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Global Governance of the Energy-Climate Nexus:
Towards National Engagement Strategies

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Abstract

The global landscapes of climate change and energy governance are both fragmented and complex. Often operating in silos, their interrelations are hard to grasp. An academic literature examining this energy-climate nexus is yet to emerge, and more studies are needed that provide practical tools for governments on how they can strategically engage with this governance landscape in line with their nationally-determined energy and climate action agendas.

This working paper takes an actor-centric approach to the issue of global governance of energy and climate change in the post-2015 era by asking: (1) what kind of a global institutional landscape is currently governing the energy-climate nexus; and (2) how can states most efficiently engage with it?

The paper develops a matrix to help visualise where and how different aspects of the energy-climate nexus are governed globally. Taking a state-centred, interest and needs-based approach to participation in the global energy-climate 'regime complex', the paper also proposes a multi-stakeholder process comprised of three steps that governments can undertake in order to make their participation in the global 'energy-climate regime complex' more effective. These are: a mapping of the country's current participation profile; definition of the national interest with regard to the global regulatory environment, support needs and support made available; and identification of optimal ways to engage with the regime complex, taking into account domestic human resource limitations and the near-term evolution of the regime.

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1. Introduction

Focusing on the 'energy-climate nexus', this study calls for more focus on the relationship between state actors and global governance frameworks. It argues that, in order to be able to meaningfully engage in the global governance of the energy-climate nexus, governments need to understand how this 'regime complex' works and what it can offer to individual states. Governments should also conduct national multi-stakeholder exercises to determine what their country's national interest is in relation to this governance landscape, and how best to pursue it.

Governing the Energy Transition

After the adoption of the Paris Agreement in 2015, the focus of global climate change governance is shifting from defining the regulatory architecture to supporting national implementation. In order to reach the objective of the Paris Agreement of limiting the global average temperature increase to well below 2°C compared to pre-industrial levels, massive economic and energy transformations are required to decarbonise global energy supply over the coming decades.

The central global climate change governance institution, the UN Framework Convention on Climate Change (UNFCCC), is gearing up to have in place a number of functional mechanisms to support national action and to serve as a hub for accelerating ambition by multiple actors outside the Convention.

However, the UNFCCC alone will not be able to leverage the required transitions. This is partly because solving the global challenge of climate change depends largely on changes in energy production and consumption policies and measures in and among states, which the Convention does not have tools or a mandate to directly address.

International energy organisations, such as the International Energy Agency (IEA) and the International Renewable Energy Agency (IRENA), provide important support to countries in their energy transitions through data provision, knowledge sharing and capacity building. In addition, a number of international 'clubs' of states and multi-stakeholder partnerships have been established in recent years that work on different aspects of the climate and energy agenda with different membership configurations. A number of non-state institutional actors, including multilateral development banks and private-sector coalitions, are also emerging as influential players in both agenda setting and implementation.

The 'Energy-Climate Regime Complex'

A broad variety of international institutional and legal arrangements currently govern the international and transboundary aspects of both energy and climate change. There is no single global organisation leading on either of these two agendas, but various entities working on different aspects of them. These two institutional landscapes have been called in academic literature as the 'energy regime complex' and the 'climate change regime complex'.

These two regime complexes still remain largely unintegrated, with few institutions focusing specifically on the energy-climate nexus. Academic and policy-oriented literature too has yet to paint a clear picture of how the nexus between energy and climate change is governed globally. This paper focuses on precisely this nexus, and the institutions and cooperative forms that are part of it, which it calls the 'energy-climate regime complex'.

Making Sense of the Energy-Climate Regime Complex

While some academic scholarship has examined the impacts of climate change on the evolution of global energy governance, little attention has been paid to either where the global energy response to climate change is being governed or what this means for countries: where the key institutions for governments to engage with are and how governments can gain the most from them.

In order for the global governance of the 'climate-energy nexus' to be effective, a clear understanding is needed of where the energy-climate nexus is governed globally, what and where are its key competencies, and how it is evolving.

This paper will mainly focus on mapping the present state of this regime complex, but will point towards a need for more analysis on its near-term evolution and key competencies within it. The paper also makes the case for practice-oriented, state-centred analyses that can contribute towards more effective participation in the regime complex and, consequently, enhanced national-level implementation.

Enhancing State Effectiveness in Implementation

Despite the growing importance of non-state and subnational actors in delivering climate action, states will still be the key drivers of low-carbon transitions.[1] Redirecting investments to clean energy and energy efficiency will require government policies and regulation, and in most cases also public investments and on-the-ground implementation by governments.

In order to maximise the benefits countries can gain from global governance around the energy-climate nexus, governments should engage in a three-step strategy exercise:

- first, mapping the state's present-day participation profile – what institutions the government engages with and what is known of relevant regime competencies and human and other resource requirements for meaningful participation;
- secondly, defining the country's national interest – what the state wants and needs from the international level to be able to fulfil its national energy transformation goals; and
- thirdly, establishing how the country's interests can be best pursued – which institutions best represent (or have the potential to represent) the best vehicles for pursuing the national interest and how these institutions should be approached.

[1] International Relations scholarship on global governance has been driven by the realisation that states are not the only actors in international relations and, as a consequence, a large bulk of literature has taken regimes or global governance as the object of the study. A growing number of studies are also being written on the role of non-state actors in global governance. These contributions have greatly expanded the understanding of international relations in a number of critical areas of environmental governance in particular. What this study seeks to do is not to argue for less attention to regime dynamics or the role of non-state actors, but to make a practice-oriented call for a more systematic approach by states to global governance.

The Case of the United Arab Emirates

The six Gulf Cooperation Council (GCC) member states (Bahrain, Kuwait, Oman, Qatar, Saudi Arabia and the United Arab Emirates, UAE) are among the world's largest oil and natural gas producers and continue to be highly dependent on fossil fuels both economically and in their energy mix. All the GCC states have subscribed to the collective goals of the Paris Agreement on climate change. Many have announced new sustainable energy plans as part of their national plans (intended nationally determined contributions) towards these goals. With some GCC states, in particular the UAE, now embarking on ambitious beyond-oil economic transitions, driven by record-low oil prices and growing national populations, undertaking an exercise like the one proposed above could be extremely timely.

Structure of the Paper

The paper is divided in two parts. Section 2 describes the governance landscape of the energy-climate nexus, starting with a short review of existing academic literature, followed by the presentation of a tentative mapping of the 'energy-climate regime complex'. Section 3 proposes a process for determining how governments could optimise their participation in this institutional landscape, and uses the UAE as a case example of its practical application.

2. The Global Energy-Climate Governance Landscape

This section is divided into three parts. The first one, based on a review of existing academic literature on the global governance of energy and climate change, examines, on the one hand, how the 'energy regime complex' addresses climate change and, on the other, how the 'climate change regime complex' relates to energy. It also identifies relevant key institutions and other cooperative forms of governance in each area. The second part presents a matrix that maps the central institutions and other cooperative forms working on the 'energy-climate nexus' aimed at helping states and other actors to understand where and how different aspects of the nexus are governed globally. The third part makes observations relating to key competencies and the near-term evolution of the energy-climate regime complex, with an eye on further research into this topic.

Energy is the main driver of human-made greenhouse gas (GHG) emissions and therefore the main cause of anthropogenic climate change. Production and consumption of energy generated from fossil fuels is currently responsible for two-thirds of the world's GHG emissions, which increased by more than 80% between 1970 and 2010 alone (IEA 2015, 11; IPCC 2014, 5).

Economic and population growth are the key drivers of increased carbon dioxide (CO_2) emissions from fossil fuel combustion. At current levels (of 40 $GtCO_2$ per year), recent studies suggest that the chances of limiting global warming to safe levels will greatly diminish in as little as 15–30 years (Rogelj et al. 2016). This does not take into account the fact that global population is expected to increase by 1.2–2.2 billion over this period (UNDESA 2015).

Energy will therefore remain at the core of global efforts to achieve the ultimate goal of the Paris Agreement, which is to prevent dangerous human interference with the Earth's climate system. The solution, expressed in terms of environmental economics, will be to decouple emissions from economic growth through decarbonizing the energy supply and improving energy efficiency (also referred to as sustainable energy).

In December 2015, in Paris, 195 countries agreed to the first universal, legally-binding inter-governmental agreement on climate change: the Paris Agreement. The Agreement sets ambitious long-term goals for limiting global average temperature rise (below 2°C or 1.5°C) and for GHG emissions (peaking as soon as possible and reaching net-zero in the second half of the century). It also establishes a 'bottom-up' mechanism for communicating and registering successively ambitious national climate actions (called nationally determined contributions), and a regulatory framework for ensuring that countries' plans and actions are reviewed and assessed periodically against the goals of the Agreement. (See e.g. Luomi 2015.)

Beyond the UNFCCC, which as the only universal climate regime enjoys broad legitimacy but has weak enforcement abilities, a number of international organisations, 'clubs', partnerships and financial mechanisms now form part of the global governance of the energy-climate change nexus. This section makes the case that, instead of analysing the energy and climate change 'regime complexes' as separate or as subsets of each other, a more practical and solution-oriented analytical framework is needed that regards relevant institutions from each as part of a single 'regime complex'.

2.1. Literature on the Global Governance of Energy and Climate Change

Given the growing interdependencies of national energy systems, 'international collective efforts [are] undertaken to manage and distribute energy resources and provide energy services' (Florini and Sovacool 2009, 5239, in Van de Graaf and Colgan 2016, 3). These efforts, which can be described as 'global energy governance', are undertaken by a 'system of public and private institutions that are valid or active' in the area of energy (Biermann et al. 2009, in in Van de Graaf and Colgan 2016, 5), also referred to as the 'global governance architecture' of energy, or the 'energy regime complex'. Similar efforts and an institutional architecture exist in the area of climate change.

The concept of regime complex was first used in the context of plant genetic resources by Raustiala and Victor (2004, 4) who defined it as 'a collective of partially-overlapping and non-hierarchical regimes . . . that develops in special, often path-dependent ways.' [2] [3] The concept of regime complex has since been employed in the context of both energy governance (e.g. Colgan et al. 2012; Escribano 2014) and climate change governance (e.g. Keohane and Victor 2010; Abbott 2011). However, as Heubaum and Biermann (2015, 230) have pointed out, 'the compartmentalisation between energy and climate change policy [at both international and national levels] is also reflected in academic research and writing, with scholarships on environmental and energy governance largely evolving as if in two separate streams.

Existing literature has therefore tended to conceptualise either climate change as an area of global energy governance, or energy as an area of global climate governance. The following sections briefly examine existing literature, and identify relevant key institutions and other cooperative forms of governance in each area.

Energy Governance and Climate Change

A growing academic literature is emerging around global energy governance (Van de Graaf and Colgan 2015). Some of these studies have identified climate change as a driver of change in global energy governance. Their authors have been generally interested in how the energy governance agenda and its institutions are changing as a result of the emergence of climate change as a major global policy issue.

[2] International regimes, as defined by Krasner, are 'implicit or explicit principles, norms, rules and decision-making procedures around which actors' expectations converge in a given area of international relations.'

[3] These authors also made the observation that regime complexes tend to shift their 'locus of action... away from formal negotiations and toward the more complicated processes of implementation and interpretation (ibid., 45).' They also observed that, the more the scope of a regime broadens and the more demanding its rules become, the more 'bottom-up' rules and mechanism it tends to adopt (ibid.) – something clearly visible in the global climate change regime at present (e.g. Luomi 2015).

A number of authors have observed how the forces that shaped the global energy regime complex in the past – namely energy importers' concerns over energy supply security and energy exporters' concerns over demand security – have been multiplied in the past decade or so. Many studies coincide on three main forces currently impacting global energy governance:

- the 'rise of the South', namely geopolitical changes related to economic and energy demand growth in major emerging economies, and the associated issue of integrating these players into global governance;
- the changing relations between oil producers and consumers, and the related issue of volatility in oil markets and prices; and
- the emergence of climate change mitigation as a core energy policy issue (see e.g. Hirst and Froggatt 2012; Van de Graaf 2015; Van de Graaf and Colgan 2016).

Overall, much of the literature on global energy governance has focused on explaining the sources or consequences of the fragmented, polycentric and non-hierarchical nature of the institutional landscape of the regime complex. Van de Graaf and Colgan (2016) have identified two topics where most scholarship has focused: the goals and rationale of global energy governance; and how this governance is structured and what its key institutional actors are.

The historical evolution of the energy regime complex has also received attention, with Van de Graaf (2013a) documenting its path dependence, Dubash and Florini (2011, 2) pointing to its increasing institutional segmentation and fragmentation, and lack of agreed policy goals, and Andrews-Speed and Shi (2015) highlighting the emergence of 'clubs' or 'minilateral' forums as a new institutional form. These concepts help shed light on key characteristics of the global energy regime complex and how it deals with climate change.

Path dependence: History and path-dependence have constrained and conditioned the emergence of new institutions that could effectively deal with the energy-climate nexus (Van de Graaf 2013a, 83). The emergence of the Organization of the Petroleum Exporting Countries (OPEC, established in 1960) and the importers' IEA (established in 1973) as responses to an energy security dilemma, and their permanence as the main international organisations in the field of energy governance (with sometimes conflicting goals), continue to render the idea of a truly 'international energy agency' or a single universal energy governance organisation impossible.

The IEA has been described as 'the most advanced multilateral energy institution in terms of the breadth and depth of cooperation that it fosters between its member countries' (Van de Graaf 2015, 92). However, while the agency hosts more than 40 international expert networks open to non-members and various stakeholder groups, and is working to strengthen its relations with many emerging economies, the IEA treaty restricts its membership to OECD countries. Consequently, as Hirst and Froggatt (2012, 3) observe, 'at present the IEA is not sufficiently oriented to the energy challenges facing developing nations' or non-OECD countries.

The issue focus of the first attempt at international dialogue on energy, the International Energy Forum (IEF, established in 1991), which centres on energy security, can also be attributed to path dependence. With 74 members from exporting, importing and transit countries, the IEF is the most inclusive global forum for energy governance, but it has a weak level of institutionalisation. Also, given its origins as a producer-consumer dialogue forum, its charter, agreed upon in 2011, lacks any references to climate change, only referring to the 'study and exchange of views' on issues relating to sustainable development (IEF 2011).

A positive advance in the development of the energy regime complex towards inclusiveness – even if only in one area – happened in 2009 with the establishment of IRENA, in what Van de Graaf (2013, 16) has explained as being prompted by a perception by a handful of European countries of institutional 'capture' of the IEA by fossil fuel and nuclear energy industry interests. The agency currently has 145 members, both developed and developing countries.

Another positive development has arguably been the establishment of the Clean Energy Ministerial (CEM) forum. Launched in 2009 by the US, the CEM hosts an annual gathering of ministers responsible for clean energy technologies that centres around three dimensions of sustainable energy (energy access, renewable energy and energy efficiency). The CEM has 23 member countries, including most Group of Twenty (G20) member countries but also a number of smaller states, and it has launched a number of technical and policy initiatives.

Segmentation: Another reason why the global energy regime complex has not been able to address climate change in a coherent way is its segmentation by energy source: the International Atomic Energy Agency (IAEA, established in 1957) is the lead international organisation for cooperation in nuclear energy and also provides the main global regulatory framework in this area; OPEC's main purpose is coordinating the oil policies safeguarding the interests of its member states; the Gas Exporting Countries Forum (GECF, established in 2001) is attempting to achieve similar cooperation among natural gas producers; and IRENA (established in 2009) is promoting renewable energy deployment through technological and policy advice and knowledge-sharing. Energy efficiency, the so-called 'hidden fuel', also has its own international institution, the International Partnership for Energy Efficiency Cooperation (IPEEC, also established in 2009).

Further fragmentation: Florini and Dubash (2011, 3) also observe how a number of other non-energy specific institutions further fragment the global energy regime complex, which include international trade and investment rules (such as those of the World Trade Organization [WTO][4]), bilateral investment treaties, public financial institutions (such as multilateral development banks) and export credit agencies. Energy is also governed globally in specific economic sectors, of which aviation and maritime transport (the so-called bunker fuels) are a good example. Many of these institutions are also of relevance for global climate governance.

[4] According to Behn (2009), WTO has become active in dispute settlements in renewable energy, but still retains very limited role with regard to fossil fuels. WTO rules do not include 'energy' but they include applicable trade rules. Energy pricing issues have, however, become part of WTO accession discussions.

Lack of agreed policy goals: Given its institutional history and fragmentation, the global energy regime complex also suffers from the lack of a clear agenda or universally agreed goals. Some attempts have been made to identify broad goals. Van de Graaf (2012, 7) and Dubash and Florini (2011, 8–13), have identified four broad objectives: providing energy security; combatting energy poverty; addressing climate change and ensuring environmental sustainability; and domestic good governance. Van de Graaf (2012, 7), however, also argues that 'the global energy architecture is not up to [this] gigantic task' because 'the multilateral energy institutions we have at our disposal are too limited in terms of scope, representation and effectiveness'. Consequently, while climate change may be on the agenda of a number of institutional actors, the energy regime complex as a whole is not optimally aligned towards this goal.

Clubs and networks: Clubs are an institutional form of 'minilateral' cooperation that has appeared on the global energy governance landscape more recently. Noting the increasing frustration with the failure of multilateral approaches to solving global challenges, such as climate change, nuclear proliferation or trade protectionism, Naim (2009) has argued that a better approach would be to 'bring to the table the smallest possible number of countries needed to have the largest possible impact on solving a particular problem'. The G20, which according to Naim 'includes both rich and poor countries from six continents [and] accounts for 85 percent of the world's economy', could serve as the ideal minilateral forum for a trade agreement or a climate change agreement, both open for other countries to join.

The smaller Group of Eight (G8 - currently G7) has been credited for taking the lead in global energy governance in the mid-2000s through a number of collective plans and declarations (Lesage et al. 2009). However, its role has diminished with the increasingly active role the G20 has been taking both on the global stage and in global energy governance.

Andrews-Speed and Shi (2015) have explored the role that the G20, as a minilateral 'club', could play in global energy governance and argue that the group could help in 'building a higher degree of coordination between existing international organisations as well as between individual nations' (ibid., 1). The authors detail how energy was taken up on the G20 agenda in 2009, with four working groups set up in 2011 (on fossil fuel subsidies, fossil fuel price volatility, marine environmental protection, and clean energy and energy efficiency). The four themes were merged under one Energy Sustainability Working Group (ESWG) in 2013. In 2014, energy was first addressed at heads of state and government level in a meeting which resulted in the adoption of nine G20 Principles of Energy Collaboration, several of which focus on the energy-climate nexus (ibid., 5; G20 2014).

While the G20 could have the potential to become a 'global steering committee' for a number of crosscutting global issues, including energy, Andrews-Speed and Shi (2015, 5) rightly point out that it has so far mainly focused on consensus building and agenda setting among its members, and that expansion of the group's scope and mandate is hindered by a lack of resources, infrequency of leaders' meetings and contestation over the group's agenda. Furthermore, the G20 evidently lacks 'the legitimacy and universal membership of the UN, [and] also potentially exclude[s] the interests of small- and medium-sized states' (Heng and Aljunied 2015, 441).

Three energy-specific intergovernmental forums of relevance for the energy-climate nexus operate with a membership closely reflective of the G20: CEM (discussed above), IPEEC, and the Major Economies Forum on Energy and Climate Change (MEF, established in 2009).

The IPEEC describes itself as both an autonomous intergovernmental entity and high-level international forum. Originally a G8 initiative, it has grown to have a membership largely reflective of the G20 and is hosted by the IEA. The IPEEC is currently serving as the coordinator of the implementation of the G20 Energy Efficiency Action Plan, launched in 2014.

The MEF – related to the CEM – is a ministerial dialogue forum launched by the US that meets three to four times a year. It has the dual aim of supporting the UNFCCC negotiations through providing a forum for ministerial dialogue on related matters, and advancing cooperation on clean energy deployment in its member countries. The forum currently has all but three G20 countries (Argentina, Saudi Arabia and Turkey) as members.

Two further types of energy governance institutions merit attention: UN entities and key multi-stakeholder partnerships working on sustainable energy.

UN-Energy was established in 2004 as a result of discussions on sustainable energy issues (energy access, renewable energy and energy efficiency) at the World Summit on Sustainable Development (WSSD), held in Johannesburg, South Africa, in 2002. Small in staff numbers and not too visible or active outside the UN system, the mechanism has focused on promoting interagency coherence and cooperation on sustainable energy.

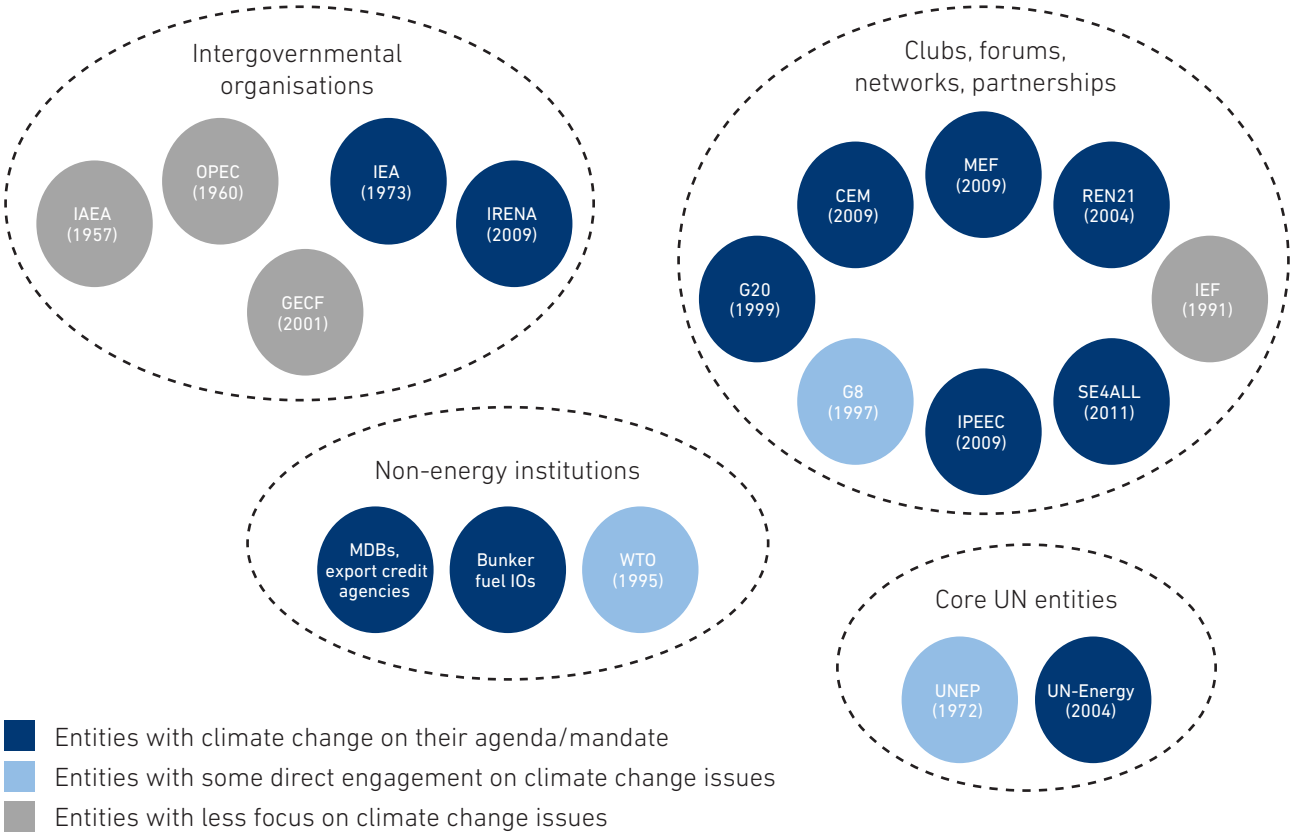
The more visible UN-led cooperative initiative on energy, Sustainable Energy for All (SE4All), was established by UN Secretary-General Ban Ki-moon in 2011 to support the achievement of three objectives (access, renewables and efficiency) on sustainable energy by 2030. An international not-for-profit organisation since 2016, SE4All currently has more than 100 partners, including governments, businesses and civil society organisations, and works through regional hubs and a Global Facilitation Team headquartered in Vienna, Austria. SE4All is also currently leading on efforts around the UN Sustainable Development Goal (SDG) number seven on ensuring access to affordable, reliable, sustainable and modern energy for all.

The UN Environment Programme (UNEP) hosts another multi-stakeholder initiative linked to the UN system: the Renewable Policy Network for the 21st Century (REN21, established in 2004). REN21, which as of 2015 had 54 member organisations and governments, serves as a network for information-sharing on renewable energy policies and markets.

Furthermore, while not part of the scope of this study, it should be recognised that a number of non-state actors are shaping the global energy governance agenda through international associations, partnerships and voluntary standards, among others. Already in 2005, a UN Department of Economic and Social Affairs mapping identified 39 global or regional partnerships with a focus on energy for sustainable development (UN DESA 2005).

From this survey, an attempt is made below to paint an institutional landscape of the global energy regime complex that illustrates how key institutions and other cooperative forms presently relate to global climate governance (see Figure 1).

Figure 1. The Global Energy Regime Complex and Climate Change



Three immediate observations are evident:

- the governance landscape, as often pointed out by experts in the field, is extremely complex, non-hierarchical, and to a large extent uncoordinated;
- only one of the traditional intergovernmental energy institutions, IEA, has integrated climate change into its agenda; and
- clubs and networks, which have emerged as a new form of governance over the past decade or so, have all included climate change on their agendas.

Climate Change Governance and Energy

Most of the literature on global climate governance has centred on the UNFCCC and its evolution, given the Convention's prominence and legitimacy as the principal multilateral regime. Most recently, in the run-up to the successful 2015 UN Paris Climate Change Conference, a lot of scholarly attention was dedicated to the architecture of the post-2020 climate agreement (e.g. Hare et al. 2011; Bodansky 2012; Morgan et al. 2014).[5] In general, studies on the UNFCCC do not generally discuss – or even mention the word – energy, reflecting their focus on the institutional evolution of the Convention, which to date does not have an energy-specific body or mechanism.

UNFCCC institutional arrangements: Institutions, mechanisms and arrangements under the UNFCCC are organised largely around the same thematic issues along which the UNFCCC negotiations evolve. In the area of *mitigation* (limitation and reduction of GHG emissions), key mechanisms include the Clean Development Mechanism, which allows for the monetisation of emissions reductions in developing countries and offsetting by developed countries towards their Kyoto Protocol targets. A specific UNFCCC in-session forum addresses the impacts of the implementation of response measures (i.e. measures that countries take to limit or reduce their GHG emissions).

The Warsaw Framework for REDD+ works on results-based finance for mitigation actions in the forest sector. In the area of *adaptation* (to the negative impacts of climate change), the Adaptation Committee provides coordination, technical support and information sharing. Loss and damage (caused by already unavoidable impacts of climate change) also has its own arrangement, the Warsaw International Mechanism for Loss and Damage associated with Climate Change Impacts.

Finance, technology development and transfer, and capacity building – generally referred to in UN jargon as 'means of implementation' – have each seen their institutional arrangements under the UNFCCC being enhanced over the recent years. The Financial Mechanism (FM), which previously only had one operating entity, the Global Environment Facility (GEF), now has the Green Climate Fund (GCF, established in 2010 and operational since 2015), which is expected to become the main global channel for climate finance flows to developing countries. The GCF's investment priorities include 'transforming energy generation and access', and 'climate-compatible cities' (GCF website, March 2016). As of February 2016, the South Korea-based GCF – still amidst its initial resource mobilisation period, which ends in 2018 – had raised US$10.2 billion in pledges from 42 governments of developed and developing countries (GCF 2016).

Under the UNFCCC Technology Mechanism (TM, established in 2010), the Technology Executive Committee (TEC), comprised of 20 technology experts, functions as the 'policy arm', providing recommendations to the UNFCCC, while the Climate Technology Centre and Network (CTCN), based in Copenhagen, Denmark, promotes cooperation and knowledge sharing, and supports the provision of technical assistance by climate technology experts.

[5] A report by UNEP and the World Resources Institute (Building the Climate Change Regime: Survey and Analysis Approaches, 2011) presents an extensive review of literature pre-2012.

The newest addition to the UNFCCC institutional landscape is the Paris Committee on Capacity-building (PCCB), which was established in Paris in 2015. The PCCB will work to promote capacity building in developing countries through coordination of existing efforts, and knowledge management and sharing.

Of these UNFCCC arrangements, the most relevant ones for energy arguably are the CDM (and related offsetting and cooperative mechanisms established in Paris) and the means of implementation mechanisms: FM, TM and PCCB.

As noted above, few, if any, academic or policy-relevant studies on the UNFCCC have examined specifically the issue of energy, which arguably reflects the way in which energy is governed under the Convention and how references to it are a highly politicised issue[6]: with the exception of a preambular paragraph referring to renewable energy deployment in Africa in the accompanying decision, the word 'energy' does not appear in the Paris Agreement.[7]

Fragmentation: Beyond the UNFCCC, the global institutional landscape of climate change governance resembles that of energy governance in its high degree of fragmentation, lack of hierarchy and low level of coordination. Literature on the climate change regime complex, starting with a seminal article by Keohane and Victor (2010, 2), has focused on examining the components and functions of the existing 'loosely coupled set of specific regimes' that seek to govern climate change globally.[8]

Mappings of the global climate change governance landscape have centred around three conceptualisations: the 'onion model'; the climate regime complex; and the transnational climate regime complex. In the onion model (see Zelli 2011), the UNFCCC is placed at the centre of a concentrically organised system, surrounded by multilateral climate change and energy forums, other international environmental institutions, and international non-environmental institutions, respectively. The regime complex model emphasises the lack of hierarchy in the system much like the depictions of the energy and climate change regime complexes in this study (see Figures 1 and 2). The transnational regime complex model adds a layer of complexity by distinguishing between state-led, hybrid and 'private' institutions and governance forms (Dias Guerra et al. 2015, 13). Given this study's focus on those institutions that involve the state, it adopts the regime complex model lens.

The failure of the UN Copenhagen Climate Change Conference of 2009 (COP 15) delivered a major hit to the credibility of the UNFCCC as a source of a strong intergovernmental response to climate change. As a result, a number of studies were written that explored the potential of other institutions to serve some of its functions. The Harvard Project on Climate Agreements, for example, proposed (2010, i) that 'alternative institutional options', including clubs like the MEF and G20, and 'a portfolio of international sectoral agreements' could supplement the UNFCCC, which suffers from three long-standing institutional challenges: the large number of parties (196) and their diversity of interests; a *de facto* consensus-based decision-making

[6] See e.g. records from UNFCCC negotiations in 2004 where Saudi Arabia reportedly stressed that 'the UNFCCC is not an energy convention' (IISD RS 2004).
[7] Except in the word 'International Atomic Energy Agency' in Article 16.
[8] For literature using 'governance' instead of 'regime' as the conceptual frame, see e.g. Biermann et al. 2009.

system that does not take into account the size of a country's emissions; and a long-held and politicised divergence in views on a number of key issues between developed and developing countries.

In the run-up to the 2015 Paris conference, the governance landscape grew even more complex, with new, often sectoral multi-stakeholder partnerships emerging alongside existing ones, countries setting up new emissions trading and carbon tax schemes, and multilateral development banks and other finance institutions significantly expanding their work on, and flows of, climate finance.

The growing fragmentation of the global climate regime, which Van Asselt (2014, 23) attributes partly to the withdrawal of the US from the Kyoto Protocol and partly to the rising profile of climate change on the international policy agenda, has a number of institutional sources. The sources of fragmentation, drawing partly from van Asselt (ibid., 23–26), can be summarised as follows:

- agenda integration by:
  - other multilateral environmental agreements (MEAs);
  - other international organisations;
  - other international finance institutions; and
  - existing clubs;

- establishment of new:
  - climate clubs;
  - sectoral partnerships;
  - regional and national carbon markets;
  - voluntary initiatives by non-state actors; and
  - transnational networks of subnational governmental actors.

Of other MEAs, the Convention for Biological Diversity (CBD), the UN Convention to Combat Desertification (UNCCD) and the Montreal Protocol (MP) have taken on aspects of the climate governance agenda. The CBD promotes ecosystem-based approaches and UNCCD advocates for sustainable land management, which both have important synergies with climate action. In 2015, parties to the MP agreed to a roadmap for negotiating an amendment to the Protocol on managing HFCs (hydrofluorocarbons) in 2016 (IISD RS 2015). HFCs are potent GHGs used in refrigeration and air conditioning, the use of which has grown significantly as a result of abatement measures taken under the MP.

International organisations that have taken on climate change governance roles include: the UN Environment Programme (UNEP, established in 1972), via research, capacity building and knowledge sharing; and the World Meteorological Organisation (WMO, established in 1950), including through hosting the IPCC. The two bunker fuel organisations, the International Maritime Organization (IMO, established in 1948) and the International Civil Aviation Organization (ICAO, established in 1947), have both adopted emissions standards and emissions reduction measures, and ICAO is working on a global market-based measures scheme.

While the WTO's work programme or rules do not directly cover climate change, the issue features on the organisation's agenda in a number of other ways (see e.g. WTO 2016). Envisaging a role for the WTO in facilitating ambitious climate action, Leycegui and Ramírez (2015) have proposed that climate clubs be granted a 'general permanent exception to the [most favoured nation] principle that permits exclusive trade benefits among climate clubs and other international climate change agreements entered into by WTO Members' (ibid., 3). This incentive would 'compensate for the burden through increased preferences granted exclusively among countries that have the same or similar compromises' (ibid.). So far, however, climate clubs (see below) have mostly taken the form of policy dialogues and technical knowledge sharing forums.

International finance institutions have significantly increased their work on and finance flows to climate change mitigation and adaptation measures. These go beyond the GCF and Adaptation Fund (both under the UNFCCC) and the GEF, to multilateral development and other development finance institutions. Between 2011 and 2014, seven major multilateral development banks (African Development Bank, Asian Development Bank, European Bank for Reconstruction and Development, European Investment Bank, Inter-American Development Bank, and the World Bank) reported a total financing of US$100 billion to climate action in developing countries (World Bank 2015a). There have also been proposals for the Multilateral Fund (established in 1991), which provides incremental funding for phasing out ozone-depleting substances in developing countries, to consider funding HFC reduction measures (IISD RS 2015).

In addition, existing major economies' clubs, the G8 (currently G7) and G20, have included climate change on their agendas. In 2015, G7 leaders committed to a number of low-carbon and decarbonisation goals (G7 2015), and the G20 has since 2016 had a Green Finance Study Group, which will promote the mobilisation of private green investment (G20 2016).

Two key climate-specific clubs, MEF and CEM (discussed above), both focus on energy. A more negotiations-specific club has been the Cartagena Dialogue for Progressive action, which has provided a loose dialogue forum for countries willing to seek a middle ground in UNFCCC negotiations.

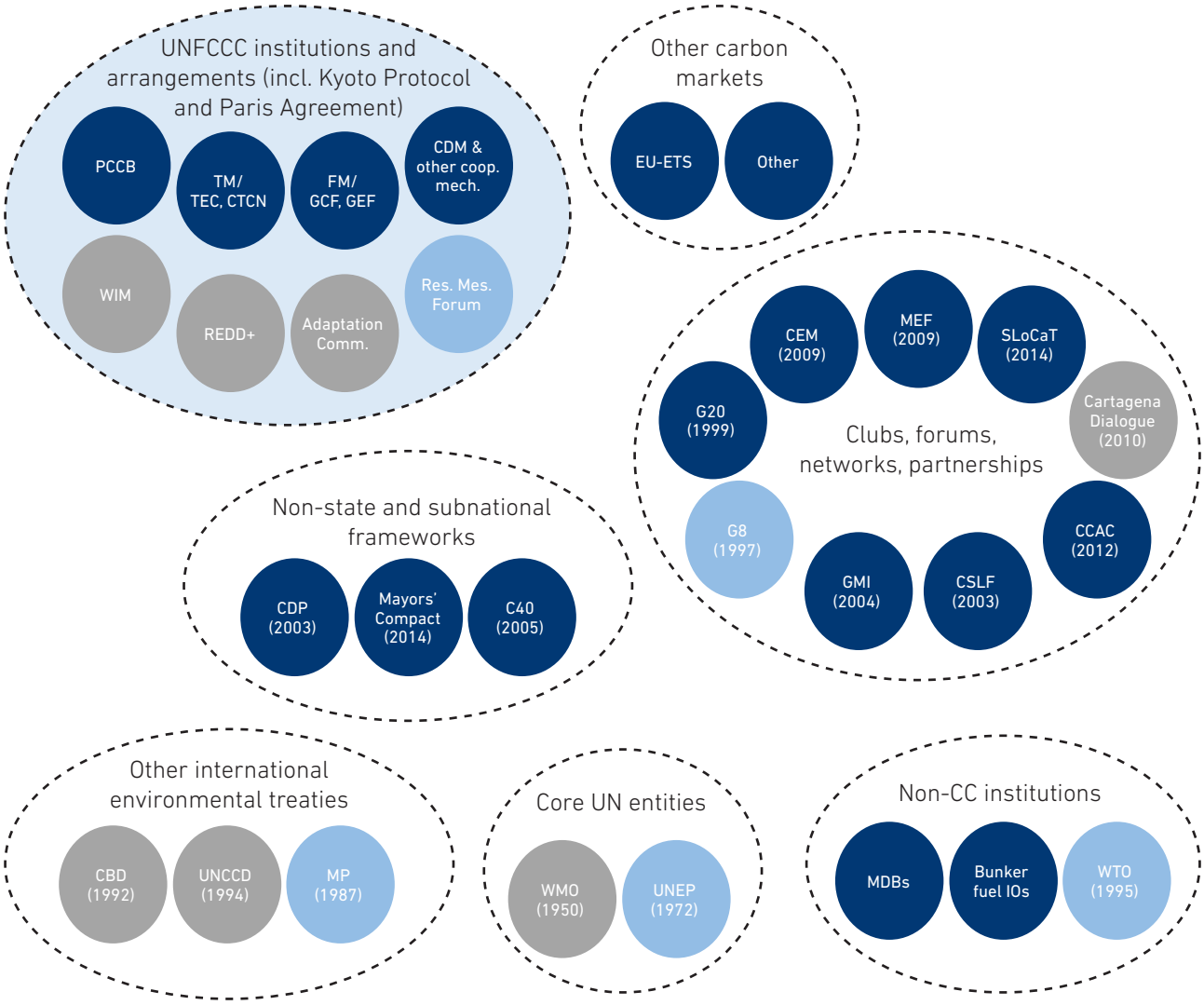
A number of sector-specific or issue-focused global multi-stakeholder partnerships are also becoming key forums for global climate governance. The 2014 UN Secretary-General's Climate Summit – a one-day event in New York – spurred the creation of several of these (see UN 2014), and the 2015 Paris Climate Change Conference saw the establishment of many more (see UNFCCC 2015). The global climate partnerships most relevant for energy include the Carbon Sequestration Leadership Forum (CSLF, established in 2003), the Global Methane Initiative (GMI, established in 2004), the Climate and Clean Air Coalition to Reduce Short-Lived Climate Pollutants (established in 2012) and the Partnership on Sustainable, Low Carbon Transport (SLoCaT, established in 2014).

In addition, a number of carbon markets and pricing systems have emerged outside the UNFCCC, including the EU Emissions Trading System (EU ETS, operational since 2005) and voluntary carbon markets worldwide (see e.g. World Bank 2015b). Also of relevance for

global climate governance are voluntary initiatives by non-state actors, which – as in energy governance – play an increasingly visible role in global climate governance. These include the Carbon Disclosure Project (CDP established in 2003), and transnational networks of subnational governmental actors, such as ICLEI - Local Governments for Sustainability (1990), the C40 Cities Climate Leadership Forum (C40, established in 2005) and the Compact of Mayors (established in 2014).

Similarly to energy governance, based on this short overview, an institutional landscape of the global climate regime complex is presented below, which shows how key institutions and other cooperative forms presently relate to global energy governance and cooperation (see Figure 2).

Figure 2. The Global Climate Change Regime Complex and Energy



The following observations can be made:

- despite a clear institutional hierarchy within the UNFCCC, the institutional landscape displays a similar complexity, and lack of hierarchy and coordination;
- despite the legitimacy enjoyed by the UNFCCC, a growing number of other institutions, clubs and partnerships are sharing with it a number of policy, finance and information-sharing roles – the UNFCCC will need to find innovative ways to maintain its position as the core of the regime complex; and
- clubs and 'coalition of the willing'-type partnerships have emerged as the driving force for implementation, while development banks and non-UNFCCC finance institutions have emerged as key players in climate finance. Many of these clubs and partnerships work on energy, either through a sectoral (transport) or an issue (CCS, methane emissions) focus.

2.2. Mapping the Global 'Energy-Climate Regime Complex'

An approach that identifies key global institutions working on the energy-climate nexus has, to the knowledge of this author, not yet been explicitly proposed. A literature search returned one article, by Heubaum and Biermann (2015), which observes the lack of integration between the two fields of governance/cooperation and related literature. However, the authors focus on examining how this integration has taken place inside a single organisation – the IEA – and not the regime complex.

Given the complex, non-hierarchical and fragmented landscapes of global energy and climate governance and cooperation, any attempt to create a mapping of institutions and other cooperative forms working on the energy-climate nexus is set to be equally complex. The value of the exercise arguably comes from how the shift in angle can help answer the question of: where and how should governments participate to promote their national interest in this area? National interest ranges from preferences regarding international agenda-setting, and regulatory and policy frameworks, through domestic needs in the areas of finance, technology and capacity building, to foreign-policy interests relating to support made available for other countries. A wide variety of data, information and knowledge are also exchanged through global institutions that can support domestic policymaking and action.

The mapping will take as its starting point a division into types of institutions and cooperative forms, drawing from the ones identified in the two mapping exercises above, namely:

- international agreements/treaties;
- international organisations;
- international financial institutions and market mechanisms;
- UN entities;
- clubs, forums, networks, partnerships; and
- non-state and subnational frameworks.[9]

Dias Guerra et al. (2015, 12) have proposed a categorisation of global climate governance institutions that is based on their role or main governance function. A set of criteria for grouping institutions and cooperative is adapted from their four categories (standards and commitments, information and networking, operational, and financing):

[9] Regional governance mechanisms and institutions, which are not included in this mapping, are shortly taken up in Section 3.2.

- **International regulation:** international rule-making; compliance standards, transparency arrangements, including disclosure of activities, (voluntary) commitments and compliance mechanisms;
- **International policy coordination and domestic policy support:** policy coordination institutions, sources of policy support, information-sharing and networking for domestic policy;
- **Financing:** financing for implementing projects, programmes and initiatives;
- **Technology development and transfer:** operational schemes, including technology research and development, pilot projects, demonstration and deployment activities, skills enhancement and best practices sharing; and
- **Capacity building:** training and information services, and cooperative approaches to build capacity, share knowledge and support policymaking.

By combining the climate-relevant institutions from the energy regime complex mapping (Figure 1) and the energy-relevant institutions from the climate regime complex mapping (Figure 2), and laying the organisations on the above-described matrix, the following landscape emerges:

Table 1. The Global Energy-Climate Regime Complex – Mapping for States

TYPE	ROLE				
	International regulation	Policy coordination/ support	Financing	Technology development and transfer	Capacity building
International agremeents	UNFCCC; Kyoto Protocol; Paris Agreement; MP	UNFCCC: TM, PCCB, etc.	UNFCCC: FM; Multilateral Fund	UNFCCC: TM (TEC, CTCN)	UNFCCC: PCCB, others
International organisations	IMO, ICAO, WTO	IEA, IRENA, IMO, ICAO		IRENA, IEA, IMO, ICAO	IRENA, IEA, IMO, ICAO
International financial institutions, market mechanisms			GCF, GEF, MDBs CDM & coop. mechs	(CDM)	
UN entities		UNEP			
Clubs, forums, networks, parnerships	IPEEC	G20, MEF, CEM, IPEEC, SE4All, CSLF, GMI, SLoCaT, CCAC, REN21	CCAC	CEM, SE4All, IPEEC, GMI, CCAC	CEM, SE4All, IPEEC, GMI, SLoCaT, CCAC, REN21
Non- state and sub-national frameworks	CDP	ICLEI, C40, Compact of Mayors			ICLEI, C40

Key to the acronyms: *UNFCCC – UN Framework Convention on Climate Change (TM – Technology Mechanism; TEC – Technology Executive Committee; CTCN – Climate Technology Centre and Network); PCCB – Paris Committee on Capacity-building; FM – Financial Mechanism; MP – Montreal Protocol; IMO – International Maritime Organization; ICAO – International Civil Aviation Organization; WTO – World Trade Organization; IEA – International Energy Agency; IRENA – International Renewable Energy Agency; GC F – Green Climate Fund; GEF – Global Environment Facility; MDBs – multilateral development banks; CDM – Clean Development Mechanism; UNEP – UN Environment Programme; IPEEC – International Partnership for Energy Efficiency Cooperation; MEF – Major Economies Forum; CEM – Clean Energy Ministerial; SE4All – Sustainable Energy for All; CSLF – Carbon Sequestration Leadership Forum; GMI – Global Methane Initiative; SLoCaT –Partnership on Sustainable, Low Carbon Transport; CCAC – Climate and Clean Air Coalition to Reduce Short-Lived Climate Pollutants; REN21 – Renewable Policy Network for the 21st Century; CDP – Carbon Disclosure Project; C40 – Cities Climate Leadership Forum.*

While not intending to be fully exhaustive in coverage, the matrix presented above is useful in that it paints a much more organised way of conceptualising where and how different aspects of the energy-climate nexus are globally governed.

A number of related observations can also be made of the landscape that emerges from this organisation according to type and role:

- Core regulatory functions are clearly centred around the UNFCCC and a limited number of other international organisations and treaties;
- In the area of policy coordination and support, minilateral clubs and issue-based partnerships are becoming increasingly popular;
- Multilateral development banks are a key source of climate and sustainable energy finance (the GCF, and carbon markets and other pricing schemes are important too, with their contribution expected to increase in the future); and
- A number of institutions and cooperative forms practice technology and capacity building functions, capacity-building being the most readily available service offered.

The mapping above (Table 1) could also be replicated for energy or climate change governance and cooperation alone, but the purpose of this study has been to focus on the nexus. This section first examined the institutional landscape of global energy governance through related academic literature, identifying key institutions of relevance for climate action. It then undertook a similar exercise for global climate change governance with regards to energy. The final part of the section situated these institutions in a matrix intended to facilitate decision-making by states when defining where they should be engaging based on their domestic interests.

2.3. Understanding Key Competencies and Near-Term Evolution of the Regime Complex[10]

The matrix presented above arguably has two key weaknesses: it does not provide information on the particular strengths and weaknesses of institutions/clubs/partnerships in each area; and it only provides a snapshot of the current status of the regime complex. Further research and analysis, both theoretical and policy-relevant, are therefore required in both areas.

Due to financial or human capacity constraints, governments will only have a limited number of human resources to allocate to active participation in international organisations and forums at any given time. Governments would therefore arguably greatly benefit from analyses that allow them to strategically focus their resources and efforts in organisations and initiatives that are the most competent in areas of relevance for the country's interests and needs, not only at present but also going forward.

[10] The author would like to thank peer reviewer number 2 of this paper for many of the observations highlighted in this subsection.

A few general observations are made below with regard to key competencies and the near-term evolution of the energy-climate regime complex:

- After the adoption of the Paris Agreement, the focus of governments is shifting from influencing international regulatory environments to domestic implementation.[11]
- Non-UNFCCC forums where important regulatory evolution is expected to take place over the coming years include the Montreal Protocol (negotiations on a HFCs amendment in 2016), ICAO (negotiations to establish, in 2016, a global market-based mechanism for reducing emissions from aviation) and possibly IMO (technical work on energy efficiency regulations and emissions reductions from ships) (Bisiaux 2016).
- The role of G20 as a high-level policy coordination forum for the energy-climate nexus can be expected to continue, but the ability of this forum to become a minilateral climate club seems unlikely, and questions remain over its ability to overcome existing barriers to becoming more impactful, including lack of resources and low legitimacy beyond its members. Forums like the CEM, which have a broader membership and are implementation-oriented, may remain relevant.
- Organisations, forums and partnerships providing implementation support (including policy support and different means of implementation) will be increasingly in demand. Examples include the IEA's Technology Collaboration Programmes (in the area of technology and knowledge transfer) and IRENA's renewable readiness assessments (in the area of policy support).
- In the area of climate finance, MDBs are expected to significantly grow their climate finance disbursements (with total flows projected to grow from US$15 billion in 2012 to US$24–28 in 2020) (Westphal et al. 2015, 4). The GCF, which as of February 2016 had raised US$10.2 billion in pledges from 42 governments, is also expected to become a key channel for public climate finance flows to developing countries (GCF 2016).

While an analysis of the expected near-term evolution of the global energy-climate regime complex is a globally-applicable exercise, mapping the particular strengths of each organisation/initiative – or identifying the most competitive ones in each area – can be a more subjective one, as this will depend more on the interests and needs of each country. The latter could therefore be pursued as part of a national strategy exercise like the one outlined below.

[11] The Paris Agreement sets the basis for a broad regulatory framework for governing the global response to climate change. Paris also sent strong initial political signals to the markets and non-state actors on governments' determination to limit global temperature rise to safe levels by drastically reducing global greenhouse gas (GHG) emissions over the next decades. With this, the focus in the global governance of climate change – and consequently energy – has shifted strongly to national implementation. This focus is amplified by the adoption of the 2030 Agenda for Sustainable Development by the UN in September 2015, which sets 17 implementation-oriented goals for global development through the next 15 years, and gives governments the primary responsibility for target setting, follow up and review. Sustainable development goal (SDG) number seven calls for ensuring access to affordable, reliable, sustainable and modern energy for all and goal number 13 calls for urgent action to combat climate change and its impacts. The 2030 Agenda explicitly recognises UNFCCC as the primary international, intergovernmental forum for negotiating the global response to climate change.

3. Framework for Determining a Country's Engagement Strategy

Practically all countries in the world are already involved in a number of global governance frameworks, ranging from trade, security, energy and finance to areas of so-called Earth system governance, including water, climate, food and economic systems. However, with the fast-changing governance landscape, a review of existing relationships and engagement strategies – their number, depth, nature and functionality – may be useful. This section presents ideas for a national-level multi-stakeholder process that takes a strategic, interest and needs-based approach to participation in the global energy-climate regime complex.

For this, a three-step process is proposed that consists of:

- Identification of the country's current participation profile in the global energy-climate regime complex, through a multi-stakeholder exercise, and discussion of expected gains and resources required for participating in each;
- Definition of the national interest with regard to regulatory and policy framework preferences, and means of implementation needs and contributions vis-à-vis the global energy-climate regime complex, through a multi-stakeholder process; and
- Identification of, and decision on, the optimal ways to pursue this national interest (through existing institutions and other cooperative forms), by relevant authorities.

The proposed three-step process starts with an identification of a country's existing participation profile in the regime complex, followed by a definition of the country's national interest in relation to global energy and climate governance. After explaining these steps, the study then turns to an examination of ways in which states can participate and seek to influence the global governance architecture, and proposes, as a third step, that relevant ministries or government agencies in key management roles conduct a strategic planning exercise to identify where and how, in this area of global governance, states' national interests will be best served.

Finally, the section presents some initial ideas on how such a process could be applied in practice, by taking the UAE as a case example.

3.1 Step one: Mapping Existing Participation[12]

Step 1. Identification of the institutions/forums/partnerships the country is participating in, resources required for meaningful participation and expected gains from participation.

This step can take the form of a survey or a workshop meeting (which can be complemented by targeted interviews with individuals with a concentration of experience in participating in relevant institutions). Participants should include representatives of key governmental (and non-governmental) entities that engage with, or represent the country in, international institutions of the global energy-climate regime complex. This straight-forward exercise will seek to respond the following questions:

[12] The author would like to thank again peer reviewer number 2 of this paper for suggesting the incorporation of this step.

- **What institutions/forums/partnerships are different governmental entities participating in?** First, government stakeholders should jointly prepare a mapping of all institutions and governance forms the state is taking part in, together with a short description of the practical forms participation has taken (including whether the country has been an active or passive participant in meetings, whether it has played a chairing or facilitating role, and what concrete benefits have been achieved from participation). Sometimes one government entity may be unaware of the full scale of activities of another one, which makes this exercise crucially important, both for gaining a full picture and for enhancing policy coordination at the domestic level.

- **Based on the experience of participants, what (human) resources are required to sustain an active and meaningful participation in the different institutions?** Given the limited amount of human resources that most states can dedicate to participating in international institutions, the purpose of this question is to provide information for an assessment of the feasibility of meaningfully participating on different issues, in different institutions (both ones the country participates in and ones it does not but which stakeholders feel are important).

- **Based on the evaluation of participants, what can be achieved/gained from participating in each institution?** Given the (human) resource constraints, stakeholders should combine their collective experience in assessing what the country can reasonably expect to achieve from participating in the different institutions (both ones the country participates in and ones it does not but which stakeholders feel are important).

3.2. Step two: Establishing National Interest

Step 2. Establishment of the national interest vis-à-vis global energy-climate regime complex.

This study (see Section 1) has defined the goal of global energy-climate nexus governance as enabling sustainable energy transitions in all countries with the ultimate aim of avoiding dangerous climate change. States have a central role in driving these transitions.

In relation to the areas of global energy-climate governance identified in the previous section, three types of national interest can be identified: influencing global regulatory and policy coordination frameworks; securing support for sustainable energy and climate change policies; and interests related to provision of external support, including through development cooperation. It is therefore suggested that the second step of the exercise be organised around the following three questions:

- **What should global regulatory and policy coordination frameworks do?** In this area, a multi-stakeholder process should identify what the state's preferences and needs are in relation to the further strengthening of global regulatory and policy coordination frameworks. A robust transparency mechanism under the UNFCCC to ensure accurate information of countries' GHG emissions and related mitigation measures could be one example. A coherent market system for pricing carbon in order to drive investments could be another one.

- **What external support is required for implementing national climate and energy policies?** In this area, states should map existing financing, technology and institutional and human capacity needs in relation to national climate and sustainable energy goals. Generally developing countries have more needs for means of implementation than developed countries (and this is enshrined in the UNFCCC), but the level and type vary greatly from one country to another. For example, high-income developing countries are in a stronger position to finance projects and may even be able to buy the needed technologies, but they may still lack the human/institutional capacity to evaluate available policy or technology options or see through successful and sustainable policy or project implementation.

- **What contributions are being/should be made to support other countries in their sustainable energy transitions, and how do/can these support other foreign policy interests?** Many countries with an advantage in one or more of the three areas of means of implementation choose to support other countries in advancing their sustainable energy transitions. Examples include the funding and delivery of development assistance projects in the renewable energy sector, joint technology research and development partnerships, and training of technical experts. Motives for this can range from more altruistic ones to those related to trade promotion and security policy.

In parallel, the following question should be answered:

- **What are the key global institutions/clubs/partnerships that could help in achieving this?** The key institutions and other governance forms to engage with should be identified in each of the above-mentioned areas. In order to answer this question, stakeholders should be familiar with the institutional landscape in the field of global energy-climate governance, and ideally also have a good understanding of what resources are required for meaningful participation and what a country can realistically expect to achieve (see step 1).

This exercise can take various forms, such as an electronic survey or an expert workshop. Domestic actors involved should include a mix of legal, policy and technical experts from all relevant stakeholder entities and groups with responsibilities and interests related to the management of the climate-energy nexus, such as energy, environment, economy, finance and foreign ministries, as well as local-level administrative agencies, regulatory and standards bodies, energy and water authorities and companies, and civil society organisations, among others.

3.3. Step three: Identifying Optimal Ways to Engage

Step 3. Identification of the best ways to pursue the national interest on the energy-climate nexus.

As noted above, most academic studies on the global governance of energy and climate change have focused on the regime/governance landscape itself as the object of analysis. Most academic attention has been dedicated to how states (see e.g. Haggard and Simmons 1987) and non-state actors (Raustiala and Bridgeman 2007; Andrade and de Oliveira 2015)

impact regimes, and even how states' national interests explain their behaviour in international environmental regimes (see e.g. Sprinz and Vaahtoranta 2002), and there has been less focus (at least to the author's knowledge) on the more practically-oriented perspective to the relationship between the state and the regime complex, which is that of state interest.[13]

Murphy and Kellow (2013) make an important observation in this regard, namely that the multiple arenas of global governance 'provide different opportunities for political action'. The authors identify four characteristics that drive agenda preferences by both state and non-state actors: the arena's membership; issue mandate; decision-making procedures; and enforcement capacity.

Academics have identified a number of tactics used by states when seeking to influence regime development. These include 'forum shopping' and 'forum/regime shifting'. Forum shopping refers to the choice of the venue, institution or framework based on a calculation of which one will best serve the country's interests. Forum shifting occurs when regulatory or policy-making activities move from one forum to another.

While all states can in theory choose the arenas in which to participate, the ability to influence the system is generally limited to more powerful states: as Biermann et al. (2009, 30) have noted, 'fragmentation allows powerful states to opt for a mechanism that best serves their interests, in the form of "forum shopping," or to create new agreements if the old ones no longer fit their interests'.

Vogler (2013, 17), for example, explains the establishment of MEF by the US (which he describes as representing a 'degree of forum shopping') by the US government's desire 'avoid the perceived political and economic costs of working through the UNFCCC/Kyoto'. An example of forum shifting is how the impact of domestic perceptions in Germany, and to some extent Spain and Denmark, of institutional 'capture' of the IEA led to the creation of IRENA (see Van de Graaf 2013b).

Beyond forum shopping and shifting, several other ways to leverage participation or promote a state's interests naturally exist. The functionality of different tools depends on the country's size, its economic weight and human capital, among other factors. A country can choose to ally itself with a more powerful country that it hopes will promote its national interest (also known as balancing). It can also use more elaborate, competitive advantage-based strategies. In a case study of Singapore, for example, Heng and Aljunied (2015) illustrate how the small city-state has enhanced its role in global governance processes through leveraging its human capital by, inter alia, building like-minded coalitions to promote its interests, and leveraging its 'niche expertise' by positioning individuals in international organisations and forums of strategic interest for the country.

[13] Studies focusing on governance and cooperation have helped broaden the scope of the traditionally geopolitics-heavy field of study of international energy politics (Van de Graaf and Colgan 2016). This paper seeks to contribute to the governance literature but moves the focus from understanding the regime to a more practically-oriented focus on the interaction with individual states with this regime. One of the few attempts to conceptualise the relationship between the state and the regime complex from a state interest perspective is a study by Fritzsche et al. (2011). The authors apply the case of Morocco to build conceptual framework for analysing how existing renewable energy institutions, initiatives and financial mechanisms can support large-scale renewable energy implementation.

Generally, smaller states – in particular developing countries – tend to prefer UN forums and 'large-n' settings (ones with a high number of actors) to minilateral clubs that could shift global decision-making to less representative and less democratic forums. It is obvious that the UN and other one-country-one-vote systems are better for protecting smaller countries' interests – this is in particular the case in the UNFCCC where decision-making takes place through consensus. However, as the UNFCCC has clearly demonstrated, large-n settings can be highly inefficient and slow in reaching outcomes compared to minilateral clubs or issue-focused partnerships.

Overall, what can be concluded from states' options for participation in global governance is that only few states end up choosing the long and challenging path of trying to create successful governance forums from the ground up (such as Germany with IRENA). Only few also have the power to radically reshape existing ones (the impact of the US on the legal form of the Paris Agreement being a prime example) or shift forums (as the US is attempting with MEF and CEM). The majority of states will choose the path of engaging with existing institutions, clubs and partnerships to push for national policy preferences and to gain available benefits, with institutional or agenda change as a secondary motive, at most.

The third step of the exercise of defining a country's engagement strategy with the global energy-climate regime complex is therefore proposed to consist of:

- Evaluation of the current engagement strategy (step 1) against the national interest (step 2): Key government stakeholder entities should conduct a joint exercise of comparing the existing strategy to the national interest. This exercise can be organised based on interests (regulatory frameworks, means of implementation needs, and means of implementation offerings) or institution-by-institution.

- Defining of options to enhance the state's engagement: In the final stage, policymakers should evaluate the options for enhancing the state's engagement, both through improving existing modes of participation and thinking of new ones. While for most states the emphasis would be on how to enhance participation to gain benefits, this part could also look at ways to shape institutions – the example of Singapore discussed above being a good one.

- Consideration of regional and national governance frameworks: Throughout this process, attention should also be paid to key regional and national-level governance initiatives that can complement or even replace similar initiatives at the global level. Examples from around the world include the Africa Clean Energy Corridor, the Caribbean Development Bank, and the US state Governors' Accord for a New Energy Future. Regional organisations that serve as important reference groups for states' participation in international institutions, such as the European Union or the Gulf Cooperation Council, should also be taken into account.

Domestic actors involved in this step should include key stakeholders and/or policymakers from government entities with management responsibilities relating to the climate-energy nexus. It should take the form of face-to-face meetings and/or workshops. The importance of involving all government entities that are engaged in global governance-related activities cannot be overstated.

3.4. Example: The Case of the UAE

This section will provide a general illustration of how the process outlined above could be applied in practice. The UAE is taken as the example for two reasons. Firstly, in recent years, the UAE has been actively engaging with the global energy-climate regime complex. With the launch of the 'UAE Post-Oil Strategy' expected in early 2016 (WAM 2016), the country is now embarking on an accelerated period of economic diversification and transition. Specifically in the domestic energy sector, the UAE's new national climate change plan includes an ambitious 24% clean energy target by 2021.

At the time of writing (March 2016), the UAE had not published a federal-level energy or climate change policy document. The UAE's intended nationally determined contribution (INDC), submitted to the UNFCCC in October 2015, however, defines the country's climate change policy as being based on 'a strategy of economic diversification that will yield mitigation and adaptation co-benefits' (UAE 2015, 1). In addition to the clean energy target,[14] the document lists several areas of policy emphasis of relevance to energy. On domestic energy policy, the INDC cites the goals of diversification of the energy mix, increased energy efficiency, and the adoption of standards and best available technologies in energy intensive industries, and the oil and gas sector. It also makes references to: deployment of nuclear and renewable energy, and carbon capture and storage; various measures to increase energy and water efficiency; measures in the transport sector; and innovation, and research and development to support sustainable energy policies.

Secondly, due to a recent government restructuring (February 2016), responsibilities between relevant ministries have seen changes. These include the new mandate given to the environment ministry to lead on climate change through a reformed Ministry of Climate Change and Environment. In addition to giving climate change more prominence on the domestic policy agenda, the restructuring could result in some redefinition of policy responsibilities, and will allow for an exploration of enhanced cooperation and coordination between the new ministry and other key ministries, including the Ministry of Energy and Ministry of Economy.

It is argued that implementing the UAE's sustainable energy and climate action goals will require a coordinated domestic approach, which could receive support from a strategic approach to relevant global governance and cooperative frameworks. In the following, some initial suggestions on how the above-described exercise could be conducted in the UAE context are presented. In the absence of a prior mapping of the UAE's existing participation profile, the examples will focus on steps 2 (national interest) and 3 (modes of engagement).

[14] 'Increasing clean energy contribution to the total energy mix from 0.2% in 2014 to 24% by 2021' (ibid.).

Step 2. Establishment of the national interest vis-à-vis global energy-climate regime complex.

- Global regulatory and policy coordination frameworks: The UAE's preferences and needs in relation to the global regulatory and policy frameworks could include: policy signals of long-term certainty for low-carbon energy investments; and policy coordination to create a level playing field for renewable energy. Given the heavy use of air-conditioning in buildings, and the importance of the aviation and maritime transport sectors for the economy, the UAE may also want to ensure its interests are represented in the respective global governance institutions where key regulatory developments are expected in the coming years.
  Institutions: Key governance institutions/forums that could support these goals include the UNFCCC, IEA and IRENA, and G20 and its energy forums, as well as the Montreal Protocol, ICAO and IMO.

- Means of implementation needs: Compared to many other countries, the UAE is in a strong position to finance its domestic diversification efforts and purchase best available technologies, including in the area of energy, but it has institutional and human capacity needs that could be enhanced through participation in key global governance partnerships. Policy-related support in particular is an area where participation could generate benefits.
  Institutions: Key governance institutions/forms that could support these needs include the UNFCCC CTCN, IRENA and IEA, CDM and other carbon pricing mechanisms, and a number of forums and partnerships, such as CEM, SE4All, IPEEC, CSLF, GMI, SLoCaT, CCAC and, at city-level, C40.

- Means of implementation contributions: In the past years, the UAE, partly linked to its commitments as the host country of IRENA, has been supporting renewable energy deployment in a large number of developing countries worldwide. The UAE's efforts are arguably motivated by a combination of altruism, pursuit of soft power and desire to strengthen bilateral relations. According to domestic stakeholders, such projects also help to build the UAE's own capacity in the renewables sector, through projects where UAE companies play an implementing role.
  Institutions: Key governance institutions/forms that could support these goals include the UNFCCC, IRENA, multilateral development banks, the OECD's Development Assistance Committee and SE4All.

Step 3. Identification of the best ways to pursue the national interest on the energy-climate nexus.

- Evaluation of the current engagement strategy against the national interest:
  - In the area of regulation and policy frameworks, the UAE is currently not known to actively engage with the IEA (with the exception of participation by government-owned company Masdar in IEA's Energy Technology Network), and it has not sought an association country status (an option available for non-OECD countries). The UAE is also not a G20 member[15] but participates in the CEM.
  - In the area of means of implementation needs, the UAE is known to participate in IRENA, CEM, REN21 and SE4All. The exact modes and depth of participation, however, should ideally be surveyed. Sectoral/issue gaps in participation potentially remain in energy efficiency, short-lived climate pollutants and transport.

[15] The UAE was invited in 2011 by the French G20 Presidency to participate as a non-member.

  - In terms of means of implementation contributions, the UAE has not pledged funds to the GCF (given its position that developed countries should reach their pledged targets first) and is not a member of the Asian Development Bank, but is contributing substantial financing through IRENA and bilateral channels to sustainable energy in other developing countries.

- **Definition of options to enhance the state's engagement:** Given its forward-looking attitude to energy, the UAE could explore the benefits of association with the IEA. It could also explore ways to enhance its (indirect) participation in G20, for example by convening, in the UAE, a new CEM-type forum that focuses on an economic sector of key national interest where the UAE has niche expertise. Aviation or maritime transport could be potential candidates. In the area of sustainable energy development cooperation, the UAE could explore deepening its participation in key multilateral finance institutions in order to build its human capacity in this field and amplify its voice in related agenda-setting and policymaking.

- **Consideration of regional and national governance frameworks:** Few regional governance initiatives exist in the MENA region in the areas of climate change and clean energy. The UAE is not a member of the Cairo-based Regional Center for Renewable Energy and Energy Efficiency (RCREEE), which works on policy and technical dialogue, and capacity building, and has 17 member governments. Arguably, a region-wide governance approach could be beneficial for MENA states: as Dreyer (2013, 4) has pointed out, 'international renewables policies lend themselves best to regional approaches as they involve a host of nitty-gritty issues' relating to legislation, grid connections, market-creation and funding. Such an approach could be pursued either through existing governance mechanisms (GCC, League of Arab States, RCREEE or the Islamic Development Bank, for example) or through the creation of a new regional forum or organisation. On the national level, the emirate-level Abu Dhabi Sustainability Group is an example of a multi-stakeholder dialogue forum for interested stakeholders that could be looked into when considering emirate- and national-level governance approaches to the energy-climate nexus.

The suggestions above are intended to serve as initial illustrative examples of what some outcomes of a national exercise for defining an energy-climate regime complex engagement strategy could look like. It is hoped that, by drawing attention to the important nexus between energy and climate change, this study will inspire further academic thinking on conceptualising and understanding it. Also, by demonstrating how academic concepts and literature can be made relevant by applying it to a practical strategy exercise, this study will hopefully contribute to enhancing the tangible contributions that global governance research can make to policymaking.

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