energy governance, but (with the partial exception of Cherp, Jewell and Goldthau (2011) and Florini and Sovacool, 2011) do not systematically identify what the full range of objectives are, how these objectives emerge or the level of legitimacy and support they enjoy at the global level. The article begins with this exercise which, we suggest, is a necessary first step to understanding the landscape of global energy governance.

Second, based on our reading of the empirical landscape of energy, we go well beyond attention to the international inter-state arena to include the role of nonstate actors in global energy governance, and to understand decision making within national jurisdictions. Since we do not have the luxury of starting with a blank slate, an accurate mapping of the existing landscape is integral to our understanding of global energy governance challenges. Third, we complement the various efforts at constructing theoretical frameworks with a focus on policy-oriented frames and empirical questions of what needs governing and who are the governors. In other words, we aim to identify likely areas of market and governance failures, and to investigate the range of relevant actors. In the second part of the article, we map the landscape of global energy governance, with the intent of providing an empirically informed framework for future research.

Objectives of global energy governance

Discussions on global energy governance are challenged by a lack of systematic understanding on why governance at that level is needed and what its objectives should be. Perhaps because so much of energy policy has been shaped around barrels of oil and other private-good energy sources, market solutions are often suggested as ways of providing energy services (Goldthau and Witte, 2010). But markets themselves require governance mechanisms that can enforce contracts, define and enforce property rights, overcome excessive information asymmetries or simple absence of information, regulate natural monopolies and ensure fair competition for resources. In the energy arena, these mechanisms are often lacking, particularly at the cross-border level.

Moreover, numerous specific features of energy make efficient and effective energy markets particularly difficult to construct and maintain. Energy exhibits a host of public goods problems, externalities, market failures, coordination problems and competing interests that collectively add up to an enormous governance challenge (Florini and Sovacool, 2009), as will be explored throughout this special issue. And overwhelmingly, these are transnational or global, not purely national, in scope.

For Lesage, van de Graaf and Westphal (2010) the emphasis is on how the contemporary context of multipolarity increases the challenges of coordination to reduce conflict over energy and foster an energy transition. For many other writers, the challenge is dominated by the global collective action problem of climate change, a problem caused in large part by energy-related emissions of greenhouse gasses. Cherp, Jewell and Goldthau (2011) are the broadest in their framing, examining energy security, energy access and climate change as three distinct arenas within global energy governance.

Drawing on a public goods framework allows us to identify cross-border market and governance failures that require governance intervention and to lay out the full range of global energy governance objectives. Consistent with our empirical approach, we identify these objectives through close scrutiny of global political pronouncements such as those emanating from G8 and G20 meetings, mandates and policy statements of international institutions, and initiatives of nonstate actors and

multistakeholder networks that have played an agenda-setting role in energy governance. We group these objectives under four headings, each of which is further discussed below: energy supply security and geopolitics; energy poverty; environmental externalities; and domestic governance.

Energy supply security

Security of access to energy supply is a high priority for all governments, one that they pursue through both cooperative and competitive means. The centrality of oil and natural gas to modern military operations and modern industry leads governments to interfere in open market operations in the name of national security. Nonetheless, reasonably efficient global markets have developed for various energy sources, and further development of such markets could provide positive-sum approaches to global energy governance. Yet what had seemed to be a growing consensus on market-based systems of energy security is now under threat. Many governments, particularly in Asia, are increasingly pursuing mercantilist approaches and territorial claims to ensure energy supply security (Dubash, this issue; Kong, this issue). In addition, oil price volatility renders markets unstable. Because the nature of the oil industry (and energy in general) requires very long-term planning and investment, this is a particularly serious market failure.

Some of the global discourse about energy security is quite broad. The G8 St Petersburg Statement on Global Energy Security of 2006 conceived of energy security as the challenge of 'ensuring sufficient, reliable and environmentally responsible supplies of energy at prices reflecting market fundamentals' (G8 Summit, 2006). That declaration asserted that the 'development of transparent, efficient and competitive global energy markets' is the best way of achieving overall energy security (G8 Summit, 2006), a notion echoed by the wider G20 Summit statement at Pittsburgh in 2009 (G20 Summit, 2009). This broadening is also echoed in the academic literature, which increasingly constructs energy security as multifaceted, including concerns such as environment, affordability and efficiency (Sovacool and Brown, 2010).

But overwhelmingly, the debate over energy security remains a debate about access to oil (and increasingly natural gas). Oil remains the single largest source of global primary energy supply, accounting for roughly a third, and drives the majority of transportation in virtually all parts of the world. As oil rose in importance starting in the mid-20th century, oil producers and consumers organized separately and increasingly in reaction to each other. The 1961 founding statute creating the Organization of Petroleum Exporting Countries (OPEC) explicitly states that the aim of coordinated action among members was the interests of oil producers, providing them a steady income and a fair return on capital (OPEC, 2008; see also Goldthau and Witte, this issue). The International Energy Agency (IEA), established by the OECD as a club of oil consumers, had the explicit aims of securing oil 'on reasonable and equitable terms' and creating a system to manage oil supply emergencies. The instrument for achieving these goals was sustaining 'stable international trade in oil and … promoting secure oil supplies on reasonable and equitable terms' (IEA, 2008; see also Florini, this issue).

Over time, this oppositional construction has softened, and dialogue between consumers and producers has been institutionalized in the form of the International Energy Forum (IEF). Significantly, in addition to creating structures for dialogue, the IEF supports ongoing sharing and collation of data in the form of the Joint Oil Data Initiative. However, the improved dialogue has not yet led to effective mechanisms that can reliably stabilize oil prices, as became evident in the wild price swings of 2006–09.

Moreover, energy supply security is increasingly reflected in regional agreements, notably in the ASEAN Agreement on ASEAN Energy Cooperation (ASEAN, 1986) and the Energy Charter Treaty (ECT, 1994). Taken collectively, these statements suggest considerable international consensus on the importance of energy supply security, and at least some investment in large-scale coordination to enable countries to achieve energy security, particularly through the smooth functioning of energy markets.

But the geopolitics of energy security are not so easily addressed. As readily available supplies fall short of rapidly increasing demand, we see growing competition for energy resources, with energy at the heart of many of the world's most pressing geopolitical challenges. Proven oil and gas reserves are heavily concentrated in a small number of countries whose political stability is not assured and where production is controlled by state-owned firms whose fidelity to market principles cannot be assumed. Although figures on oil and gas reserves are notoriously unreliable, the available data indicate that well over half, and probably more in the order of 75 per cent, of oil and gas reserves are held by these state-owned firms (PetroStrategies Inc, 2010; US EIA, 2010). The existing cooperative response by oil-consuming countries, via the IEA's coordination of national oil stockpiles, does not include such enormous and rapidly growing sources of demand as India and China (Florini, this issue). And the rising consumers have demonstrated a lack of faith in international oil markets, with their much-discussed efforts to develop overseas energy assets (Dubash, this issue; Kong, this issue). The disputes in the oil-rich South China Sea offer one clear indication of the potential for conflict. Riven by conflicting territorial claims involving China, Vietnam, Brunei, Malaysia, Taiwan,

Indonesia and the Philippines, competition over the South China Sea led to bloodshed between China and Vietnam in 1974, and intense posturing between China and the United States in 2010.

Energy poverty

Energy poverty is widespread and persistent. About 1.4 billion people lack access to electricity and 2.7 billion use biomass for cooking (IEA, 2010), depriving them of any opportunity to participate in energy-dependent processes of economic modernization. Instead, these billions eke out a grueling existence, suffering the consequences in health (indoor pollution from biomass burning), opportunity costs (hours spent gathering fuels, which cannot be spent more productively) and environmental degradation (deforestation and soil depletion). While energy poverty is largely a domestic issue, its wide-scale global prevalence, the potential for technological and institutional learning across borders and its importance to the success of a broader anti-poverty agenda make this an important issue for global governance.

Although the eradication of poverty is a high-profile international cause, the poverty agenda is seldom directly linked to energy. Yet, there is considerable evidence that access to energy and the quantum of its use is closely correlated with both economic growth (Feinstein, 2002) and advances in human development (Martinez and Ebenhack, 1997).

To the degree that international pronouncements on development and poverty do mention energy, they tend to fall into three broad categories: big picture calls linking energy and development; more explicit, if back door, linkages between energy and poverty in the context of the Millennium Development Goals (MDGs); and a few direct efforts to address energy poverty.

First, on occasion global political declarations from the G8 and G20 allude to the role of energy in alleviating poverty. But these passing mentions stand in contrast to the explicit focus and attention given to concerns such as energy security at St Petersburg in 2006, and climate change at Gleneagles in 2005. When energy poverty is mentioned, it tends to be couched within larger objectives. Thus, the St Petersburg Declaration links energy to 'quality of life and opportunities', the Pittsburgh G20 Declaration links access to energy with 'sustainable growth' and the Gleneagles Declaration calls for increasing access to modern energy services as part of a larger package aimed at addressing climate change and achieving sustainable development.

Second, energy has a complex relationship to UN-led initiatives on global poverty and sustainable development. This complexity is, arguably, due to an unresolved question at the root of sustainable development – are increasing growth and consumption really compatible with environmental sustainability? (Lele, 1991) This question has the potential to pit energy haves against have nots; the latter fear that environmental concerns will perpetuate their low energy consumption levels. By one interpretation, the lack of an MDG on energy is an artifact of these tensions (Hodas, 2010). These environment versus development tensions are also apparent in the UN Framework Convention on Climate Change (UNFCCC), which pointedly notes that, climate change concerns notwithstanding, developing countries in particular will need to increase their energy consumption in order to achieve 'sustainable social and economic development' (UNFCCC, 1992).

Given the absence of an MDG on energy, energy for development and poverty alleviation has been worked on to the international agenda in less direct ways. For example, UN-Energy, the coordinating mechanism for energy across the UN, devoted its first report to energy poverty in 'recognition of the centrality of providing energy services in the pursuit of the MDGs' (UN-Energy, 2005, p. 1). Despite the lack of explicit attention to energy in Agenda 21, the Commission on Sustainable Development charged with its implementation has focused on energy for its ninth, 14th and 15th meetings (Hodas, 2010). However, as the CSD-15 chairperson's report notes, considerable divisions remained around energy and climate change (CSD, 2007).

Third, multilateral donor agencies such as the World Bank have placed some emphasis on energy access for the poor, but this is often subordinate to a larger objective of neoliberal reform. For example, the World Bank's influential energy strategy of 1993 which guided its work for nearly a decade focused on structural reform, increasing private sector participation, improved regulation and promotion of commercial practices (World Bank, 1993). Such reforms, which do not specifically incentivize service to the poor, have not necessarily reduced energy poverty. By the late 1990s, the World Bank's attention had shifted to developing an energy and environment strategy, although many of the earlier objectives around sector reform found a place in this strategy under a new guise (World Bank, 2000). The only explicit mention of energy poverty as one of four objectives comes in an 'informal' 2001 strategy to supplement the environment strategy (Feinstein, 2002).[1] More recently, the World Bank is considering a new strategy that is organized directly around two pillars: improving access and reliability of energy supply; and facilitating a transition to clean energy (Nakhooda, this issue; World Bank, 2009). This twin objective reflects, perhaps, a growing clarity that both these aims have to be pursued simultaneously, even if tensions over whether the two are in conflict or not have as yet been incompletely addressed.

Environmental sustainability

The rise of environmental sustainability as an important objective of global energy governance is arguably the single most dramatic shift in the global energy landscape over the last two decades. This attention has been propelled by the threat of global climate change but also includes concerns of local pollutants, the environmental costs of mining, and other, non-energy-related environmental concerns.

The sustainability thread runs from the 1972 Stockholm Conference on the environment, through the 1988 Brundtland Report which provided a single (if not particularly satisfying) definition of sustainable development, to the 1992 Earth Summit at Rio, which sought to operationalize the concept. While Stockholm set the stage for recognition of environmental challenges, Rio focused attention on the global character of these problems.[2] As discussed above, while the Rio Declaration and Agenda 21 did not have explicit sections on energy, the linkages to energy through protection of the atmosphere, agriculture and other sectoral concerns are clear.[3] The most consequential outcome of Rio from an energy perspective, however, is undoubtedly the UNFCCC and its subsequent process. Given that energy accounts for some two-thirds of greenhouse gas emissions, climate policy necessarily carries potentially significant consequences for the future of energy globally.

Moving beyond global declarations and conventions, notable among efforts to internalize the environmental sustainability objective is the World Bank's articulation of an environment strategy for energy in its 2000 *Fuel for Thought* document. This document broke new ground for an institution that hitherto had focused on financing and promoting new sources of energy supply by acknowledging and seeking to internalize the existence of environmental trade-offs (see Nakhooda, this issue). Although the extent of changes in lending practices and even in the underlying approach are debated (Mainhardt-Gibbs, 2009), the objectives are clearly reoriented to favor environmental outcomes.

More recently, and as the climate change negotiations have become increasingly bogged down, energy-related environmental concerns have increasingly found their way into high-level political statements. The G8 Gleneagles Communiqué of 2005 squarely sought to reinvigorate global action on climate change. The Pittsburgh G20 summit in 2009 focused on promoting energy efficiency in particular by phasing out subsidies for fossil fuel, in part because they impeded a transition to clean energy sources, a concern echoed by the Leaders Declaration from the Asia Pacific Economic Cooperation (APEC). Perhaps even more instructive, it is rare to see a global political declaration, whether of the G8/20 or the Major Economies Forum, that fails to make an explicit reference to the need for attention to the global environment in general and climate change in particular.

And climate is increasingly seen as more than an environmental externality. Its sweeping implications make it a question of national and international security. The UN General Assembly in a 2009 resolution expressed its deep concern 'that the adverse impacts of climate change, including sea-level rise, could have possible security implications', and asked for a report from the Secretary General (United Nations, 2009). A number of retired senior American generals and admirals released a report in 2007 expressing deep concerns over the potential for climate change to serve as a threat multiplier and thus directly endanger national security (CNAC, 2007). By 2010, climate change had become an explicit item in the US National Security Strategy, which noted that 'The change wrought by a warming planet will lead to new conflicts over refugees and resources; new suffering from drought and famine; catastrophic natural disasters; and the degradation of land across the globe' (White House, 2010).

Domestic good governance and corruption

Energy has been susceptible to a high degree of corruption and rent seeking because of the ease of bypassing normal channels of accountability, the concentration of fossil fuel deposits in countries that have not yet developed effective domestic institutions, and the tendency to deliver energy services through highly centralized large infrastructure projects. Consequently, energy-related concerns have been critical to pushing domestic good governance concerns up the global governance agenda. The landmark Organisation for Economic Cooperation and Development (OECD) Anti-Bribery convention of 1997, which was the first instance of an anti-corruption instrument on the 'supply side' of a bribery transaction, is a notable example of this emergent attention (OECD, 2010). Others include the UN Convention against Corruption of 2003 and Principle 10 of the UN Global Compact which enjoins business against corruption (United Nations, 2003, 2004).

It is important to recognize the importance of energy to global financial flows. In the mid-1990s, for example, oil and gas and power sector investments together accounted for about 40 per cent of export credit agency financing, which is the main mechanism through which governments support overseas investment and trade by their companies (Maurer and Bhandari, 2000). In many cases these transactions involve dealing with governments that have direct ownership over energy resources, leaving enormous scope for rent seeking (Clifford, 2006; Global Witness, 2004; Human Rights Watch, 2003; Kolas and Tonnesson, 2006).

Growing attention to energy and domestic governance owes a great deal to the activities of civil society groups that have played an important role in bringing instances of corruption to light, and institutionalizing mechanisms such as disclosure-based regulatory tools (Florini and Saleem, this issue). Although this new impulse is yet to command the sort of global consensus at the multilateral level that marks many of the other objectives discussed here, it is included as an important new and growing area of concern for global energy governance.

Toward a framework for global energy governance

To understand global energy governance requires blurring several boundaries – between different fuel sources and markets, between state and nonstate actors and between global and national scales. We now turn to a more detailed exploration of all three, as crucial components of a conceptual framework.

Understanding fragmented global energy governance: the trade-offs and the actors

Global energy governance is a challenge in part because, as the discussion above suggests, the objectives around which governance is organized are themselves fragmented, inconsistent and unprioritized. To the degree that states and other actors have established rules and organizations to try to deal with the four sets of market/governance failures, it has generally been as a result of a particular crisis (as in the case of oil in the 1970s), or as a sideline of efforts to achieve other objectives (such as the energy poverty role of the multilateral development banks as a component of their larger development mission). Each issue has moved up the policy agenda of late for a host of idiosyncratic reasons. As they do so, the tensions among them, and the lack of capacity to resolve those tensions, are becoming more and more apparent.

Thus, concern about energy supply security grew out of the oil crises of the 1970s, and has since been rediscovered in many other guises, most recently in reaction to growing demand from Asia. Energy as an issue of environmental sustainability came of age in the late 1980s and 1990s with the spread of the modern environmental movement and acquired momentum with growing concern over global climate change. Domestic governance concerns around corruption were layered on in the late 1990s in reaction to high-profile cases of energy infrastructure corruption. Although poverty alleviation concerns have been with us as a global issue since at least Robert McNamara's tenure at the World Bank in the 1970s, the concept of energy poverty as a specific focus has emerged much more recently.

Trade-offs across energy objectives complicate governance. Energy supply security may be inconsistent with environmental sustainability in the short to medium term, particularly in the context of dependence on coal as a primary source of energy. Similarly, with looming pressures to limit greenhouse gas emissions, the trade-off between development objectives and environmental sustainability has taken the form of a deadlock over 'burden sharing' at the climate negotiations (Dubash and Rajamani, 2010). Energy supply security can also run counter to concerns of domestic governance, as access to or transport of mineral fuels such as oil and gas are increasingly stymied by domestic governance concerns, often brought to the public eye by transnational advocacy networks (Global Witness, 2011). Similarly, domestic governance concerns threaten security of supply in the absence of credible institutional arrangements to manage corruption and other such concerns.

These trade-offs are not immutable. They are a function of the current dysfunctional system: high demand for fossil fuels; the failure to internalize full costs; weak institutional underpinnings for markets in those commodities; and weak governance capacity to manage markets and provide public goods. In other words, the trade-offs between environmental sustainability and energy supply security and development are binding under current technological conditions, but may not be so in a low-cost clean energy future.

There are two ways past fragmented and inconsistent governance objectives: ameliorate the trade-offs through, for example, rapid technological or institutional change; or do a better job of prioritizing among the objectives. Both require more effective global collective action than exists at present. The climate negotiations could drive a technology agenda, but so far have arguably exacerbated regulatory uncertainty rather than incentivizing investment in clean energy. Indeed, balanced between historically large emitters led by the US and a resurgent bloc of newly industrializing countries led by China, climate politics are particularly prey to the challenges of governance in a multipolar world.

The existing transnational framework of principles, rules, norms and processes governing energy – the institutions (as opposed to organizations) of global energy governance – are currently far too incomplete and disconnected to address any of the market/governance failures adequately, much less to address the trade-offs among them. The institutions cluster around particular fuel sources (such as oil or nuclear power), each requiring different technical expertise, language and understandings based on the professionalization of the different energy spheres, making communication across them difficult even if it were desired. This has led some analysts to explore the idea that energy is characterized not by a single regime in the formal sense of a coherent

framework of principles, rules, norms and decision-making processes (Krasner, 1983), but instead by invoking polycentric and overlapping arenas (Cherp, Jewell and Goldthau (2011)). Even within these subareas, however, with the possible exception of nuclear energy, sector-specific institutional frameworks lack the comprehensive scope, cogency and robustness that characterize an international regime.

At present, the governors – the concrete organizations and entities that play some role in global energy governance – consist of a relative handful of organizations, limited in scope and capacity. They have arisen in idiosyncratic fashion, in response to specific problems or crises, starting with those in the oil sector. The oil sector is rife with collective action problems around adequate availability, price stability and incentives for long-term investment. OPEC, an association of petroleum producers that came to fame in the 1970s for its role in sparking dramatic increases in oil prices, represents the oil interests of only some of the world's major oil suppliers (Witte and Goldthau, this issue). OPEC coexists with the IEA, which was set up initially as a club of consumer countries to address vulnerability to excessive oil dependence during the 1970s oil crises. Although it has since broadened its agenda, the IEA remains a relatively tiny organization with fewer than 250 staff at its Paris headquarters and a state membership limited to OECD members (Florini, this issue).

The past two decades have seen some efforts to strengthen the organizational infrastructure of global energy governance. The International Energy Forum, which began as a series of biennial meetings of energy ministers to bridge producer and consumer nations, including those that are not members of OPEC or the IEA, was institutionalized with the creation of a secretariat that began work in Riyadh in December 2003 (IEF, 2010). UN-Energy was established in the aftermath of the 2002 World Conference on Sustainable Development in Johannesburg as an attempt to bring together the assortment of UN bodies that play some role in energy, although it lacks substantial resources (UN-Energy, 2010). With greater attention to renewable energy sources has come the 2009 creation of the International Renewable Energy Agency (IRENA), a new intergovernmental organization outside the UN system, headquartered in Abu Dhabi with a technical offshoot based in Bonn (IRENA, 2010; see also Florini, this issue).

Other intergovernmental organizations whose mandates extend beyond energy can nonetheless be considered important global energy governors. The World Bank and other multilateral development banks serve both as key funding channels and as sources of ideas and norms about what constitutes good energy policy at the national level (Nakhooda, this issue). As more major oil exporters move to join and as the potential for climate-related trade barriers looms larger, the World Trade Organization (WTO) is being pulled into dealing with a broad range of global energy governance concerns.

But clearly, none of these existing organizations can lay claim to a central coordinating role in global energy governance; nor are effective processes in place to coordinate action among them all. Summit processes such as the G8 and now the G20 are often looked to as a way of coordinating action among leading states, and the G8 has frequently, though not always effectively, made commitments related to energy and climate. One of the G20's early steps has been a broad agreement to reduce energy subsidies (Van de Graaf and Westphal, this issue). But by no means could it be said that either the G8 or the G20 has yet shown the interest or ability to grapple with the full range of global energy governance collective action needs and address the trade-offs among them.

Global governance beyond the intergovernmental

As most global governance scholars have come to agree, looking at intergovernmental processes is only part of the story of governance in any arena. As Avant, Finnemore and Sell put it recently,

> The global policy arena is filled with a wide variety of actors – international organizations, corporations, professional associations, advocacy groups, and the like – seeking to 'govern' activity in issue areas they care about. These actors are not merely occupying global structures. They are active agents who want new structures and rules (or different rules) to solve problems, change outcomes, and transform international life. Governors are thus engaged in processes that are both quintessentially political and dynamic, even transformational (Avant et al., 2010, p. 1).

Energy is no different. Beyond the formal intergovernmental organizations and summit processes outlined above lies a complex array of national actors, nongovernmental actors and hybrid entities that all play roles in global energy governance. This complex institutional diversity offers great potential for dynamic change – or for institutional competition, or for overall incoherence.

As Newell (this issue) sketches out, transnational energy finance has a particularly complex landscape that strongly shapes how energy sources are developed and energy services are ultimately provided. He points to three categories – public governance of public finance; public governance of private finance; and private governance of private finance – each of which includes

multiple and overlapping actors and authorities. As Wright (this issue) and Nakhooda (this issue) show, in addition to national governments regulating investment through national law and policy (Hamilton, 2009), private finance is also regulated globally, if indirectly, by the rule structures of national export credit agencies, which are in turn coordinated through the OECD Arrangement, and by the private sector arms of multilateral banks. In addition, more subtle forms of governing include the role of networks such as one coordinated by the UN Environment Programme, regional mechanisms such as the Asia Pacific Partnership on Clean Development and Climate, and multistakeholder partnerships such as the Renewable Energy and Energy Efficiency Partnership, all of which play a handmaiden role in mobilizing finance for energy (Florini and Sovacool, 2009, 2011; Newell, this issue).

The enormous gaps in global energy governance, particularly the absence of transnational regulation in regard to climate change and oil/gas markets, and the poor quality of energy governance at the domestic level have attracted efforts to develop innovative responses. Many of these come in the form of information disclosure programs, usually voluntary, that aim to make markets function more efficiently, induce private actors (particularly corporations) to internalize externalities even in the absence of enforceable regulations and/or improve democratic processes (Florini and Saleem, this issue). Such initiatives as the Carbon Disclosure Project, the Extractive Industries Transparency Initiative and the Energy Governance Initiative all aim to change behavior by inducing actors to reveal information in various forms.

It is not clear how the various pieces of this dizzying array of initiatives, actors and processes do or can fit together. At every stage of collective action – agenda setting, negotiation, implementation, monitoring, enforcement – multiple authorities are putting forward demands. There is likely to be institutional competition across the various actors and approaches. For example, it will be interesting to see how hybrid actors such as REN21 and the Renewable Energy and Energy Efficiency Partnership (REEEP), with their limited staffs and budgets, interact with a major new intergovernmental organization like IRENA. There may be first-mover advantages in a world in which states no longer enjoy automatic primacy, or we may find that the existence of an intergovernmental organization with broad membership alters the space available to other actors.

With so many relatively new and untested governance approaches under way, it is not clear which of the competing claims for legitimacy and authority will stand the test of time. Experimental regulatory processes ('self-regulation', codes of conduct, guidelines, etc.) raise questions about both efficacy and legitimacy. Hybrid authorities bring together public and private actors which interact to shape untested forms of governance with uncertain accountability mechanisms. Those hybrids include a strikingly wide range of combinations of actors. The Berne Union, for example, acts as a nonprofit 'trade association' of export credit agencies, of which some are involved in an enormous share of all energy project finance (Wright, this issue). Mapping and harnessing this diversity of governors may be critical to future solutions to fragmented and ineffective global energy governance.

The nation state in global energy governance

Understanding global energy governance requires treating the boundary between domestic and international politics as porous. What happens in global organizations reflects the decisions and priorities of their constituent parts, which in intergovernmental organizations are the member states. Despite the growing significance of non-state actors, the most important drivers of policy at all levels continue to be territorially based states. Thus, it is crucial to pay close attention to the particularities of national politics around energy on their own terms, in order to understand how they are shaped by and shape global politics of energy. Indeed, close attention to the interaction between global and national energy governance is a distinctive aspect of the framework outlined in this special issue.

The country case studies in this special issue, on China, India and the Philippines, point to an interesting contradiction. Each country has particularistic politics around energy, shaped by natural resource endowments and local institutional histories consistent with broader national patterns. Yet all three countries exhibit a remarkable consistency in the broader patterns of governance over time. For example, all three sought to open their energy sectors to competition and private involvement in the 1980s and 1990s, although this tendency was less pronounced in China. Thus, new laws were passed dissolving state monopolies and independent regulators were created, albeit with only moderate amounts of success. By the turn of the century, however, energy security had replaced the market as the dominant narrative. For example, the Philippines has explicitly sought to redefine its energy governance around the objective of energy security. India has embedded its other energy concerns, including issues of global climate change, within a larger energy security narrative. China has launched a systematic effort at acquiring overseas energy assets. These consistent cross-country patterns suggest structures of energy governance that are shaped globally but mediated by nationally specific factors.

The empirical evidence also speaks to *how* global forces work to influence national decisions. There is little evidence that global trends such as deepening of

markets or attention to energy security operate through explicit efforts at coordinated action through global organizations. National energy policy makers seldom refer to international standards, as occurs in the trade or the telecoms sector, for example. Instead, the micropolitics of national energy decision making depends on balancing competing domestic concerns, in a manner largely devoid of reference to international organizations. Instead, global influences operate through larger ideological and normative shifts, of which the attention to markets is the paradigmatic example. Normative shifts also occur through subtle mechanisms such as policy transplant and institutional isomorphism, such as the spread of independent energy regulators across many countries within a short period (Levi-Faur et al., 2009).

Multilateral development banks, such as the World Bank and the Asian Development Bank, have proven to be particularly important vectors for transmission of new ideas and norms (Nakhooda, this issue). As such, they are the partial exceptions to the finding that international energy organizations are largely invisible to domestic policy makers. Most significant, they have been important agents of translating broader ideological shifts into sector-specific recommendations. For example, developing and popularizing the idea of unbundled and privatized electricity markets can substantially be attributed to the development banks. In addition, in cases such as India and the Philippines, they have actively promoted adoption of these prescriptions, often supported by local champions of the same ideas, through lending policies. The development banks emerge as the most significant single set of international actors shaping national energy governance.

But global patterns introduced in this fashion have proven to have limited staying power. The transition to market-oriented national energy sectors, in particular, has been halting and incomplete in the face of the fraught domestic politics of redistribution associated with energy price reform. Instead of diffusing control and expanding competition in energy, Asian economies have witnessed the consolidation of state-led national champions, which have now begun to turn their gaze overseas (Dubash, this issue; Kong, this issue). The emergent narrative of energy supply security as the dominant objective of national policy, which has arisen due to simultaneously expanding global demand and fears of fossil fuel supply constraint, has reinforced the continuation of a substantial state role in national energy sectors.

Notably, this new narrative is substantially unmediated by global organizations. Indeed, with a shift in attention toward energy supply security, there is evidence of a growing disjuncture between the operating assumptions of international energy organizations and national governments, at least in rapidly growing Asian economies. The dominant narrative of the IEA, for example, backed by political declarations by the G8 and G20, is of a liberal market order to govern energy. However, in China, India and the Philippines, policy makers appear to be hedging their bets by also placing considerable emphasis on sovereign control over energy resources. In China and, to some extent, in India this takes the form of mercantile strategies. Both countries are also emphasizing development of new technologies such as solar power which do not depend on international energy trade. Continued mixed sentiments over the wisdom and viability of mercantile versus market strategies are likely to heighten the challenges of future global governance of energy.

Will the rise of global environmental issues up the global political agenda, and concerns over climate change in particular, be a potential game changer? Given the enormous relevance of energy to the climate system, a comprehensive global climate agreement organized around explicit national carbon caps would be transformative and become a de facto global energy governance regime. However, with growing political deadlock in climate negotiations, this outcome appears increasingly unlikely. Another possibility is a 'bottom-up' climate regime organized around national actions, which will then be subject to some form of coordinated global scrutiny, much as was articulated in the controversial 'Copenhagen Accord' (Bodansky, 2010). Yet another might be a hybrid version of the two that links bottom-up actions with top-down benchmarks against which national actions are measured (Dubash and Rajamani, 2010). Which of these approaches results from the negotiation process depends largely on how the entrenched politics of climate change are worked out.

One of the most significant developments in global governance generally – the emergence of a more multipolar system that particularly reflects the rapid growth of China and India – is reflected in the degree to which these countries are actively shaping global climate politics. As the country case studies in this special issue show, any climate-related national actions in rapidly emerging Asia, at least, are likely to be couched within the frame of 'co-benefits' – development actions that bring simultaneous climate benefits. China's and India's energy efficiency and renewable energy efforts, undertaken primarily for energy security reasons, are good illustrations of this approach. If a regime based on such national actions emerges, it will be an interesting example of global coordination through disclosure and scrutiny rather than explicit regulation.[4] And it will reinforce the importance of understanding national politics of energy as an essential component of global energy governance.

While the climate arena shows the growing confidence of the Asian giants as potential rule makers, there is little

evidence that they are creatively articulating similarly cogent ideas for energy governance writ large. And there is scant evidence of collective engagement with the many rule takers – such as the Philippines – to craft a large Asian voice in global energy governance. Instead, as major new consumers of energy, there is a collective wariness of global forces that may conspire to stifle access to energy for Asia's rapidly growing new powers. Diplomatic and political attention is focused on staving off this challenge, rather than on crafting a governance structure that provides coordinated institutional responses to contemporary energy challenges.

Conclusions: new directions for global energy governance

The existing energy-related global governance mechanisms consist of overlapping and partial institutional frameworks based primarily around fuel sectors. To the extent that there are mechanisms with broad reach (such as the G-summit processes and the UNFCCC), they are not hierarchical and currently offer very weak mechanisms for resolving trade-offs. National energy policy making – still the most important level of decision making – is poorly integrated with transnational processes. Other governors, including private transnational networks, rely on multiple and not well-tested sources of authority.

In short, the achievements of global energy governance fall far short of any reasonable assessment of a good outcome. Global energy governance consists of inadequate and uncoordinated mechanisms attempting to achieve fragmented and unprioritized objectives which pose as yet unresolved structural trade-offs. We do not currently have the institutional infrastructure needed to address the significant and urgent challenges we face.

Fortunately, none of the existing shortcomings of global energy governance are written in stone. The structures that impose those trade-offs are institutional, and thus subject to human agency. Thus, the key policy research question is how the existing institutional constraints can be altered.

An obvious starting point is to focus on ways to leverage more productively the existing formal intergovernmental actors. These include not only the energy-focused IGOs such as the IEA, IEF and IRENA, but also the key de facto intergovernmental governors, notably the multilateral development banks. Although relevant studies of some individual organizations have appeared in the last few years (particularly the IEA and the World Bank), others, such as the IEF and IRENA, have largely escaped scholarly scrutiny (in some cases because the organizations are only beginning to figure as significant actors). The articles in this special issue are meant to provide a starting point for what should become a more fully developed literature.

A key research need that emerges from this collection's emphasis on specific actors is to deepen attention to national energy governance in key countries and draw out the implications for global governance. In particular, there is a need to expand beyond the Asian giants to consider more broadly the impact of the diffusion of state power to a larger number of emerging countries, notably Mexico, Brazil and South Africa. What does such widening multipolarity imply for governance of and by energy-related intergovernmental organizations? What views will these emerging actors hold toward the acceptability of reliance on energy markets whose smooth operation requires successful global cooperation, versus the notion that energy security demands active state intervention and a degree of sovereign self-reliance?

Widening multipolarity is also testing international agreement on challenging new issues such as climate change, as new powers bring different interests and understandings to the table. On climate change, a major divide has emerged between established industrial powers and fast-growing newly industrializing countries. As a result of very different interests – existing industrial powers wish to structure a regime with equivalent actions for all, while emerging powers argue that past emissions should be accounted for – each side seeks to frame the debate in different ways. Climate negotiations have foundered in part because there is no global mechanism to forge a shared understanding on how a climate regime should operate, before getting down to the nitty-gritty of negotiations. The G20 is currently the most plausible forum where broad directions for global energy governance could be decided, making it an important arena to watch for the future.

A great deal of governance is happening at levels separate from national governments and formal intergovernmental processes. As this special issue's articles make clear, there is an extraordinary diversity of actors and institutions that matter in determining energy policy. However, it is not clear how to assess the scale and significance of those global governance approaches that go beyond formal architecture and structures. The articles make significant progress in mapping many of those approaches and evaluating individual cases, but much more research is needed to understand how they interact. Multistakeholder networks and disclosure-based quasi-regulatory systems are springing up everywhere – but to what effect? Is the net result of this plethora of actors and approaches a complex adaptive system with emergent properties that are distinct from the characteristics of the component parts? Or is the outcome primarily one of institutional competition and incoherence? How can we evaluate the legitimacy and accountability

questions of nonstate and hybrid governors? To what extent does their writ run in thinly democratic systems?

These questions may well be especially important for the development of new energy technologies, an arena that is particularly dense with networks, partnerships and other forms of nontraditional governors. And much rests on the success of technology development to avoid future conflict. For example, while fossil fuels are the cheapest way to alleviate energy poverty, they exacerbate climate change and portend geopolitical conflicts. While new green energy technology is a private good, there is also a strong case for global coordination to ensure rapid dissemination and adoption. How is this to be achieved in an institutional environment dense with multivalent actors?

But perhaps the most important and difficult challenge is to overcome the extreme disconnect between national energy policy making and the transnational governors and mechanisms. Very few countries have coherent structures in place at the national level to enable any kind of coherent interaction with global energy institutions. Only in December 2010 did the United States announce the creation of a Bureau of Energy Resources to be part of the Department of State, 'to unite [its] diplomatic and programmatic efforts on oil, natural gas, coal, electricity, renewable energy, energy governance, strategic resources, and energy poverty', and virtually no others have anything similar (QDDR, 2010).

The interface between the national and global levels requires attention to two questions: how are global influences shaping national policy choices, and how are global norms emerging out of national contexts? These questions are of particular importance with regard to the emerging nations of Asia, where mushrooming energy demand is coinciding with rapidly increasing global influence. The articles in this special issue include analysis of whether India and China are emerging as rule makers and/or norm setters, questions that will merit sustained attention in coming decades. But such questions deserve attention with regard to a much larger swath of existing and emerging major energy suppliers and consumers. Finally, as the climate change regime emerges, it is worth paying attention to the possibility that global governance around energy will take the form of common procedures for reporting and dialogue around national policy actions, rather than around globally agreed substantive commitments.

This article has sought to provide a framework that allows us to understand the variegated symptoms produced by a dysfunctional global energy governance system. Because energy institutions have been formulated with regard to specific energy sources, those institutions are not able to address the intertwined market and governance failures that impede transition to a more sustainable system. But with this framework in mind, it is possible to consider the objectives toward which efforts at improving energy governance should be directed, and to identify the governors and relationships that need to be better understood.

Notes

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1. A 2009 approach paper towards a new World Bank strategy identifies the 2001 document as an 'informal strategy'.
2. UN General Assembly Resolution 44/228 setting in place a negotiation process for a framework convention on climate change explicitly recognizes the 'global character' of many environmental problems.
3. See, for example, the Agenda 21 chapter on 'Sustainable Agriculture and Rural Development' which calls for a mix of 'cost effective fossil and renewable energy sources that is itself sustainable'.
4. This approach underpinned the subsequent Cancun Agreements of 2010 (see Cancun Agreements, 2010), but the target-setting approach of the Kyoto Protocol also received a partial reprieve, leaving the final architecture of the climate regime somewhat unclear.

References

Abbott, K. W. (2011) 'The Transnational Regime Complex for Climate Change'. *SSRN eLibrary*.

ASEAN (1986) Agreement on ASEAN Energy Cooperation [online]. Available from: http://www.aseansec.org/6570.htm [Accessed 6 January 2011].

Avant, D. D., Finnemore, M. and Sell, S. K. (eds) (2010) *Who Governs the Globe?* Cambridge University Press and the British International Studies Association (BISA): Cambridge Studies in International Relations (No. 114).

Bodansky, D. (2010) 'The Copenhagen Climate Change Conference: A Post-Mortem', *American Journal of International Law*, 104 [online]. Available from: http://papers.ssrn.com/sol3/papers.cfm?abstract_id=1553167 [Accessed 6 January 2011].

Cancun Agreements (2010) Decisions adopted by COP-16 and CMP-6. [online] Available from: http://unfccc.int/2860.php [Accessed 6 January 2011].

Cherp, A., Jewell, J. and Goldthau, A. (2011) 'Governing Global Energy: Systems, Transitions, Complexity', *Global Policy*, 2 (1), pp. 75–88.

Clifford, B. (2006) *The Marketing of Rebellion: Insurgents, Media and International Activism*. New York: Cambridge University Press, pp. 54–56.

CNAC (2007) *National Security and the Threat of Climate Change*. Alexandria, VA: The CAN Corporation. Available from: http://securityandclimate.cna.org [Accessed 6 January 2011].

Colgan, J. (2010) 'Oil and Revolutionary Governments: Fuel for International Conflict', *International Organization*, 64 (4), pp. 661–694.

CSD (2007) *Commission on Sustainable Development, Report on the Fifteenth Session*, United Nations. Available from: http://daccess-dds-ny.un.org/doc/UNDOC/GEN/N07/363/23/PDF/N0736323.pdf?OpenElement [Accessed 6 January 2011].

Dubash, N. K. and Rajamani, L. (2010) 'Beyond Copenhagen: Next Steps', *Climate Policy*, 10 (6), pp. 593–599.

ECT (1994) Energy Charter Treaty [online]. Available from: http://www.encharter.org/fileadmin/user_upload/document/EN.pdf [Accessed 6 January 2011].

Feinstein, C. (2002) 'Economic Development, Climate Change, and Energy Security: The World Bank's Strategic Perspective'. Energy & Mining Sector Board Discussion Paper Series, No. 3 [online]. Available from: http://irispublic.worldbank.org/85257559006C22E9/All+Documents/85257559006C22E985256FFC0076CDD7/$File/econdevccsecurity.pdf [Accessed 6 January 2011].

Florini, A. (2008) 'Global Governance and Energy', Working Paper no. 1. Singapore: Centre on Asia and Globalisation, National University of Singapore, August.

Florini, A. and Sovacool, B. K. (2009) 'Who Governs Energy? The Challenges Facing Global Energy Governance', *Energy Policy*, 37 (12), pp. 5239–5248.

Florini, A. and Sovacool, B. K. (2011) 'Bridging the Gaps in Global Energy Governance', *Global Governance*, 17, pp. 57–74.

G8 Summit (2006) 'Global Energy Security Declaration' [online]. Available from: http://en.g8russia.ru/docs/11.html [Accessed 6 January 2011].

G20 Summit (2009) 'The Leaders' Statement: The Pittsburgh Summit' [online]. Available from: http://www.pittsburghsummit.gov/mediacenter/129639.htm [Accessed 6 January 2011].

Global Witness (2004) *Time for Transparency: Coming Clear on Oil, Mining, and Gas Revenues*. United States: Global Witness.

Global Witness (2011) 'Crude Calculations: The Continued Lack of Transparency over Oil in Sudan'. Available from: http://www.globalwitness.org/library/crude-calculations-continued-lack-transparency-over-oil-sudan [Accessed 7 January 2011].

Goldthau, A. and Witte, J. M. (2009) 'Back to the Future or Forward to the Past? Strengthening Markets and Rules for Effective Global Energy Governance', *International Affairs*, 85 (2), pp. 373–390.

Goldthau, A. and Witte, J. M. (eds) (2010) *Global Energy Governance: The New Rules of the Game*. Berlin: Global Public Policy Institute.

Hamilton, K. (2009) 'Unlocking Finance for Clean Energy: The Need for ''Investment Grade'' Policy', Chatham House Briefing Paper, EERG BP 2009/06. Available from: http://www.chathamhouse.org/sites/default/files/public/Research/Energy%2C%20Environment%20and%20Development/bp1209cleanenergy.pdf [Accessed 1 August 2011].

Hodas, D. R. (2010) 'International Law and Sustainable Energy: A Portrait of Failure', *Widener Law School Legal Studies* [online], Research Paper No. 10-21. Available from: http://papers.ssrn.com/sol3/papers.cfm?abstract_id=1648906 [Accessed 6 January 2011].

Human Rights Watch (2003) *Sudan, Oil and Human Rights*. United States: Human Rights Watch. Available from: http://www.hrw.org/reports/2003/sudan1103/8.htm#_Toc54492553 [Accessed 7 January 2011].

IEA (2008) 'Agreement on an International Energy Program' [online]. Available from: http://www.iea.org/about/docs/IEP.PDF [Accessed 6 January 2011].

IEA (2010) *World Energy Outlook 2010*. Paris: OECD and IEA.

IEF (2010) 'About the International Energy Forum' [online]. Available from: http://www.jodidata.org/IEFS.shtm [Accessed 6 January 2011].

IRENA (2010) International Renewable Energy Agency [online]. Available from: http://www.irena.org/ [Accessed 6 January 2011].

Keohane, R. O. and Victor, D. G. (2011) 'The Regime Complex for Climate Change', *Perspectives on Politics*, 9 (1), pp. 7–23.

Kolas, A. and Tonnesson, S. (2006) 'Burma and Its Neighbors: The Geopolitics of Gas', *Austral Policy Forum* [online], 06-30A. Available from: http://nautilus.rmit.edu.au/forum-reports/0630a-kolas-tonnesson.html [Accessed 7 January 2011].

Krasner, S. D. (ed.) (1983) *International Regimes*. Ithaca, NY: Cornell University Press.

Lele, S. M. (1991) 'Sustainable Development: A Critical Review', *World Development*, 19 (6), pp. 607–621.

Lesage, D., van de Graaf, T. and Westphal, K. (2010) *Global Energy Governance in a Multipolar World*. Farnham: Ashgate Press.

Levi-Faur, D., Jordana, J. and Marin, X. F. (2009) 'The Global Diffusion of Regulatory Agencies: Channels of Transfer and Stages of Diffusion' [online]. IBEI Working Papers 2009/28. Available from: http://ssrn.com/abstract=1557142 [Accessed 6 January 2011].

Mainhardt-Gibbs, H. (2009) *World Bank Energy Sector Lending: Encouraging the World's Addiction to Fossil Fuels*. Washington, DC: Bank Information Center. Available from: http://www.bicusa.org/en/Document.100733.aspx [Accessed 6 January 2011].

Martinez, D. M. and Ebenhack, B. W. (1997) 'Understanding the Role of Energy Consumption in Human Development through the Use of Saturation Phenomena', *Energy Policy*, 36 (4), pp. 1430–1435.

Maurer, C. and Bhandari, R. (2000) *The Climate of Export Credit Agencies*, World Resources Institute [online]. Available from: http://pdf.wri.org/eca.pdf [Accessed 6 January 2011].

OECD (2010) 'Convention on Combating Bribery of Foreign Public Officials in International Business Transactions and Related Documents' [online]. Available from: http://www.oecd.org/dataoecd/4/18/38028044.pdf [Accessed 6 January 2011].

OPEC (2008) OPEC Statute [online]. Available from: http://www.opec.org/opec_web/static_files_project/media/downloads/publications/OS.pdf [Accessed 6 January 2011].

Pascual, C. and Elkind, J. (eds) (2010) *Energy Security: Economics, Politics, Strategies, and Implications*. Washington, DC: Brookings Institution Press.

PetroStrategies Inc. (2010) 'Leading Oil and Gas Companies around the World' [online]. Available from: http://www.petrostrategies.org/Links/Worlds_Largest_Oil_and_Gas_Companies_Sites.htm [Accessed 31 December 2010].

QDDR (2010) *Leading through Civilian Power: The First Quadrennial Diplomacy and Development Review* [online]. Available from: http://www.state.gov/documents/organization/153108.pdf [Accessed 6 January 2011].

Raustiala, K. and Victor, D. G. (2004) 'The Regime Complex for Plant Genetic Resources', *International Organization*, 58, pp. 277–309.

Sovacool, B. K. and Brown, M. (2010) 'Competing Dimensions of Energy Security: An International Perspective', *Annual Review of Environmental Resources*, 35, pp. 77–108.

UN-Energy (2005) *The Energy Challenge for Achieving the Millennium Development Goals*. Available from: http://www.unhabitat.org/downloads/docs/920_88725_The%20Energy%20challenge%20for%20achieving%20the%20millenium%20development%20goals.pdf [Accessed 1 August 2011].

UN-Energy (2010) 'About UN-Energy' [online]. Available from: http://esa.un.org/un-energy/ [Accessed 6 January 2011].

UNFCCC (1992) 'United Nations Framework Convention on Climate Change' [online]. Available from: http://unfccc.int/resource/docs/convkp/conveng.pdf [Accessed 6 January 2011].

United Nations (2003) 'United Nations Convention against Corruption' [online]. Available from: http://www.unodc.org/unodc/en/treaties/CAC/index.html [Accessed 6 January 2011].

United Nations (2004) 'Global Compact Principle 10' [online]. Available from: http://www.unglobalcompact.org/AboutTheGC/TheTenPrinciples/principle10.html [Accessed 6 January 2011].

United Nations (2009) Resolution A/63/L.8/Rev.1 [online]. Available from: http://www.un.org/ga/search/view_doc.asp?symbol=A/63/L.8/Rev.1&Lang=E [Accessed 16 December 2010].

US EIA (2010) Country Briefs [online]. Available from: http://www.eia.doe.gov/emeu/cabs/contents.html [Accessed 31 December 2010].
White House (2010) 'National Security Strategy' [online]. Available from: http://www.whitehouse.gov/sites/default/files/rss_viewer/national_security_strategy.pdf [Accessed 6 January 2011].
World Bank (1993) *The World Bank's Role in the Electric Power Sector*. Washington, DC: World Bank.
World Bank (2000) *Fuel for Thought: An Environmental Strategy for the Energy Sector*. Washington, DC: World Bank. Available from: http://www-wds.worldbank.org/external/default/WDSContentServer/WDSP/IB/2000/09/01/000094946_0008040539585/Rendered/PDF/multi_page.pdf [Accessed 6 January 2011].
World Bank (2009) *Energy Strategy Approach Paper*. Washington, DC: World Bank. Available from: http://siteresources.worldbank.org/EXTESC/Resources/Approach-paper.pdf [Accessed 6 January 2011].

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