Global Governance 21 (2015), 475–492

Global Energy Governance in the G-20: States, Coalitions, and Crises

Christian Downie

There is an emerging consensus among global governance scholars that there is a global energy governance gap. The rapid transformation of global energy markets with a new cast of producers and consumers, which now accounts for two-thirds of global greenhouse gas emissions, has left the existing institutional architecture behind. While there has been some discussion in the emerging literature on the potential role of the Group of 20, there is almost no analysis of what conditions need to be met for the G-20 to act in a significant fashion. This article takes up this task. Drawing on recent scholarship in global governance, environmental politics, and international negotiations, as well as the observations of the author who is a past delegate to G-20 negotiations, it considers the role of the G-20 in global energy governance and identifies the principal conditions that will need to be met if the G-20 is to drive more than piecemeal change. **Keywords:** *global governance, energy, G-20, climate change.*

At the Group of 20 (G-20) summit in Brisbane in November 2014, leaders agreed to reform the global energy governance architecture. This was the first time that G-20 leaders had actively considered whether the existing international energy architecture, largely created in response to the oil shocks of the 1970s and dominated by the International Energy Agency (IEA), is sufficient to meet the rapidly changing demands of the global energy sector, a sector which now accounts for two-thirds of global greenhouse gas emissions.[1]

The global energy sector is experiencing a transformation. Nations that were major energy importers only a few years ago are becoming exporters, exporters are becoming large consumers, and previously small consumers are now the prime source of global demand for oil and gas. China is now the world's largest energy consumer and is set to become the largest oil importing country. India is projected to become the largest importer of coal within a decade. And the United States, once the largest energy consumer and dependent on Middle Eastern oil, could be on track for energy self-sufficiency with the revolution in unconventional oil and gas supplies.[2] In other words, the global energy sector is no longer dominated by a small band of Organisation for Economic Co-operation and Development (OECD) countries in Europe and North America. Rather, it is quickly being reconfigured

by the growing demand for energy from non-OECD countries, especially in Asia and the Middle East.

However, these changes are also taking place in a carbon-constrained world. "As the source of two-thirds of global greenhouse gas emissions, the energy sector will be pivotal in determining whether or not climate change goals are achieved."[3] Put simply, the climate problem is an energy problem. Yet energy emissions continue to rise, and the likelihood of reducing global temperatures to 2°C, the so-called guardrail for preventing dangerous climate change, appears to be the hope of a previous decade, not this one. If the world does not take action to reduce global greenhouse gas emissions, it is projected that, by the end of the century, average global temperatures will rise by 5°C above preindustrial levels.[4]

The international energy architecture has not kept pace with these rapid transformations, and it is no surprise that there is an emerging consensus among global governance scholars that a "global energy governance gap" exists. As Ann Florini points out, "The current system of global energy governance is a mess, with many actors, many priorities, little coherence, and limited effectiveness."[5] Neil Hirst and Antony Froggatt argue that "all this points to the need for a genuinely global body for cooperation on energy policy including all major energy consuming countries and working with energy producers in areas where they have interests in common."[6] They claim that such a body could be created from the reform of existing institutions, "or it could be built from scratch."

The most prominent of the existing institutions is the IEA, which was established in 1974 by the world's largest oil consumers—the United States, Europe, and Japan—as a counterbalance to the world's largest oil producers—the Organization of Petroleum Exporting Countries (OPEC)—following the oil shocks of the 1970s. Although the IEA was initially dominated by oil issues, in recent decades it has broadened its focus to include everything from oil and gas markets to energy efficiency and climate change. It has also expanded its membership from the original seventeen to twenty-nine member countries, almost all of the OECD membership.[7] However, it was created at a time when China was a net oil exporter, human-induced climate change was not on the radar, and US energy independence seemed little more than a pipe dream. Today, four of the top ten energy-consuming nations with 40 percent of the world's population—China, India, Brazil, and Russia—are not members of the IEA.

The IEA is not the only global energy organization. Along with OPEC, which was created in 1960 and only began interacting with the IEA after the Gulf War in 1991, recent decades have seen a plethora of energy organizations. These include, among others, the International Energy Forum (IEF), which was created in 1991 as a dialogue between oil-consuming countries and OPEC members; the Energy Charter Treaty organization (ECT), estab-

lished in the same year to promote energy sector investment in Eastern Europe following the end of the Cold War; and, most recently, the International Renewable Energy Agency (IRENA), which was established in 2011 largely due to German leadership to advance renewable energy.[8]

The announcement by G-20 leaders in Brisbane has put the G-20 at the forefront of global energy governance reform. Accordingly, in this article I consider the role of the G-20 in global energy governance, including the initiatives taken in 2014. Drawing on recent scholarship on global governance, environmental politics, and international negotiations, and on my observations as a past delegate to G-20 negotiations, I identify the principal conditions that will need to be met; namely, unilateral state leadership, or leadership from a coalition of states, which is mobilized by an exogenous variable to shift the behavior of these actors. Without the presence of these conditions, the G-20 is unlikely to drive more than piecemeal change, which will not address the shifting demands of an energy sector in a carbon-constrained world. In the next two sections, I provide the theoretical and historical context, which I then use to examine the state actors, coalitions, and exogenous variables that could promote global energy governance reform through the G-20. In the final section, I conclude by identifying the key conditions for G-20 action.

Who Governs the Globe?

It is now common for academics and policymakers engaged in discussions about politics above the state to refer to global governance as opposed to international relations.[9] The focus on governance begs the question, Who does all the governing? In other words, "Who governs the globe?"[10] To the extent that international relations theorists consider governance, their focus is largely on states. For example, governments can govern via international treaties, by creating international organizations, and by using summit processes, such as the G-20.

In this context, liberal scholarship has focused on international "regimes" to refer to the "principles, norms, rules, and decisionmaking procedures around which actor expectations converge in a given issue-area."[11] In this view, regimes, such as the world trade regime or the climate regime, matter in global governance because they affect the behavior of states. Accordingly, the conventional belief is that states create regimes when they expect that the regime will increase their welfare and that, once created, are easier to maintain than to construct again. As a result, states will typically seek to modify existing institutions in response to new problems rather than create new ones.[12]

While global governance scholarship has also shown that states do not govern alone, for the purposes of this article and the role of the G-20, my

analysis is confined to state actors, given that nonstate actors, such as business groups and civil society groups, have limited formal representation within the G-20 meetings, more limited than in other forums such as the UN. In addition, a considerable body of empirical research continues to show that states remain the most important actors across a range of global governance sites, from trade and intellectual property to financial regulation and the environment.[13]

Further, a distinguishing feature of the global governance literature is the focus on coalitions and networks. In the context of multilateral negotiations, like the G-20, one of the defining characteristics is that parties form coalitions; that is, "a set of governments that defend a common position in a negotiation by explicit coordination."[14] As negotiation scholars have pointed out, in multilateral negotiations the larger the coalition, the less it will lose and the more it will gain, and coalitions that include developed and developing countries are likely to gain more than those that do not. In the G-20, the principal coalitions, as I discuss, are based around economic development and political power, yet empirical studies have shown that coalitions defined in terms of specific issues are likely to do better than ones encompassing several issue areas.[15] This could prove important in the case of energy if a G-20 coalition develops around global energy governance reform.

While coalitions of states can be considered endogenous to the G-20 negotiation process, state behavior can also be driven by exogenous factors that shift the behavior of actors by reshaping the context in which they operate. Over prolonged periods, empirical research has shown that exogenous factors, such as external shocks, changes in the state of expert knowledge, and challenges from other international regimes, can shift the preferences of state actors in international negotiations.[16] For example, a global financial crisis, a nuclear meltdown, or a catastrophic hurricane are all possible external shocks that may change state behavior.

If states are the most important governors and the G-20 includes the most powerful states, what precisely is the role of the G-20? And what role has it played in global energy governance? It is to these questions that I turn in the next section, before considering what factors could shift the G-20 from its fragmented business-as-usual approach—which also happens to produce rising greenhouse gas emissions—to an approach that drives substantive reform of the international energy architecture.

The G-20's Role in Global Energy Governance

The Rise of the G-20

Since the global financial crisis in 2008, the G-20 has emerged as the premier forum on international economic cooperation and, increasingly, it is a

key forum on noneconomic issues as well. It was elevated to a leaders' summit in 2008, having previously been a forum for finance ministers. Its members include the Group of 8 (G8), plus China, India, Brazil, Mexico, Argentina, Australia, Indonesia, Korea, Saudi Arabia, South Africa, Turkey, and the European Union (EU). It has no permanent secretariat. The host of the G-20, which rotates each year, fulfils the secretariat functions.[17]

The rise of the G-20 has naturally led to questions about its legitimacy.[18] However, its broad membership and roles, especially as a crisis committee, has provided a foundation for legitimacy that arguably supersedes that of the G8. First, by including the major emerging economies, the membership of the G-20 has narrowed the gap between the rule makers and the rule takers in the international political order.[19] Under the leadership of the G8, seen widely as a club for the rich, the existing pattern of global governance was not credible to the likes of China and India, which were not invited to the table. The more inclusive membership of the G-20 has given these countries a seat, which they have used to push for a more comprehensive pattern of global governance, as evident with the reforms to the international financial institutions.

Second, the G-20's legitimacy has largely been determined by how successful it is as a crisis committee; that is, a leaders-level forum that can swiftly coordinate international responses to global problems.[20] Since its inception in the midst of the global financial crisis, for which its quick response was widely praised, it has increasingly become the preeminent forum not only for economic crises, but also for political ones, such as the ongoing civil war in Syria and the 2014 Russian conflict with Ukraine. While its role as a crisis committee is important and may reflect that in international affairs a crisis is often the most likely cause for nations to act, if the G-20 is to maintain its legitimacy it must be equally successful as a steering committee. Indeed, several authors argue that the G-20, given its membership, needs to take more seriously its role as a steering committee that can produce global public goods by encouraging consensus between the biggest countries on the major global issues.[21]

The G-20's Role in Energy Governance

The Brisbane summit was the first time G-20 leaders had a dedicated discussion on global energy governance. Leaders endorsed a set of principles on energy collaboration, which included agreement that the "international energy architecture needs to reflect better the changing realities of the world energy landscape."[22] In contrast to the G-20's active interest in global economic governance issues, such as International Monetary Fund (IMF) and World Bank reform, significant global energy governance reform has not been on its agenda. Instead, the G-20's focus has largely been on "transparent, well-functioning, reliable energy markets" that promote "sus-

tainable development."[23] For example, the terms of reference of the various G-20 energy working groups that have existed since 2008 have focused on reducing price volatility in energy markets, improving energy efficiency, improving access to clean technologies, and sustainable development and green growth. The closest that the G-20 has come to considering the shape of the existing institutional architecture is the call by leaders at the Cannes summit in 2011 for the IEF dialogue between oil producer and consumer countries to be held on an annual basis and for the "IEF, the IEA and OPEC to release a joint communiqué and a report highlighting their outcomes."[24]

Following the Cannes summit in 2012, former Chinese premier Wen Jiabao proposed multilateral coordination within the framework of the G-20 to make the global energy market more "secure, stable and sustainable."[25] And in 2013, the IEA and six "partner countries"—Brazil, China, India, Indonesia, Russia, and South Africa—issued a joint statement to pursue a stronger, more enhanced form of multilateral cooperation on energy.[26] The "association initiative," which was welcomed by G-20 leaders in St. Petersburg, aims to engage the major emerging economies that remain outside the IEA by virtue of the fact that they are not OECD members, which is one of the key requirements for formal membership in the IEA, along with a requirement to hold strategic oil stocks equivalent to ninety days of imports.[27]

In 2014 under Australia's presidency, the G-20 began to directly discuss the future of the international energy architecture. At the first meeting of the G-20 Energy Sustainability Working Group (ESWG) in February 2014, "the global energy architecture" was formally put on the agenda for discussion and several academics and policymakers were invited to the meeting to make the case for reform.[28] Yet even with the statement by leaders in Brisbane, the G-20 is still a long way from reaching a consensus on what its role should be. Several G-20 countries remain skeptical about the G-20 taking a lead role and, although there is some benefit to having OPEC's views present in the G-20 via the membership of Saudi Arabia, this also makes it difficult for the G-20 to bridge the consumer and producer divide, which limits its role.[29]

Nevertheless, the G-20 remains the most likely forum to drive global energy governance reform due to its membership and its potential as a steering committee. As it showed in 2014, the G-20 is in a position to act as an agenda setter on global energy governance by building consensus among leaders of the world's most powerful states. Of course, what type of reform the G-20 can and will pursue remains an open question. For example, there is an ongoing debate about whether the global governance gap can be addressed with the reform of existing institutions such as the IEA and better cooperation between institutions such as the IEA and the IEF, or whether new institutions such as a world energy organization will be required.

However, for the purposes of this article, the concern is not with the precise type of global energy governance reforms. Rather, it is to consider

the conditions that would be necessary for the G-20 to drive substantive changes to the existing international architecture; in other words, changes that secure the reliable and affordable supply of energy on the one hand, and the transformation to a low-carbon energy future on the other. If there is a general recognition among G-20 countries that such reforms are required, why is it not happening on a global scale? What is required for the most powerful countries in the world to reform the governance system in a significant fashion? In the next section, I consider the role that state actors and coalitions could play to initiate reform. Then, in the subsequent section, I examine the role that exogenous factors could have on the behavior of these actors.

Prospects for G-20 Action

State Actors

While states may not govern the globe alone, they remain the most important actors for determining global outcomes across a range of governance sites, and there is no reason to believe that this will be any different in the case of energy. For most of the twentieth century, the United States was the most powerful state in the world and, arguably, it remains so today. The United States is still the largest national economy in the world, with a gross domestic product (GDP) of over $17 trillion, and it has the most powerful military in the world. The US Navy alone is largely responsible for securing the world's most important choke points for the global oil market, the Straits of Malacca and of Hormuz.[30] US leadership has also been crucial to the success of the G-20. The G-20's establishment as a leaders' summit owes much to US coordination, and two of the first three summits were hosted in the United States in Washington, DC, in 2008 and Pittsburgh in 2009. In addition, the United States is the major donor to most international institutions, including the IEA, the predominant energy organization. As a result, should the United States decide to take a leadership role on energy in the G-20, there is a good reason to believe that global energy governance reform can be achieved.

However, while the United States remains a constructive member of the G-20, under President Barack Obama it has not been inclined to lead. To a large extent, this reflects the fact that the United States is able serve its interests in other forums and via other means. For example, the United States has been more comfortable using bilateral channels, such as the US-China Strategic and Economic Dialogue, to manage its relationships with emerging economies. There is also a general antipathy in the US Congress to new multilateral initiatives, as is evident in recent delays on the passage of multilateral trade agreements and the granting of fast-track authority to the president to negotiate such agreements.

That said, the Obama administration has recognized the need to recast the existing international energy architecture. For example, in 2009, then secretary of state Hillary Clinton publicly acknowledged that IEA membership should be enlarged to include China and India, and the United States has supported the IEA's association initiative, as discussed above.[31] It is also likely that the United States is open to the possibility of a new world energy organization. Yet at the moment, the United States does not view such an institution as realistic, nor is it prepared to invest the political capital needed to drive such a reform. Instead, it appears that the preference of the Obama administration is to pursue its energy goals bilaterally and within the existing international architecture.

After the United States, China is the only other state that could unilaterally drive global energy governance reform through the G-20. As the world's largest energy consumer and largest emitter of greenhouse gases, it is now at the center of every discussion on global energy policy.[32] In fact, China and the United States are now the two largest energy consumers, the two largest oil consumers, the two largest coal producers and consumers, and the two largest carbon emitters.[33] As a result, in the absence of a US desire to lead the G-20, China stands as the obvious, and likely the only, alternative state that could drive reform.

China has used the G-20 to question other areas of global governance such as the governance of the IMF and the World Bank following the global financial crisis. And as observed in G-20 meetings, China has expressed concern about the fragmented nature of the current international energy architecture and has supported moves to reform existing institutions. As noted above, China was one of six countries in 2013 to issue a joint statement with the IEA supporting the association initiative, and there appears to be some level of consensus within the G-20 for this approach. Yet even with this initiative China will not be a member of the IEA, and it is hard to believe that it will be willing to accept the rules and norms of a system in the long term without having a voice in how it is run. In short, there are reasons to expect that China could be motivated to drive substantive global energy governance reform.

Yet as some international relations scholars have argued, China so far seems to have accepted the existing international order. Although China has clearly become more active in multilateral forums, it has not been inclined to take a leadership role and unilaterally advocate for new institutions or globalized regulations. As others have pointed out, China may appear more confident on the international stage, but this only goes so far.[34] While China is certainly comfortable in the G-20, Chinese leaders have continued to argue in multilateral settings that China is a developing country "and cannot take on a level of obligation that goes beyond its capacity."[35]

Further, and equally importantly, China appears to have no clear preference or vision for a future multilateral architecture. Much like the United States, it is turning to bilateral and regional channels to secure its energy objectives. It has used bilateral dialogues with the United States and Japan to manage energy issues, and its national oil companies are active in over thirty countries where they have signed long-term contracts to secure oil and gas supplies.[36] China has also used the Shanghai Cooperation Organization (SCO), which it founded in 2001 and whose members include Russia and Kazakhstan, to promote regional energy cooperation.

State Coalitions

In the absence of a powerful state providing unilateral leadership, reform could come from a coalition of states. As negotiation scholars have pointed out, one of the defining characteristics of multilateral negotiations is that parties form coalitions. There are three possible coalitions in the G-20: Mexico, Indonesia, Korea, Turkey, and Australia (MIKTA); the G8, which includes the EU as a coalition within it; and Brazil, Russia, India, China, and South Africa (BRICS).

MIKTA is a grouping of "middle power" states that was formed on the margins of the UN General Assembly in 2013.[37] In reality, the fact that it has only recently been created, does not include any of the most powerful states, and describes itself as an "informal" grouping that has not yet determined whether it wants to explicitly coordinate its activities—one of the key criteria for a successful coalition according to negotiations scholarship—indicates that it is unlikely to provide a powerful coalition for energy reform.

The G8, on the other hand, has the power but cannot provide the leadership. As a coalition, the G8 comprises some of the most powerful states in the G-20, including the United States, the United Kingdom, and Germany, and it explicitly coordinates its actions to defend common positions, making it an especially powerful force. However, it cannot drive global energy governance reform without US leadership for the very reason that it does not include any of the major emerging economies, which have so transformed global energy markets as to warrant global governance reform in the first place.

This leaves the BRICS. The term "BRIC" was coined in 2001 by Goldman Sachs economist Jim O'Neill to highlight that the emerging economies of Brazil, Russia, India, and China would in the coming decades surpass the Group of 7 (G7) economies, requiring a fundamental shift in international economic policy.[38] The term was picked up by international relations scholars who have begun to consider what this means for global governance and the power of the United States. Realists have been quick to argue that the United States and Europe should employ balance of power strategies, includ-

ing in the G-20, to contain the emergence of these rising powers.[39] Others have highlighted the limits on BRIC cooperation and noted their diverging domestic preferences and historical distrust. After all, China has fought wars with both Russia and India. And while Russia and Brazil tend to benefit from high energy prices, India suffers from them as a large energy consumer.[40]

Russia, which hosted the first leaders' summit in 2009 before South Africa joined in 2010 to make it the BRICS, appears be the strongest proponent of the grouping along with Brazil. The participation of China certainly strengthens the BRICS and enhances their legitimacy as global coalition. However, China needs the grouping much less than the BRICS need China, which can pursue its interests bilaterally. This likely explains China's desire not to act as a leader of the BRICS. At the same time, China does secure benefits from coordinating its position with the BRICS, including improving its bargaining position with other Western countries in multilateral forums and improving its historically uneasy relations with Russia and India.[41]

In the emerging literature on the BRICS, there has been little consideration of whether the coalition can be a catalyst for substantive global governance reform, including in the energy arena. Economic power is one thing; translating it into influence on existing international institutions is quite another.[42] The statements by BRICS leaders have certainly indicated a desire to do so. In 2012, BRICS leaders declared a desire to work with others in multilateral forums "to deal with the challenges and the opportunities before the world today," including "strengthened representation of emerging and developing countries in the institutions of global governance."[43]

However, the behavior of the BRICS suggests they are unlikely to drive substantive global energy governance reform in the near term. First and foremost, they have used their rising economic power to act as a veto coalition to obstruct initiatives they do not support, rather than to drive reforms they do support. The BRICS have questioned the legitimacy of the existing global order, but they have not sought to transform it. As has been documented elsewhere, the BRICS used the global financial crisis in 2008 and their temporarily increased bargaining power, due to their relative economic stability, to question the legitimacy of the global financial institutions (i.e., the IMF and World Bank).[44] And in return for agreeing to provide increased financial resources to the IMF, BRICS countries were able to push the G-20 to a series of quota and governance reforms of the IMF to increase their voting power. Yet even when the latest of these reforms is implemented, the so-called 2010 governance reforms, the United States will still hold a voting share of 16.5 percent (compared to 6 percent for China and just over 2 percent for Russia, India, and Brazil), enough to veto any IMF decision.[45]

Second, the BRICS do not have a clear preference or vision for a future international architecture, be it for finance or energy. In the case of finance, they are quick to chastise the United States and the EU on economic and

noneconomic issues in G-20 meetings, notably the failure by the United States to ratify the 2010 IMF governance reforms, but they are less eager to put forward constructive alternatives that they are united behind.[46] The same is true on energy. For instance, the BRICS have supported the IEA's association initiative and its outreach to other energy bodies, such as the IEF, but they have not articulated a vision for a future system of energy governance. In short, the BRICS have been able to force piecemeal changes to the existing order, but they have not been willing or able to drive global governance reform in a significant fashion. In other words, they have resisted the type of leadership that has characterized past US behavior in this arena.[47]

Exogenous Variables

While states and coalitions are endogenous to the G-20 negotiation process, their behavior can also be driven by exogenous variables that reshape the context in which they operate. These actors may govern the globe, but they govern in a dynamic environment. Nothing remains the same for long. Given the existing preferences of the United States, China, and the BRICS, it is likely that substantive reform will require something to change—some form of exogenous event to shift behavior. In what follows, I consider three external variables: external shocks, changes in the state of expert knowledge, and challenges from other international regimes. Of course, this is not an exhaustive list, but these factors have been identified in previous empirical studies as the most likely to shift state behavior over time.[48]

First, exogenous shocks have the potential to transform the context in which G-20 negotiations on energy take place. Others have noted the role that exogenous shocks can play in shifting state behavior.[49] The most common pathway is where a dramatic event or series of events captures the imagination of mass publics after media organizations dramatize the event, and state actors are forced to act to placate the public and the media.[50] The chemical gas spill in Bhopal, India, in 1984 and the nuclear accident in Chernobyl in 1986 are classic cases of exogenous events that catalyzed mass publics and forced states to act both domestically and internationally.

Exogenous shocks are not new to the G-20. As noted above, the G-20's legitimacy has largely been determined by its success as a crisis committee, particularly following the global financial crisis. Without a crystal ball, it is difficult to know whether an energy crisis is on the horizon, but it is not hard to imagine a scenario. After all, the IEA was established only in response to the oil shocks of the 1970s and, given the current demands on global energy markets from a new cast of consumers and producers, it is but a matter of time before a shortfall of energy in a major consuming nation—such as China following a disruption to oil trade routes, or Europe following a crisis with Russia, or the United States following another hurricane like Katrina—sparks a response from the G-20.

A second external variable is the state of expert knowledge among policy elites. This is based on Peter Haas's work on epistemic communities, that is, a "network of professionals with recognised expertise and competences in a particular domain and an authoritative claim to policy-relevant knowledge within that domain or issue-area."[51] Haas argues that the language of science is becoming a worldview that penetrates politics everywhere and, therefore, could affect how states' interests are defined. This would be especially so in issue areas with high complexity and uncertainty, though he recognizes that there must be demand for such knowledge from policymakers. Empirical inquiries have since shown how such communities can help to create shared understandings among policy elites and, hence, improve state cooperation.[52]

Global energy governance is an issue area with high complexity in which there is also a growing demand for knowledge among policymakers in G-20 countries. Hypothetically, should an epistemic community of engineers develop around a new technology following a breakthrough on solar technology or geoengineering, for example, this could shift the state of expert knowledge among policy elites and with it the behavior of key states. In the context of a carbon-constrained world, there is precedence for this: namely, the UN Intergovernmental Panel on Climate Change (IPCC). Empirical studies of policy elites have shown that the IPCC was critical to establishing a consensus among policy elites in the United States and European countries that there was a discernible human influence on the climate, which over time affected the position of these states in the international climate negotiations.[53]

Finally, other international regimes can act as an external variable. I. William Zartman points out that competing efforts to deal with aspects of the same problem in overlapping geographic or functional areas occur at the intersection of various regimes.[54] As a result, exogenous challenges can come from other regimes, which affect state behavior—by affecting the cost-benefit calculations of actors, or by establishing certain rules and norms as legitimate, or by shifting the balance of power between states. There is evidence to suggest that the international ozone regime provided learning opportunities for states that were grafted onto the international climate regime. Other studies have highlighted the "strategic linkages" between the climate regime and other regimes, such as those to combat desertification and protect biological diversity.[55] This could happen in the energy arena, for instance, should the climate regime or the trade regime provide an exogenous challenge to existing international energy architecture. Similarly, a challenge to the IEA could come from the newly established IRENA as the world moves toward renewable sources of energy in coming decades.

Conclusion: Three Conditions for Action

In the past decade, the global energy sector has been transformed by a new cast of producers and consumers. Nations that were major energy importers only a few years ago are becoming exporters, and exporters are becoming large consumers. There is an emerging consensus among global governance scholars that the international energy architecture has not kept pace with these transformations and with the revolution that is required to govern energy in a carbon-constrained world. It has been argued that the current system is a mess and that there is a genuine need for a global body for cooperation on energy policy via the reform of existing institutions or the creation of new organization.

Despite its limits, the G-20 has emerged as the most likely forum to drive global energy governance reform. Due to its membership, which includes major emerging economies, and its increasing role as a steering committee on global governance as was evident during the global financial crisis, the G-20 now supersedes the G8 as the premier forum on global economic issues. It has also become the premier forum on global energy policy because it is the only forum that brings together the new cast of energy producers and consumers, unlike other international energy institutions such as the IEA and the IEF.

However, the question remains: Under what conditions is the G-20 likely to drive substantive global energy governance reform (i.e., reform that secures the reliable and affordable supply of energy on the one hand, and the transformation to a low carbon energy future on the other)? While the G-20 is beginning to consider the state of the international energy architecture, under what conditions is action likely to occur? What is required for the most powerful countries in the world to reform the governance system in a significant fashion? Drawing on the discussion in this article, three principal conditions can be identified: (1) unilateral leadership from the United States or China; (2) coalition leadership from the BRICS; and (3) an exogenous variable to shift the behavior of the United States, China, or the BRICS.

Unilateral Leadership from the United States or China

If the international energy regime is to be reformed—via the reform of existing institutions, which regime scholars would expect, as opposed to the creation of an entirely new international energy regime—states will have to play a driving role. The United States and China are the only two states that could unilaterally lead reform through the G-20. As I discussed, they are now the two largest energy consumers, the two largest oil consumers, the two largest coal producers and consumers, and the two largest carbon emitters. In short, not only do they have the coercive economic power, but they are at the center of every discussion on global energy policy.

However, the United States and China are unlikely to provide unilateral leadership in the near term. The United States has not demonstrated a desire to lead in the G-20. It can pursue its energy goals bilaterally and within the existing international architecture, which is an attractive approach given the antipathy in the US Congress to new multilateral initiatives. In addition, the Obama administration does not view a new international energy regime as realistic, nor is it prepared to invest the political capital needed to drive such a reform. While China has clearly become more active in multilateral forums, it too has no preference to unilaterally drive global governance reform, including on energy. At the same time, much like the United States, it appears to have no clear preference or vision for a future multilateral energy architecture. Instead, China is increasingly looking to bilateral and regional channels to secure its energy objectives.

Coalition Leadership from the BRICS

In multilateral forums, coalitions that defend a common position by explicit coordination can provide a powerful force to direct negotiations toward their preferred outcome. In the context of the G-20, the BRICS represent the most likely coalition to drive energy reform, not simply because of their growing economic power, but because the transformations in their economies are driving the rapid transformation of global energy markets and, at the same time, they are excluded from the principal international energy organization, the IEA.

However, to date, they have employed their economic power as a veto coalition to question the legitimacy of the existing global order, but they have not tried to transform it. In addition, the BRICS do not have a clear preference or vision for a future global economic system or a global energy system. Instead, they have been comfortable pushing for piecemeal changes to the existing order, such as reform of the IMF, rather than leading global governance reform in a significant fashion. Until this changes, or until the BRICS are able to work with other G-20 members to establish an issue-based coalition (which empirical studies have shown is especially effective in multilateral negotiations) in support of global energy governance, leadership from a coalition within the G-20 appears doubtful.

An Exogenous Variable to Shift the Behavior of the United States, China, or the BRICS

At present, there is little evidence to indicate that a state actor or a coalition of state actors is willing or able to promote global energy governance reform. However, state behavior can be influenced by exogenous variables that shift the behavior of actors. There are three likely variables: external shocks, changes in the state of expert knowledge, and challenges from other international regimes. In the short term, an exogenous shock, such as sup-

ply disruption to a major consumer nation via a natural disaster or a historically high price spike, appears the most likely possibility. Other exogenous variables, such as a change in the state of expert knowledge among policy elites or a challenge from another international regime, could have a similar effect. However, these may take some years to manifest and are less likely to influence the G-20 as an external shock, given the G-20's role as a crisis committee. This is also consistent with the expectations of regime scholars, who would predict that an external shock would increase the probability of the creation of a new international energy regime.[56]

Without the unilateral leadership of the United States or China or leadership from a coalition of states (most likely the BRICS) that is mobilized by an exogenous variable that shifts the behavior of these actors, it is difficult to envisage the conditions under which substantive global energy governance reform will occur. Instead, what we are likely to witness in the energy arena is piecemeal changes to the existing order, such as the IEA association initiative, rather than an attempt to transform the existing international energy architecture to match the transformations in global energy markets. Further research not only should empirically test these variables in the context of the G-20 energy negotiations, but also should consider what other actors and variables could inspire global energy governance. While outside the scope of this article, the obvious place for global governance scholars to search is among nonstate actors and their networks with state actors. For example, research into the role of business actors could be revealing given the dominance of oil and gas corporations in energy markets, their strong ties to state actors, and the historical role they have played in the creation of other international regimes. 🌐

Notes

Christian Downie is vice chancellor's postdoctoral fellow at the University of New South Wales and visiting fellow at the Australian National University. He was previously a foreign policy adviser to the Australian government. His first book, *The Politics of Climate Change Negotiations*, was published in 2014.

1. International Energy Agency (IEA), "World Energy Outlook 2013" (Paris: IEA, 2013).
2. Ibid.
3. Ibid., p. 1.
4. T. F. Stocker et al., eds., *Climate Change 2013: The Physical Science Basis: Contribution of Working Group I to the Fifth Assessment Report of the Intergovernmental Panel on Climate Change* (Cambridge: Cambridge University Press, 2013).
5. Ann Florini, "The Peculiar Politics of Energy," *Ethics and International Affairs* 26, no. 3 (2012): 303.
6. Neil Hirst and Antony Froggatt, "The Reform of Global Energy Governance" (London: Grantham Institute for Climate Change, 2012), p. 10.
7. Ann Florini, "The International Energy Agency in Global Energy Governance," *Global Policy* 2 (2011): 40–50.

8. Thijs Van de Graaf, "Fragmentation in Global Energy Governance: Explaining the Creation of Irena," *Global Environmental Politics* 13, no. 3 (2013): 14–33; Hirst and Froggatt, "The Reform of Global Energy Governance."

9. Mark Bevir, *Governance: A Very Short Introduction* (Oxford: Oxford University Press, 2012).

10. Deborah Avant, Martha Finnemore, and Susan Sell, eds., *Who Governs the Globe?* Cambridge Studies in International Relations (Cambridge: Cambridge University Press, 2010).

11. Stephen Krasner, "Structural Causes and Regime Consequences: Regimes as Intervening Variables," in Stephen Krasner, ed., *International Regimes* (Ithaca: Cornell University Press, 1983), p. 1.

12. Robert Keohane, *After Hegemony: Cooperation and Discord in the World Political Economy* (Princeton: Princeton University Press, 1984).

13. John Braithwaite and Peter Drahos, *Global Business Regulation* (Cambridge: Cambridge University Press, 2000); Navroz Dubash and Bronwen Morgan, eds., *The Rise of the Regulatory State of the South* (Oxford: Oxford University Press, 2013).

14. John Odell, "Introduction," in John Odell, ed., *Negotiating Trade: Developing Countries in the WTO and NAFTA* (Cambridge: Cambridge University Press, 2006), p. 13.

15. Ibid.

16. Christian Downie, *The Politics of Climate Change Negotiations: Strategies and Variables in Prolonged International Negotiations* (Cheltenham: Edward Elgar, 2014).

17. Group of 20, "Australia G20," https://www.g20.org, accessed March 2015.

18. Steven Slaughter, "Debating the International Legitimacy of the G20: Global Policymaking and Contemporary International Society," *Global Policy* 4, no. 1 (2013): 43–52.

19. Andrew F. Cooper, "The G20 as an Improvised Crisis Committee and/or a Contested 'Steering Committee' for the World," *International Affairs* 86, no. 3 (2010): 742.

20. Ibid.

21. Ibid.; Thijs Van de Graaf and Kirsten Westphal, "The G8 and G20 as Global Steering Committees for Energy: Opportunities and Constraints," *Global Policy* 2 (2011): 19–30.

22. G-20 Leaders' Summit, "G-20 Principles on Energy Collaboration," Brisbane Summit, 15–16 November 2014.

23. "G20 Leaders Declaration," Russia G20, September 2013, https://www.g20.org/sites/default/files/g20_resources/library/Saint_Petersburg_Declaration_ENG.pdf.

24. "Leaders Declaration," G20 Information Centre, University of Toronto, 4 November 2011, www.g20.utoronto.ca/2011/2011-cannes-communique-111104-en.html.

25. Hirst and Froggatt, "The Reform of Global Energy Governance," p. 3.

26. IEA, "Joint Declaration by the IEA and Brazil, China, India, Indonesia, Russia and South Africa on the Occasion of the 2013 IEA Ministerial Meeting Expressing Mutual Interest in Pursuing an Association" (Paris: IEA, 2013).

27. IEA, "Agreement on an International Energy Program" (Paris: IEA, 2014).

28. See "Energy Sustainability Working Group Meeting #1," 10–13 February 2014, Melbourne, www.g20australia.org/australia_2014/event_schedule/energy_sustainability_working_group_meeting_1.

29. Hirst and Froggatt, "The Reform of Global Energy Governance," p. 10.

30. Andreas Goldthau, "A Public Policy Perspective on Global Energy Security," *International Studies Perspectives* 13, no. 1 (2012): 73.

31. Ann Florini and Benjamin K. Sovacool, "Who Governs Energy? The Challenges Facing Global Energy Governance," *Energy Policy* 37, no. 12 (2009): 5243.

32. Bo Kong, "Governing China's Energy in the Context of Global Governance," *Global Policy* 2 (2011): 51–65.

33. Mikkal Herberg, "China's 'Energy Rise,' the U.S. and the New Geopolitics of Energy" (Los Angeles: Pacific Council on International Policy, 2010), p. 5.

34. Zhiqun Zhu, *China's New Diplomacy: Rational Strategies and Significance* (Farnham: Ashgate, 2013), p. 11.

35. Jiechi, cited in Zhu, *China's New Diplomacy ,* p. 236.

36. Herberg, "China's 'Energy Rise.'"

37. Republic of Turkey, "Press Release Regarding the Mikta Initiative," 26 September 2013.

38. Jim O'Neill, "Building Better Global Economic BRICs," Global Economics Paper No. 66 (London: Goldman Sachs, 2001).

39. Patrick Stewart, "Irresponsible Stakeholders? The Difficulty of Integrating Rising Powers," *Foreign Affairs* 89, no. 6 (2010): 44–53.

40. M. A. Glosny, "China and the BRICS: A Real (but Limited) Partnership in a Unipolar World," *Polity* 42, no. 1 (2010): 100–129; Oliver Stuenkel, "The Financial Crisis, Contested Legitimacy, and the Genesis of Intra-BRICS Cooperation," *Global Governance* 19, no. 4 (2013): 611–630.

41. Glosny, "China and the BRICS."

42. Peter Drahos, "Regulatory Capitalism, Globalization and the End of History," *Intellectual Property Law and Policy Journal* 1 (March 2014): 5.

43. Brazil, Russia, India, China, and South Africa (BRICS), "BRICS Summitt Delhi Declaration," www.cfr.org/brazil/brics-summit-delhi-declaration/p27805, accessed March 2012.

44. Stuenkel, "The Financial Crisis, Contested Legitimacy, and the Genesis of Intra-BRICS Cooperation"; Drahos, "Regulatory Capitalism, Globalization and the End of History."

45. International Monetary Fund (IMF), "Quota and Voting Shares Before and After Implementation of Reforms Agreed in 2008 and 2010," 2011, www.imf.org/external/np/sec/pr/2011/pdfs/quota_tbl.pdf.

46. G20, "Communiqué Meeting of Finance Ministers and Central Bank Governors," 22–23 February 2014, https://www.g20.org/sites/default/files/g20_resources/library/Communique%20Meeting%20of%20G20%20Finance%20Ministers%20and%20Central%20Bank%20Governors%20Sydney%2022-23%20February%202014_0.pdf.

47. Drahos, "Regulatory Capitalism, Globalization and the End of History," p. 14.

48. Christian Downie, "Toward an Understanding of Prolonged International Negotiations," *International Negotiation* 17, no. 2 (2012): 295–320.

49. I. William Zartman, "Negotiating the Rapids: The Dynamics of Regime Formation," in Bertram Spector and I. William Zartman, eds., *Getting It Done: Postagreement Negotiation and International Regimes* (Washington, DC: United States Institute of Peace Press, 2003), pp. 13–50.

50. Braithwaite and Drahos, *Global Business Regulation;* Anthony Downs, "Up and Down with Ecology: The 'Issue-attention Cycle,'" *Public Interest* 28 (Summer 1972): 38–50.

51. Peter Haas, "Introduction: Epistemic Communities and International Policy Coordination," *International Organization* 46, no. 1 (1992): 3.

52. Peter M. Haas, "Do Regimes Matter? Epistemic Communities and Mediterranean Pollution Control," *International Organization* 43, no. 3 (1989): 377–403; Haas, "Introduction"; Braithwaite and Drahos, *Global Business Regulation*.

53. Downie, *The Politics of Climate Change Negotiations*.
54. Zartman, "Negotiating the Rapids," pp. 29–31.
55. Sikina Jinnah, "Climate Change Bandwagoning: The Impacts of Strategic Linkages on Regime Design, Maintenance, and Death," *Global Environmental Politics* 11, no. 3 (2011): 1–9.
56. Zartman, "Negotiating the Rapids."