

# 3

## Mapping the Institutional Complex of the Climate-Energy Nexus

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### 3.1 Introduction

Global energy challenges and responses to climate change are intrinsically intertwined. Efforts to achieve the Sustainable Development Goal on energy (SDG 7) – to provide ‘*access to affordable, reliable, sustainable and modern energy for all*’ (United Nations 2015) – will affect the possibility to reach the goals set out in the Paris Agreement under the United Nations Framework Convention on Climate Change (UNFCCC) to keep global warming under 2 degrees, and vice versa. Such efforts are thus interdependent and situated in a ‘climate-energy nexus’.

In this chapter, we map the increasingly dense institutional complex of governance institutions occupying the climate-energy nexus. In global climate governance, international and transnational institutions have proliferated since the adoption of the UNFCCC in 1992, which has led to an increasingly fragmented global climate governance architecture (Bäckstrand 2008; Biermann et al. 2009; Keohane and Victor 2011; Abbott 2012; Bulkeley et al. 2014; Falkner 2014). Similarly, global energy governance has been characterized as fragmented (e.g. Dubash and Florini 2011; Van de Graaf 2013; Escribano 2015), partly due to the diversity of governance efforts involved and the way it deals with different energy sources (e.g. coal, gas, solar, and wind), and challenges (energy security, energy access and environmental sustainability).

Despite the interdependence between climate change and energy governance, scholars studying institutional structures often only focus on one issue area. For example, in an effort to understand institutional complexity of global climate change governance, and the causes and consequences thereof, several studies introduced mappings of the broader institutional complex. Keohane and Victor (2011) discussed the regime complex for climate change by demonstrating a plethora of international state-based governance arrangements, and evaluated the emerging regime complex as ‘loosely coupled’, with institutions that are not

integrated or arranged in a clear hierarchy (Keohane and Victor 2011, 9). Others have mapped climate governance institutions beyond the international realm, focusing on transnational and private climate governance (e.g. Pattberg and Stripple 2008; Abbott 2012; Bulkeley et al. 2014; Hale and Roger 2014). Subsequent research sought to combine both spheres (Widerberg et al. 2016), operationalizing a heuristic framework that had been developed by Abbott and Snidal (2009a; 2009b; Abbott 2012).

Similarly, a growing body of literature has mapped the global energy complex (e.g. Suding and Lempp 2007; Kerebel and Keppler 2009; Lesage et al. 2010; Colgan et al. 2012; Sovacool and Florini 2012; Leal-Arcas and Filis 2013; Wilson 2015; Escribano 2015). However, these mappings led to strikingly different results, with the number of governance efforts ranging from six, identified by Kerebel and Keppler (2009), to fifty, identified by Sovacool and Florini (2012) (Van de Graaf and Colgan 2016). Like the institutional complex itself, the mapping efforts have been rather fragmented in terms of focus on energy source, or type of institution. Whereas a number of studies exclusively focus on oil and gas (e.g. Kerebel and Keppler 2009), others target renewable energy sources (e.g. Barnsley and Ahn 2014). Additionally, while some mappings are restricted to intergovernmental organizations (e.g. Wilson 2015), others also include nongovernmental organizations; and hybrid or public–private institutions (Sovacool and Florini 2012). Sanderink et al. (2018), finally, merged these different criteria and introduced a novel and comprehensive mapping of global energy governance, following a methodology similar to Widerberg et al. (2016).

What is missing to date is an integrated mapping and coherent analysis of the institutional complex governing the nexus between climate change and energy. Consequently, this chapter identifies the institutions that address both challenges simultaneously. The aims of this chapter are twofold: first, we provide a pioneering mapping and analysis of the climate-energy institutional nexus. Second, we introduce novel empirical data and input for the three case studies on the subfields of renewable energy, fossil fuel subsidy reform, and carbon pricing (see Chapters 4–6).

Concretely, this chapter analyzes the climate-energy nexus along the distinction between the macro level (the overall nexus) and the meso level (the various subfields within the broader climate and energy institutional complex). Each level is scrutinized along a number of analytical questions, including the major dimensions that were introduced in Chapter 2. When were the institutions established, and how did the institutional complex develop over time? What types of institutions populate the climate-energy nexus? Who are the institutional members to the institutions, and how are these connected? What kind of governance functions do these institutions fulfil? What is their thematic focus?

The chapter proceeds as follows: Section 3.2 introduces the methodology and data collection approach. Section 3.3 provides an introduction to the three sub-fields; Sections 3.4 and 3.5 then provide the mapping and analysis of the macro and meso levels of the climate-energy nexus. Section 3.6 concludes with a set of final remarks and sets the stage for the subsequent chapters.

## 3.2 Methodology

Mapping the institutional complex that governs the climate-energy nexus and the three subfields is carried out in two steps. First, compiling a database that includes the institutions actively addressing the climate-energy nexus; and second, visualizing and analyzing the data. The next subsections describe these two steps in more detail, including our dataselection criteria and data analysis.

### 3.2.1 Data Selection

The database consists of institutions that govern both climate change and energy. In line with our definition of global governance (see Chapter 2), our criteria for inclusion and exclusion are based on previous work by the CONNECT project,<sup>1</sup> which includes institutions that are (i) intergovernmental or transnational, which not only have the (ii) intentionality to steer policy and the behaviour of their members or a broader community, but also explicitly refer to a (iii) common governance goal, to be accomplished by (iv) significant governance functions (Widerberg et al. 2016). For the climate-energy nexus as a whole, the overarching governance goals are twofold. On the one hand, institutions strive to mitigate climate change, i.e. to stabilize greenhouse gas concentrations in the atmosphere at a level that will prevent dangerous human interference with the climate system. On the other hand, institutions in the nexus adhere to the proposition that decarbonizing the energy sector is essential to combat climate change. Taken together, the governance goal that unites institutions in the nexus is greenhouse gas mitigation through a transformation toward low-carbon or fossil-free energy systems, excluding those focusing on carbon capture and storage (CCS) and nuclear power.

For populating the database, we used two key sources. First, the CONNECT project's database on global climate change governance (Widerberg et al. 2016), and secondly, the CONNECT dataset on global energy governance (Sanderink

<sup>1</sup> The CONNECT project (1) takes stock of the existing level of fragmentation across a number of issue areas in global environmental governance, (2) explains the causes of fragmentation of global governance architectures, (3) analyzes the implications of fragmentation across different scales of governance, and finally (4) suggests policy responses to increased fragmentation. The project was funded with an NWO Innovational Research Incentives Schemes Vidi Grant and is hosted by the Environmental Policy Analysis Department at the Institute for Environmental Studies, Vrije Universiteit Amsterdam.

et al. 2018). The database on climate governance builds on previous case studies (particularly Hoffmann 2011; Bulkeley et al. 2014; Hale and Roger 2014) and a thorough assessment of two online databases: the Climate Initiative Platform ([climateinitiativesplatform.org](http://climateinitiativesplatform.org)) and the Non-State Actor Zone for Climate Action (NAZCA, [climateaction.unfccc.int](http://climateaction.unfccc.int)). Similarly, the dataset on global energy governance includes previous mapping exercises (Suding and Lempp 2007; Kerebel and Keppler 2009; Lesage, Van de Graaf, and Westphal 2010; Colgan, Keohane, and Van de Graaf 2012; Sovacool and Florini 2012; Escribano 2015; Wilson 2015), complemented with data from the Climate Initiatives Platform, NAZCA, and the Portal on Cooperative Initiatives ([unfccc.int/focus/mitigation/items/7785.php](http://unfccc.int/focus/mitigation/items/7785.php)). From these two key sources, we selected those institutions focusing on climate and energy simultaneously for the climate-energy nexus database. Finally, a small number of institutions were added based on complementary discussions with experts on climate-energy overlaps.<sup>2</sup>

### **3.2.2 Data Analysis**

The data we retrieved for the selected institutions includes: name of institution, starting year, membership data, governance functions, and thematic focus. Based thereon, the mappings of the climate-energy nexus and the subfields can be illustrated in various ways. First, we started with a timeline demonstrating how, when, and in which context the institutional complex governing the climate-energy nexus emerged.

Second, for an overview of the institutional complex and the subfields, we used a heuristic framework developed by Abbott and Snidal (2009a; 2009b; Abbott 2012) for mapping global governance architectures, called ‘governance triangle’. We situated the institutions from our database in the governance triangle according to their membership, i.e. the type of their constituent actors: public, firm, and/or civil society organization (CSO). The public category includes individual states (or their governmental agencies, respectively), groups of states, international organizations (IOs), cities, or regions. The firm category comprises (groups of) firms, industry associations, and investors. Finally, CSOs include nongovernmental organizations (NGOs), other organizations that represent civil society, and networks and coalitions of CSOs. Based on the three actor categories, the governance triangle is divided into seven zones. Institutions in zones 1–3, the vertex zones, are constituted by a single type of actor. Those in zones 4–6, the quadrilateral zones,

<sup>2</sup> Complementary discussions took place at CLIMENGO project meetings. CLIMENGO is a research project that aims to map the institutional complexity of global climate and energy governance, evaluate its effectiveness and legitimacy, and develop a knowledge base for decision makers ([www.climengo.eu](http://www.climengo.eu)). The experts include project members Karin Bäckstrand, Jakob Skovgaard, Harro van Asselt, and Fariborz Zelli.

include two types of actors. Finally, the institutions in the central zone 7 are those that involve all three types, also called multi-stakeholder institutions. In the respective triangles that follow in this chapter, we will also use greyscale to mark these different actor patterns.

Third, for each institution in the dataset we collected membership data using a methodology developed by the CONNECT project (Widerberg et al. 2016). Members are defined as '*actors with the formal position to influence the rules, norms, operations or performance of an institution*' (Widerberg et al. 2016, 19). Moreover, they may gain benefits from their membership through access to their institution's network, and due to material, reputational, or other types of benefits that the institution is expected to yield. On the other hand, we excluded 'supporting' organizations or countries from the dataset. These could be organizations that merely support an institution's values, rules, norms, or mission by way of a public statement or endorsement. Moreover, we only accounted for collective actors such as countries, companies, cities, regions, or NGOs as members, i.e. not their individual representatives.

To tackle further ambiguities, we used four rules when collecting the membership data. First, for institutions engaging in pledges and commitments, only the organizing or lead institutions have been included (e.g. DivestInvest). Second, for institutions engaged in certifications and registries, we only considered those organizations with the power to hand out or change the certificates as well as those collecting the data for the registries (e.g. Gold Standard). Third, in cases where we have not been able to establish authority due to a networked mode of governance (e.g. in city networks) we treated all participants as members (e.g. Covenant of Mayors). Fourth, for institutions where a member may join a decision-making body, such as the steering committee or board of directors, all members with such privileges have been included (e.g. International Emissions Trading Association).

The membership data we gathered, based on these rules and criteria, enabled us to explore in more detail who the key actors in the climate-energy nexus are. We summarized these in a network diagram (see Section 3.4.2.2), with nodes representing institutions and members and edges indicating which members are shared among the institutions. This type of visualization highlights which institutions are central and which countries are best connected in terms of membership.

Fourth, another form of visualization, the governance decagon, displays the governance functions that individual institutions perform. The decagon is divided into ten segments representing four different governance functions, which were also introduced in Chapter 2, and combinations of these. The governance function 'standards and commitments' refers to rule-making and implementation schemes, involving mandatory compliance, standards for measurements and disclosure, and

voluntary and private standards and commitments. The function ‘operational activities’ comprises, for example, technology research and development, pilot projects, demonstration and deployment activities, skills enhancement, and best practices. The ‘information and networking’ governance function encompasses information-sharing forums and networking, such as technical consulting, training, and information services to build capacity, share knowledge, and support local governments. Finally, the governance function ‘financing’ refers to any operational activities that involve financing schemes. A number of institutions employ more than two governance functions, but for the purpose of clarity the decagon is restricted to two functions per institution. In such cases, the authors had to make a final call on how the institutions should be classified, often based on a judgement of which governance functions appear dominant, while additional governance functions may be elaborated on in the analyses of Chapters 4–6.

Finally, after compiling and evaluating the dataset, we determined for each institution individually which thematic focus is most relevant. After studying the institutions’ websites, we distinguished eight foci: (1) increasing the uptake of renewable energy; (2) pricing and trading of carbon emissions; (3) reforming harmful fossil fuel subsidies; (3) improving energy efficiency; (4) expanding worldwide access to low-carbon energy (services); (5) financing climate mitigation actions and decarbonizing investments; (7) developing low or zero carbon technologies; and (8) transitioning toward clean fuels in the transport sector. The institutions that govern toward these thematic foci form the three subfields that we scrutinize in this volume (renewable energy, fossil fuel subsidy reform, and carbon pricing), and five additional ones in the climate-energy nexus. These subfields should not be considered as silos: first, since institutions can address multiple thematic foci, and second, these thematic foci are crosscutting. For example, clean technologies can include fuel-efficient engines for the transport sector, and financing mechanisms may be designed to make clean cooking appliances accessible. As a consequence, subfields in the climate-energy nexus can show overlaps in terms of institutions.

### **3.3 Three Subfields of the Climate-Energy Nexus: Renewable Energy, Fossil Fuel Subsidy Reform, and Carbon Pricing**

Various themes and activities fall into the intersection of the climate and energy domains, for instance promoting energy efficiency and respective technologies, contributing to worldwide access to renewable and low-carbon energy, and introducing non-fossil fuels in the transport sector. The institutions centred around these and other thematic foci constitute various subfields within the institutional complex for the climate-energy nexus. The three subsequent chapters of this volume put

particular emphasis on three of these subfields and analyze them at the meso and micro levels: renewable energy, fossil fuel subsidy reform, and carbon pricing. In what follows, we briefly introduce these three subfields and outline some of the key institutions therein.

The subfield focusing on renewable energy comprises institutions that support uptake, installation, technologies, and information-sharing on renewable energy (see Sanderink, Chapter 4). Renewables play a significant role in the world's trajectory to sustainable development. An enhanced uptake helps to alleviate the increasing scarcity of energy sources and reduce air pollution and greenhouse gas emissions. The growing renewable energy sector is also highly compatible with decentralized and small-scale deployment efforts to expand energy access. Yet, despite environmental concerns raised in the early 1990s (e.g. UNCED 1992), it was not until the turn of the millennium that renewable energy started to receive increased attention (Röhrkasten 2015). UN work on renewable energy remains weakly developed, and, arguably as a result, a series of institutions on this topic have emerged outside the UN framework. Important intergovernmental institutions are the International Renewable Energy Agency (IRENA) and the International Energy Agency (IEA). Additionally, a range of multi-stakeholder partnerships were established, such as the Renewable Energy and Energy Efficiency Partnership (REEEP) and the Renewable Energy Policy Network for the 21st Century (REN21). Moreover, minilateral institutions such as the G8 and G20 are seen as key in promoting renewables (e.g. Florini and Sovacool 2009; Colgan and Van de Graaf 2014).

The second subfield under scrutiny in this volume consists of institutions that support the reform of harmful fossil fuel subsidies. Fossil fuels are still heavily subsidized around the globe and therefore remain highly competitive, with respective infrastructures kept in place. Yet, the urgency of reforms has been increasingly recognized (see Verkuijl and van Asselt, Chapter 5). Research shows that removing fossil fuel subsidies connected to consumption in twenty-seven countries between 2013 and 2020 would lead to an 8 per cent reduction in global greenhouse gas emissions (Burniaux and Chateau 2014). International cooperation efforts play an important role in worldwide fossil fuel subsidy reform, and can be traced back to the G20 summit in Pittsburgh in 2009. The meeting led to a first international commitment to address fossil fuel subsidies (G20 2009), closely followed by a similar pledge by twenty-one members of the Asia Pacific Economic Cooperation (APEC) (APEC 2009). Subsequently, several additional institutions became active in the field such as the IEA, Friends of Fossil Fuel Subsidy Reform (Friends), the International Monetary Fund (IMF), and the Global Subsidies Initiative (GSI).

Finally, the third subfield consists of institutions that aim at putting a price on carbon, facilitating a trade system, and providing a system for offsetting emissions.

Putting a price on carbon is seen as a fundamental solution to climate change (e.g. Sterner and Coria 2011; Tol 2011). This argument rests upon the idea that climate change is best addressed by creating an incentive for individuals to reduce emissions with the help of a price signal (see Skovgaard and Canavan, Chapter 6). Carbon taxes, emission trading systems, and mechanisms to offset emissions are well-known examples of these market-based instruments. The first signs of this market-based approach can be traced back to the 1997 Kyoto Protocol, which introduced the Clean Development Mechanism (CDM), enabling countries to trade emission-reduction credits they had earned through respective projects in developing countries. This early mechanism notwithstanding, most institutions were established after 2007. Important institutions led by public actors are the International Carbon Action Partnership (ICAP) and the Partnership for Market Readiness (PMR). In addition, carbon pricing involves key private institutions, such as the Gold Standard, and public–private cooperation efforts, for instance the Networked Carbon Markets Initiative (NCM).

Having introduced the thematic foci that are at the intersection of both the climate change and energy issue areas, the next sections will discuss the mappings and analyses of the institutional complex governing the climate-energy nexus at the macro level, and the three subfields at the meso level.

### **3.4 Analyzing the Institutional Complex (Macro Level)**

This section presents and discusses our findings on the institutional complex governing the climate-energy nexus at the macro level.<sup>3</sup>

#### ***3.4.1 Starting Year***

Figure 3.1 shows the increase of institutions addressing climate and energy issues from 1954 to 2016. The dark grey lines represent new institutions per year, while the light grey line shows the cumulative trend.

The oldest institution, and the only one established in the 1950s, is the International Solar Energy Society (ISES), which demonstrates the long history of knowledge on this energy source. Thereafter, it took until the early 1970s for new institutions to emerge and to address the climate-energy nexus. At first glance it seems as if this trend is related to the UN Conference on the Human Environment that took place in 1972 in Stockholm. However, closer inspection shows that these

<sup>3</sup> Please consult Annexes I and II for more detailed information: Annex I provides the complete database of active institutions, including their acronyms and full names along with the data displayed in the figures (starting year, zone, membership, governance functions, and thematic focus); Annex II offers brief descriptions of each institution.

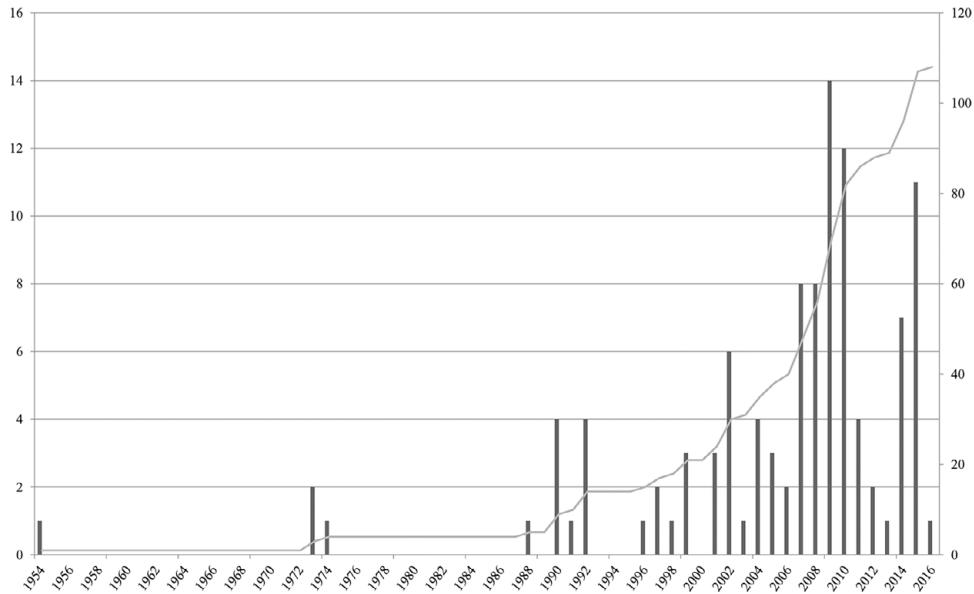


Figure 3.1 Timeline based on starting years of included institutions from 1954 to 2016.

are institutions that were initially established in response to the oil crises in 1970s, which then gradually expanded their activities in light of international climate negotiations in the 1990s. Thereafter, a number of institutions were founded around 1992 when the UN Earth Summit took place in Rio de Janeiro and the UNFCCC was agreed upon. From that point onwards, the graph shows a steep increase in institutions for the following twenty years, and again around 2015, in parallel to the run-up to Agenda 2030 and its SDGs.

### 3.4.2 Membership

The next subsections are based on membership data. They provide an overview of the overall institutional complex while distinguishing membership types and describing in more detail the distribution and connectedness of institutions and its members.

#### 3.4.2.1 Membership Types per Institution

The institutional complex governing the climate-energy nexus is presented in Figure 3.2. The governance triangle provides insights on the amount of active institutions and the different forms of governance in the institutional complex of the climate-energy nexus. For this constantly changing complex, it provides a

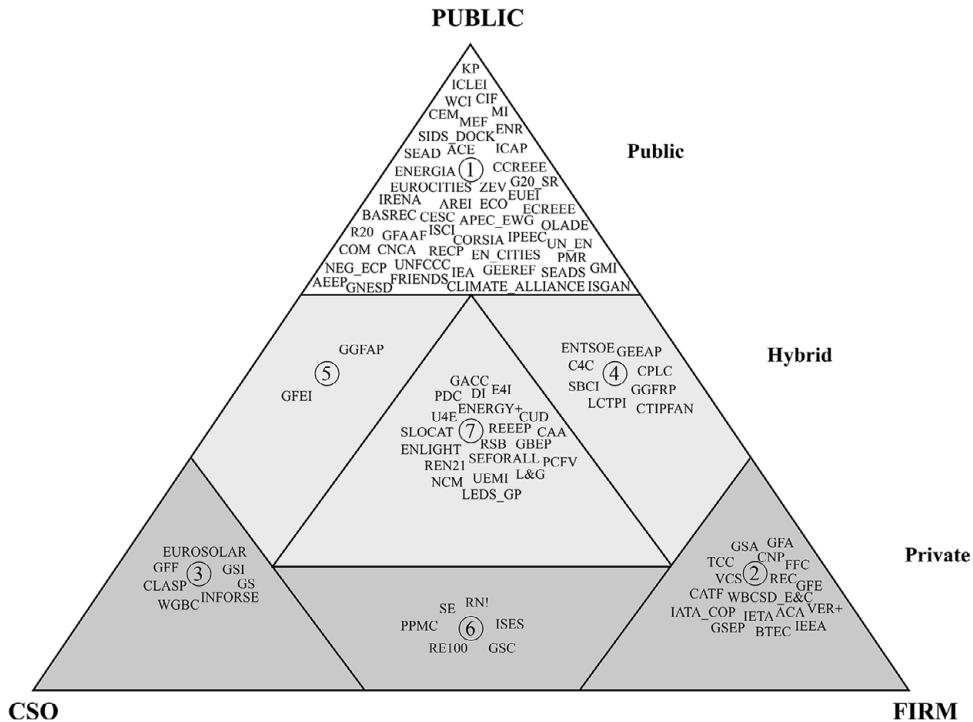


Figure 3.2 Governance triangle of the climate-energy nexus. (Based on Abbott and Snidal 2009a, 2009b, and Abbott 2012; Author's data)

snapshot as of January 2017, when the final cut for mapping was done. The figure structures the different institutions according to their constituting types of actors.

The snapshot of the institutional complex governing the climate-energy nexus comprises 108 institutions. Public agencies are involved in seventy-eight institutions (72 per cent) and exclusively in forty-eight of them (44 per cent) (zone 1). Well-known examples of institutions constituted by solely public actors are the UNFCCC, the Clean Energy Ministerial (CEM), and the IEA. Other, less familiar institutions that fall into zone 1 are, for instance, the Africa Renewable Energy Initiative (AREI) and the International Network on Gender and Sustainable Energy (ENERGIA), which both seek to enhance worldwide access to sustainable energy (AREI 2018; ENERGIA 2018).

Private actors are involved in sixty institutions (56 per cent) and the exclusively private tier (zone 2, 3 and 6) includes a total of thirty institutions (28 per cent). The first core type of private actors, denoted as 'firm' in the figure, i.e. (groups of) firms, investors, and industry associations, are part of fifty-one institutions (47 per cent). Seventeen of these are exclusively constituted by such firm actors, for example the Climate and Energy Cluster of the World Business Council for

Sustainable Development (WBCSD\_E&C), which facilitates the sharing of best practices concerning cutting-edge climate and energy topics between its members (WBCSD 2018). The second main type of private actors – NGOs and other organizations representing civil society – are involved in 35 institutions (32 per cent), of which seven are exclusively formed by such CSOs. One example for the latter is the Go Fossil Free (GFF) campaign, committed to a fossil-free society (GFF 2018). Both private actor types, firms and CSOs, cooperate in six institutions, for example in the Global Solar Council (GSC) to promote the uptake of solar energy (GSC 2018).

Public and private actors join forces in the ‘hybrid’ zones (4, 5, and 7), in which thirty institutions (28 per cent) are situated. These include collaborations between public actors and firms (8), such as the Carbon Pricing Leadership Coalition (CPLC), and cooperative efforts between public actors and CSOs (2), for instance the Global Fuel Economy Initiative (GFEI). This leaves the majority of hybrid institutions (20) to be multi-stakeholder partnerships in which all actor types are included, such as the Global Alliance for Clean Cookstoves (GACC) and Energy for Impact (E4I).

#### *3.4.2.2 Membership Distribution*

This subsection examines the membership directories of the individual institutions. Actors are considered members when they have a formal position to influence the rules, norms, operations, and performances of an institution (see Section 3.2.2).<sup>4</sup> The membership data provides insights into the degree of involvement of different actor types across the entire institutional complex as well as per zone in the governance triangle and enables us to explore the level of connectedness between institutions and respective members.

The result of the membership data collection is a total of 13,812 members in the climate-energy nexus (as of January 2017).<sup>5</sup> The number of unique members is 12,241, as one actor can be a member of two or more institutions. There are major differences in the number of members between the institutions; for instance, ICLEI (Local Governments for Sustainability) has 1,156 members, whereas the Western Climate Initiative (WCI) has ‘only’ 4. Furthermore, there exist differences in the numbers of members per type of actor, as shown in Figure 3.3. Cities are by far the

<sup>4</sup> Discrepancies can exist between the included members and the position of the institution within the governance triangle. For example, the European Network of Transmission System Operators (ENTSOE) is placed in Zone 4. Despite all included members being companies, it is not positioned in Zone 2, because its tasks are stipulated in regulation of the European Commission, a public entity.

<sup>5</sup> Please note that we use an error margin of +5 per cent for possible data entry mistakes with regard to the included (number of) members. For instance, the member Palau is an island in the Western Pacific Ocean as well as a city in Italy, and can therefore be double coded. We have done our utmost to check for such duplications.

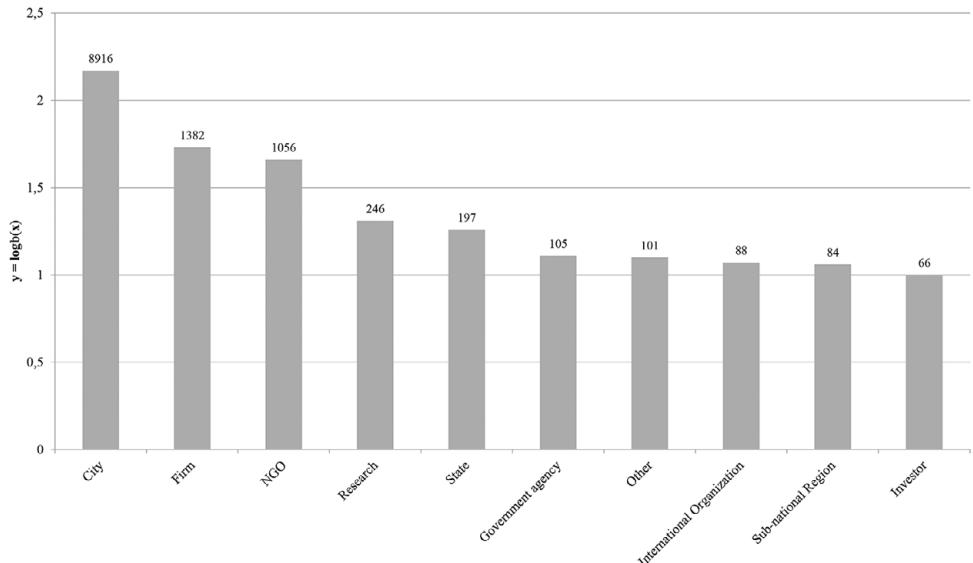


Figure 3.3 Total number of members in different categories ( $N = 12,241$ ).

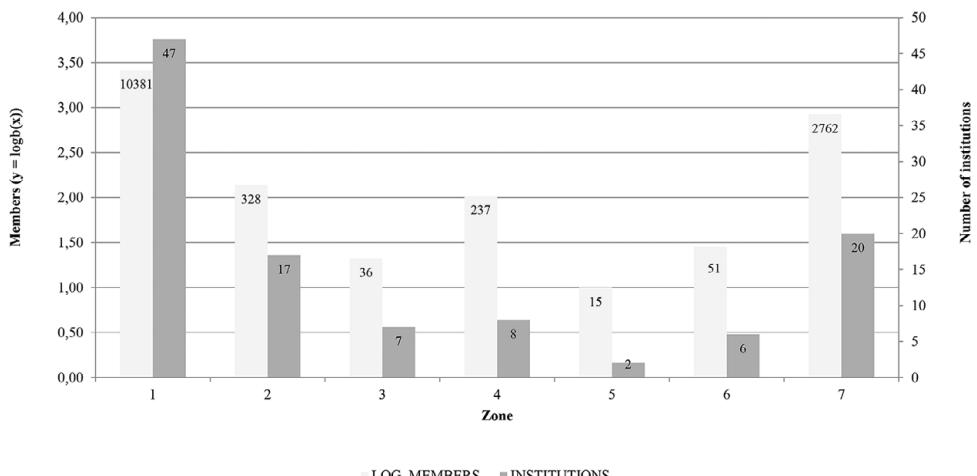


Figure 3.4 Number of members and institutions per zone (1 = public, 2 = firms, 3 = CSOs, 4 = public/firm, 5 = public/CSO, 6 = firm/CSO, 7 = public/firm/CSO).

best-represented type of member, followed by firms and NGOs. The remaining categories are much less prominent.

The distribution of members is reflected in the size of each zone. Figure 3.4 shows the number of members and institutions in each zone. The figure suggests that zone 1 (public) is by far the largest zone, followed by zone 7 (multi-stakeholder), in terms of number of institutions as well as the number of members.

Note that the member categories ‘state’ and ‘government agency’ have been merged since it could be argued that government agencies are acting in the name of the state. Moreover, the European Union has been added as it has competency within climate change issues to engage in international treaties on behalf of its member states.

Based on the membership data, it is possible to explore in more detail who the main actors are in addressing the climate-energy nexus. One possibility to depict the centrality of certain actors is a network diagram. We applied this tool for the actor type of states and show the resulting graph in Figure 3.5. The network diagram highlights how the climate-energy nexus consists of a highly

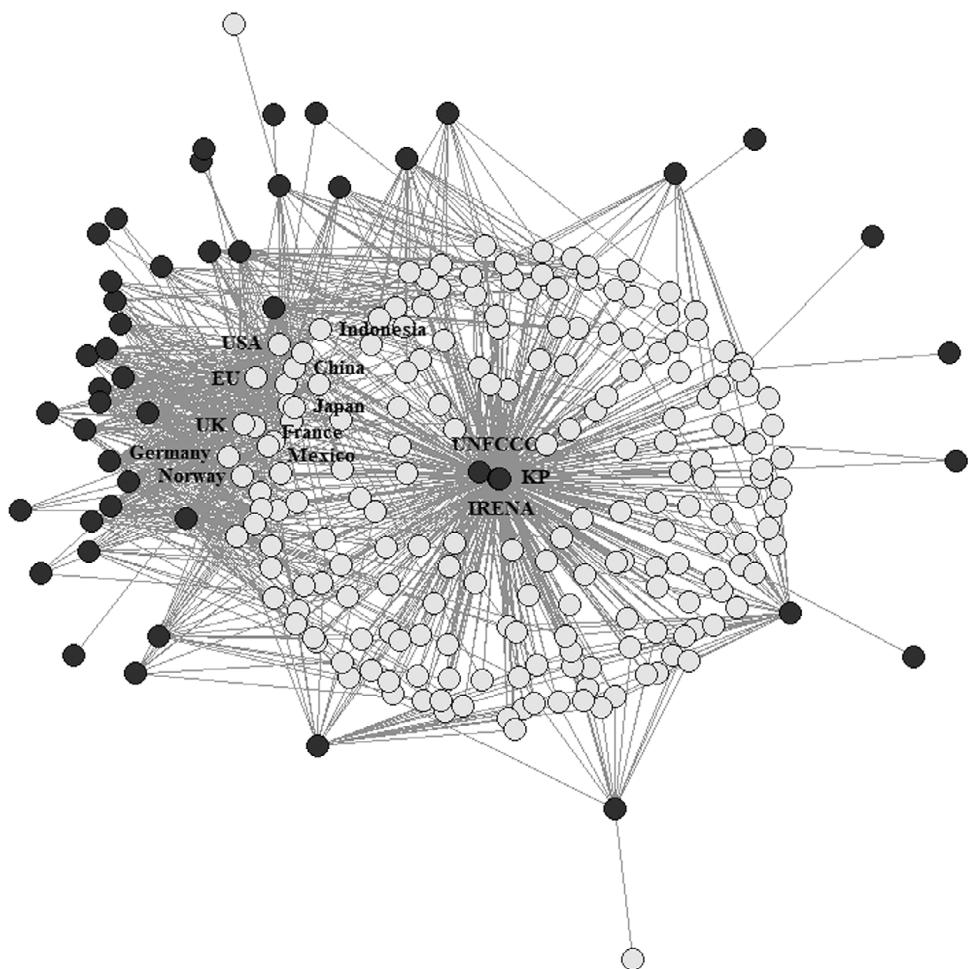


Figure 3.5 Network graph of institutions and states in the climate-energy governance nexus.

interconnected group of actors and institutions. The white nodes represent institutions, whereas the black nodes represent countries. The three central institutions are the UNFCCC, the Kyoto Protocol, and IRENA. The best-connected countries in terms of membership are (in descending order) Germany, the United States, European Union, United Kingdom, Mexico, Norway, China, France, Indonesia and Japan.

### ***3.4.3 Governance Functions***

The institutional complex of the climate-energy nexus can also be visualized based on the governance functions of the active institutions. This is displayed in the governance decagon for the climate-energy nexus in Figure 3.6.

‘Information and networking’ is by far the most common governance function, with thirty-nine occurrences. This implies that most institutions focus on conducting research and publishing reports and/or on organizing meetings and conferences to facilitate the sharing of this knowledge and expertise. One example is IRENA, which serves as a centre of excellence, and a repository of policy, technology, resource, and financial knowledge on renewable energy (IRENA 2018). The second most common governance functions is the combination of ‘information and networking’ and ‘operational’ activities, which we found for twenty-seven institutions. This implies that a high number of institutions concentrate on implementing programmes and projects on the ground in addition to sharing information, such as the IEA, which, besides providing authoritative analyses for the full spectrum of energy issues, organizes training and capacity-building workshops (IEA 2018). Furthermore, nineteen institutions focus on ‘standards and commitments’ and eight are combining ‘standards and commitments’ with ‘information and networking’. Hence, there is a fair share of institutions that seek to introduce rule-making and implementation schemes, such as the RE100 initiative, which unites private actors committed to 100 per cent renewable electricity (RE100 2018). No institution combines the roles of ‘standards and commitments’ and ‘financing’, or ‘operational’ and ‘financing’.

Whereas the governance triangle displays a high degree of institutional complexity, particularly in terms of number of institutions, the decagon shows that there is, on top of that, an uneven distribution of the institutions across the governance functions. Table 3.1 summarizes the findings depicted in Figures 3.2 and 3.6, and combines information on membership and governance functions per institution.

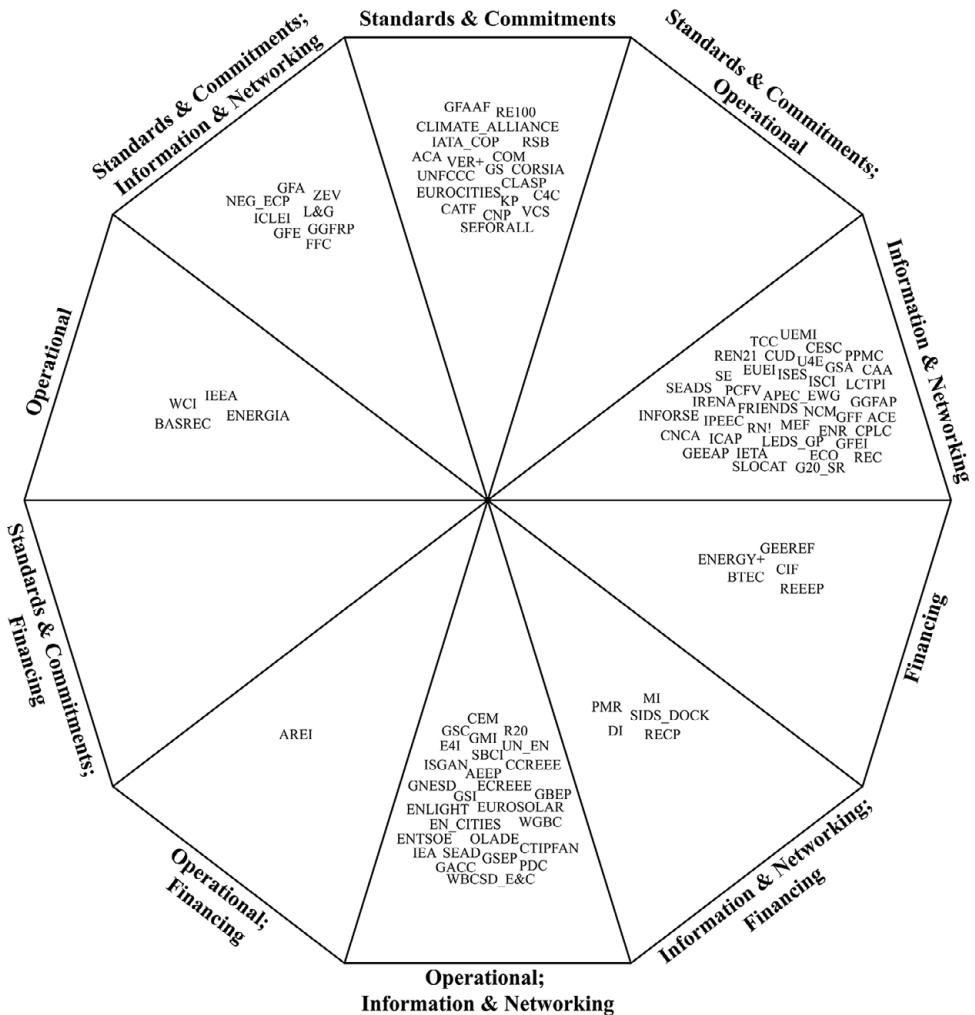


Figure 3.6 Governance decagon of the climate-energy nexus (institutions per governance function).

What can be derived from the table is that the governance function ‘standards and commitments’ is as much performed by private institutions as by public institutions, while the responsibility for ‘information and networking’ lies mostly with public institutions. This is in contradiction to the general presumption that public institutions are the ones to set the rules, while private institutions are to perform informal functions, i.e. networking and raising awareness.

Table 3.1 *Total of institutions in the climate-energy nexus per membership and per governance function.*

| Zone                  | Standards & Commitments | Operational | Information & Networking | Financing | Standards & Commitments + Operational | Operational + Information & Networking | Information & Networking + Financing | Standards & Commitments + Information & Networking | Standards & Commitments + Financing | Operational + Financing | Total (Zone) | %    |
|-----------------------|-------------------------|-------------|--------------------------|-----------|---------------------------------------|--|--------------------------------------|--|-------------------------------------|-------------------------|--------------|------|
| 1-public              | 7                       | 3           | 15                       | 2         | 0                                     | 13                                     | 4                                    | 3  | 0                                   | 1                       | 48           | 44%  |
| 2-firm                | 6                       | 1           | 4                        | 1         | 0                                     | 2                                      | 0                                    | 3  | 0                                   | 0                       | 17           | 16%  |
| 3-cso                 | 2                       | 0           | 2                        | 0         | 0                                     | 3                                      | 0                                    | 0  | 0                                   | 0                       | 7            | 6%   |
| 4-public/<br>firm     | 1                       | 0           | 3                        | 0         | 0                                     | 3                                      | 0                                    | 1  | 0                                   | 0                       | 8            | 7%   |
| 5-public/<br>cso      | 0                       | 0           | 2                        | 0         | 0                                     | 0                                      | 0                                    | 0  | 0                                   | 0                       | 2            | 2%   |
| 6-firm/cso            | 1                       | 0           | 4                        | 0         | 0                                     | 1                                      | 0                                    | 0  | 0                                   | 0                       | 6            | 6%   |
| 7-public/<br>firm/cso | 2                       | 0           | 9                        | 2         | 0                                     | 5                                      | 1                                    | 1  | 0                                   | 0                       | 20           | 19%  |
| Total                 | 19                      | 4           | 39                       | 5         | 0                                     | 27                                     | 5                                    | 8  | 0                                   | 1                       | 108          | 100% |

### 3.4.4 Thematic Focus

Next, we describe the distribution of the institutions in more detail according to their thematic focus by means of the chart in Figure 3.7. The figure highlights important themes at the intersection of climate and energy governance, and the varying degrees of representation, and arguably significance, in terms of institutions.

Most institutions in the climate-energy nexus address several themes and respective goals at the same time to tackle climate and energy challenges. For example, ICLEI, uniting local governments for sustainability, is engaged in energy-efficient city agendas, eco-mobility, and low-carbon development (ICLEI 2018). In addition, many institutions in the institutional complex specifically target increasing the uptake of renewables, such as IRENA and RE100, or transportation modes, such as the Climate Action Takes Flight (CATF) initiative and the Global Green Freight Action Plan (GGFAP). Carbon pricing and trading, and energy efficiency, are the fourth and fifth most preferred themes. Examples of institutions that focus on these two themes are, respectively, CPLC and the International Partnership for Energy Efficiency Cooperation (IPEEC).

As alluded to in Section 3.2.2, the subfields that address these thematic foci should not be seen as silos, but can show overlaps in terms of institutions. First, several institutions focus on ‘multiple themes’, for instance renewable energy and subsidy reform specifically, and are therefore situated in the two respective sub-fields. Second, various institutions address a crosscutting theme, for example

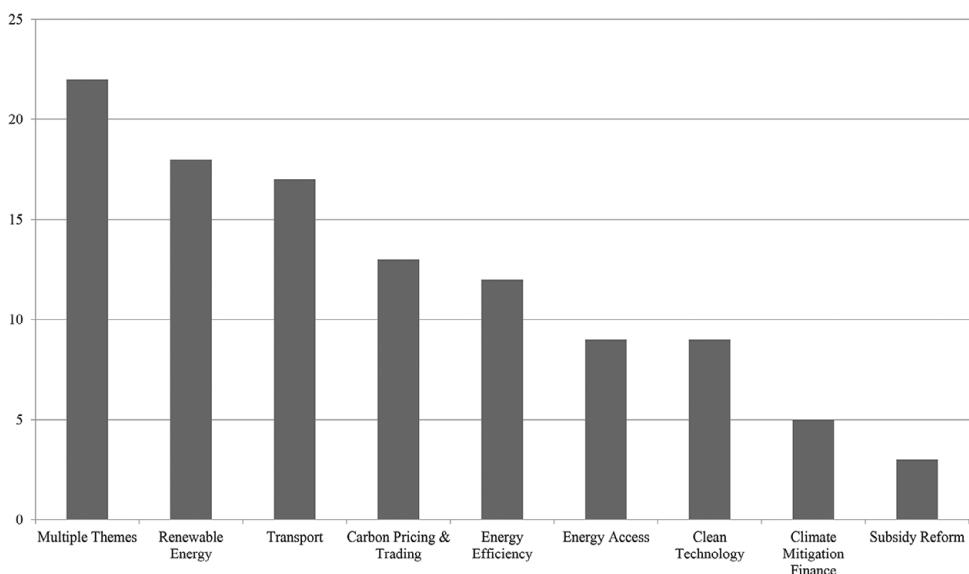


Figure 3.7 Primary Thematic Focus of 108 Institutions.

climate mitigation finance for implementing energy efficiency measures, and are therefore part of both the climate mitigation finance and energy efficiency sub-fields. Hence, the numbers in Figure 3.7 do not coincide with the mappings of the subfields that are scrutinized in Section 3.5 and the subsequent chapters. However, the figure does provide first insights into the subfields' varying degrees of institutional complexity. Whereas the uptake of renewables is addressed by a high number of institutions, fossil fuel subsidy reform is governed by only a few; meanwhile, the number of institutions on carbon pricing and trading is at the centre of this continuum.

### ***3.4.5 Discussion***

Besides the high number of institutions involved in governing the climate-energy nexus, we found a high degree of diversity among these institutions. Institutions constituted by public actors are dominant, although private actors also contribute significantly as the high number of private and multi-stakeholder institutions indicates. Thus, while much scholarly attention has shifted toward transnational global governance, including nonstate and sub-national actors on climate change, energy, and other environmental issues (e.g. Goldthau 2012; Bulkeley et al. 2014; and Hsu et al. 2018), our mapping suggests that state governments and other public agencies retain formal authority in the climate-energy nexus (Jordan et al. 2015).

Analyzing the membership data in more detail further substantiates the dominant role played by (inter)governmental entities. Cities are by far the most represented actor type and, together with other public actors, they occupy more than three-quarters of the entire institutional complex, clearly outmatching the presence of businesses, NGOs, research organizations, investors, and other private actors. Furthermore, the network diagram on states and institutions (figure 3.5) highlights the UNFCCC, Kyoto Protocol, and IRENA as the central institutions which may be explained by the high degree of universality and inclusiveness of these three intergovernmental institutions. The diagram additionally unveils that not only Western (European) countries are of key importance in governing the climate-energy nexus, but that countries such as China, Mexico, and Indonesia are equally involved.

Moreover, there is no clear division of labour among institutions in terms of governance functions, even though all are covered within the nexus. The institutional complex is dominated by institutions that share information and facilitate networking opportunities, and there is a fair share of institutions that implement projects and programmes to have an impact on the ground. By contrast, standard-setting and financing functions are performed by a smaller sample of institutions. These findings illustrate that, within the climate-energy nexus, private institutions do not shy away from setting standards, while public institutions predominantly perform informal functions. Further studies have to show whether this uneven

distribution of governance functions has implications for the performance of the institutional complex of the nexus as a whole, i.e. at the macro level.

Furthermore, the examination of key themes at the intersection of climate and energy governance provides interesting first insights into the subfields of the climate-energy nexus. First and foremost, there is a high number of institutions focusing on multiple themes, which suggests that there are many overlapping institutions among the subfields, an issue that will be explored in subsequent chapters. Second, the degree of institutional complexity appears to vary across the subfields. The numbers of institutions addressing the respective thematic foci suggest that the subfield for renewable energy is most densely populated, whereas the subfield for fossil fuel subsidy reform consists of only a few institutions. Given that carbon pricing is in the middle of this continuum, the three subfields covered in the book provide a useful variation for the analyses in Chapters 4–6 and the comparative study in Chapter 8.

In sum, over the past twenty-five years the institutions governing the climate-energy nexus evolved into a densely populated complex dominated mostly by public actors, in which governance functions are unevenly spread, and the degree of complexity varies considerably across the subfields.

### **3.5 Analyzing the Subfields: Renewable Energy, Fossil Fuel Subsidy Reform, and Carbon Pricing (Meso Level)**

This section describes and analyzes those institutions that, exclusively or as one of their multiple foci, address one of the three subfields of the climate-energy nexus covered in the book. To illustrate the three meso-level institutional complexes, similar figures are used as in the previous section: the governance triangle providing insights on the types of actors involved, and the governance decagon displaying the governance functions of the individual institutions. Like in the previous section, the illustrations are snapshots of the subfields as of January 2017.

#### **3.5.1 Renewable Energy**

Figure 3.8 presents the governance triangle for the institutions that aim to promote the uptake of renewables globally. The institutional complex comprises forty-six institutions, making the renewable energy subfield the largest within the climate-energy nexus. Nineteen of these institutions focus exclusively on renewable energy, while for the remaining number renewables are but one part of their portfolio.

Most institutions within the governance triangle are constituted by public actors, including (groups of) states, international organizations, cities, and regions. These actors are involved in thirty-eight institutions, of which twenty-eight are purely public (zone 1). Widely known examples of the latter are IRENA and the IEA,

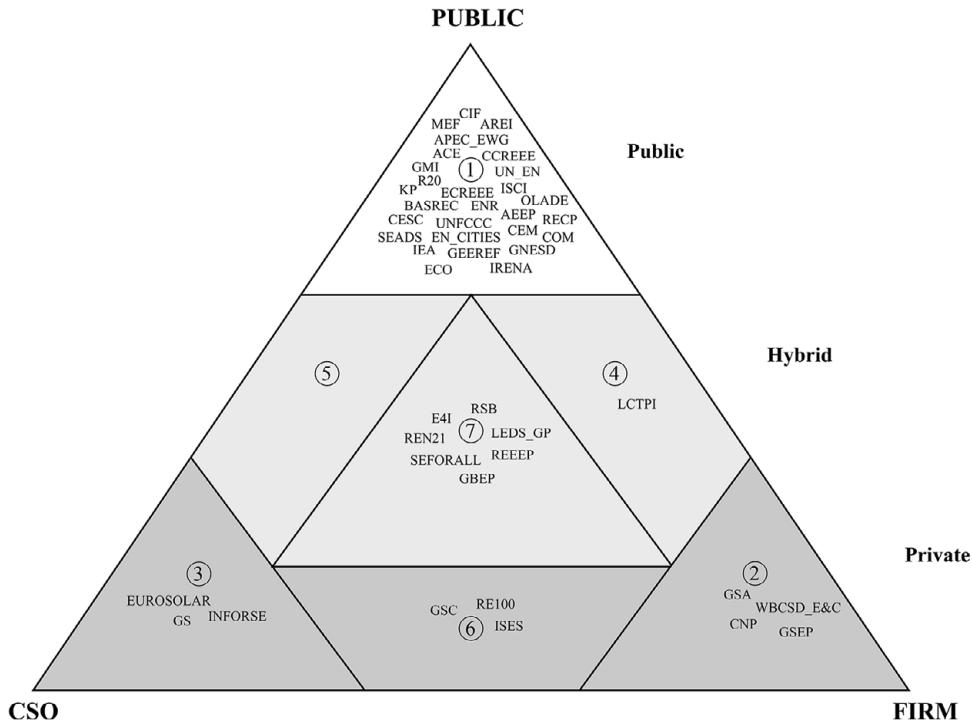


Figure 3.8 Governance Triangle for the subfield of renewable energy. (Based on Abbott and Snidal 2009a; 2009b; Abbott 2012; and Author's data)

while less familiar ones are, for instance, Energy Cities (EN\_CITIES) and the International Solar Cities Initiative (ISCI), both involving local authorities committed to facilitating energy transitions.

Private actors engage in eighteen institutions while the exclusively private tier (zone 2, 3, and 6) counts ten institutions. (Groups of) firms, investors, and industry associations take part in seventeen institutions (37 per cent), of which four are purely firm-based. These include, among others, the Carbon Neutral Protocol (CNP), which provides instruments to achieve carbon neutrality such as renewable energy certificates (CNP 2018). The third main category of actors, NGOs and other CSOs, is involved in thirteen institutions (28 per cent), of which two exclusively include CSOs. One example is the International Network for Sustainable Energy (INFORSE), which constitutes a network of NGOs working on sustainable energy solutions (INFORSE 2018). On top of that, different types of firm and CSO actors join forces in three institutions: GSC, RE100, and ISES.

Public and private actors unite in the 'hybrid' zones (zones 4, 5, and 7) through eight institutions (17 per cent), of which seven are multi-stakeholder partnerships, including all three types of actors. Well-known multi-stakeholder partnerships are Sustainable Energy for All (SEFORALL) and REN21, which are committed to, respectively, substantially increasing the uptake of renewables by 2030 in

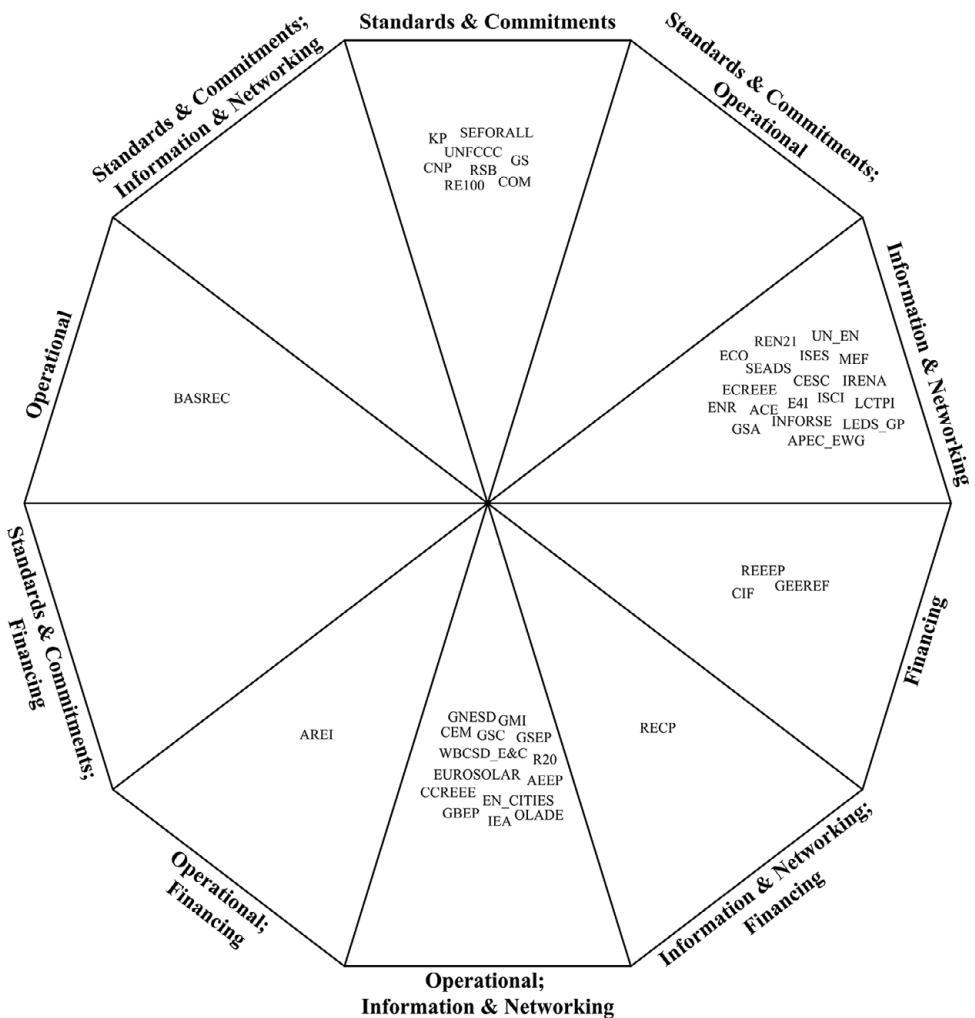


Figure 3.9 Governance decagon for the sub-field of renewable energy (institutions per governance function) (Author's data).

accordance to the SDG 7 target, and to connecting stakeholders to facilitate joint action toward a global transition to renewables (SEforALL 2018; REN21 2018). Finally, the one institution in which public actors partner up with firm-based actors is the Low Carbon Technology Partnerships initiative (LCTPi). This is a partnership between the WBCSD, the IEA, and the UN's Sustainable Development Solutions Network. Its REscale programme brings together energy and technology companies who aim to accelerate the deployment of renewables (LCTPi 2018).

The governance decagon in Figure 3.9 highlights the governance functions of the individual institutions. Most of them (17) govern through 'information and networking' and 'operational' activities simultaneously, for example Regions for Climate Action (R20), which combines informing and supporting climate-resilient

project development (R20 2018). Fifteen institutions solely concentrate on ‘information and networking’ (15). For instance, it is the primary function of REN21 to inform the international community on the status of renewable energy (REN21 2018). In addition, there are eight institutions that set ‘standards and commitments’. One example is the Roundtable for Sustainable Biomaterials (RSB), which provides a certification scheme supporting the development of a sustainable bioeconomy (RSB 2018). Only three institutions focus on developing and providing ‘financing’ mechanisms, including REEEP, which aims to strengthen markets for clean energy in low- and middle-income countries (REEEP 2018).

Finally, all other fields are at best filled with one institution. The Baltic Sea Region Energy Cooperation (BASREC) prefers ‘operational’ practices, AREI combines ‘operational’ activities with the development of ‘financing’ mechanisms, and the Africa-EU Renewable Energy Cooperation Program (RECP) facilitates ‘information and networking’ in addition to developing ‘financing’ mechanisms.

### 3.5.2 Fossil Fuel Subsidy Reform

The governance triangle in Figure 3.10 displays which types of actors take part in institutions that work toward removing harmful fossil fuel subsidies. The

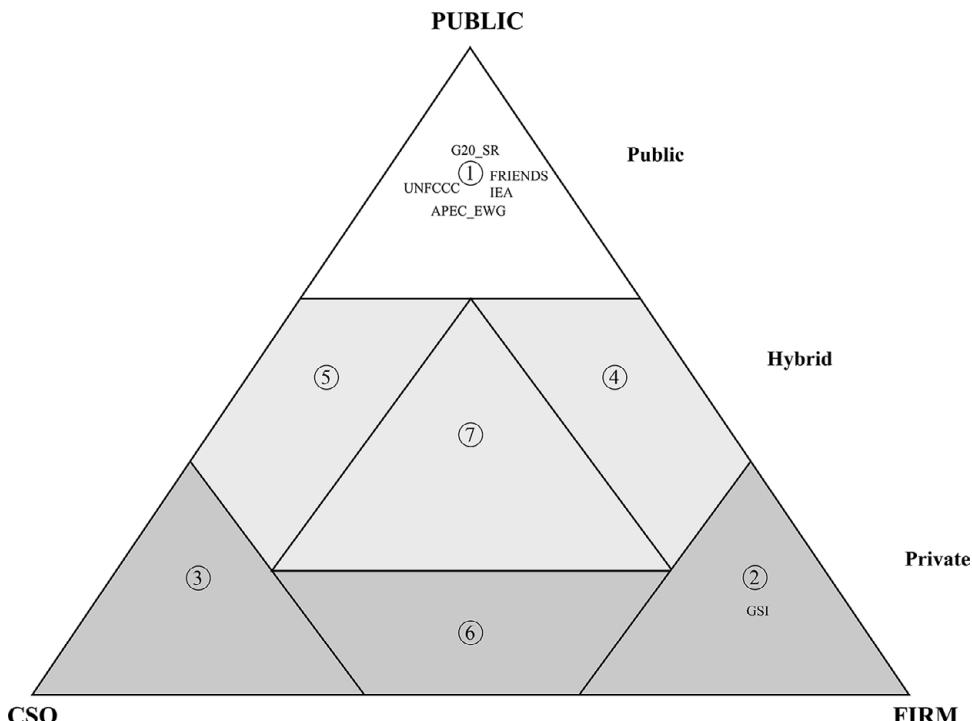


Figure 3.10 Governance triangle for the sub-field of fossil fuel subsidy reform.  
(Based on Abbott and Snidal 2009a; 2009b; Abbott 2012; and Author’s data)

institutional complex comprises only a small number of institutions (six), with half of these addressing subsidy reform as their main priority.

Clearly, the largest share of institutions (five) has exclusively public membership, including some of the leading institutions in the climate-energy nexus: the UNFCCC, Friends, IEA, the G20 Subsidy Reform, and the APEC Energy Working Group. Only one institution is constituted by firms, namely GSI. This initiative is led by the International Institute for Sustainable Development, and supports international processes, national governments, and CSOs to align subsidies with sustainable development (IISD 2018).

The governance functions of the six institutions are visualized in Figure 3.11. It shows that ‘information and networking’ is the predominant way in which institutions

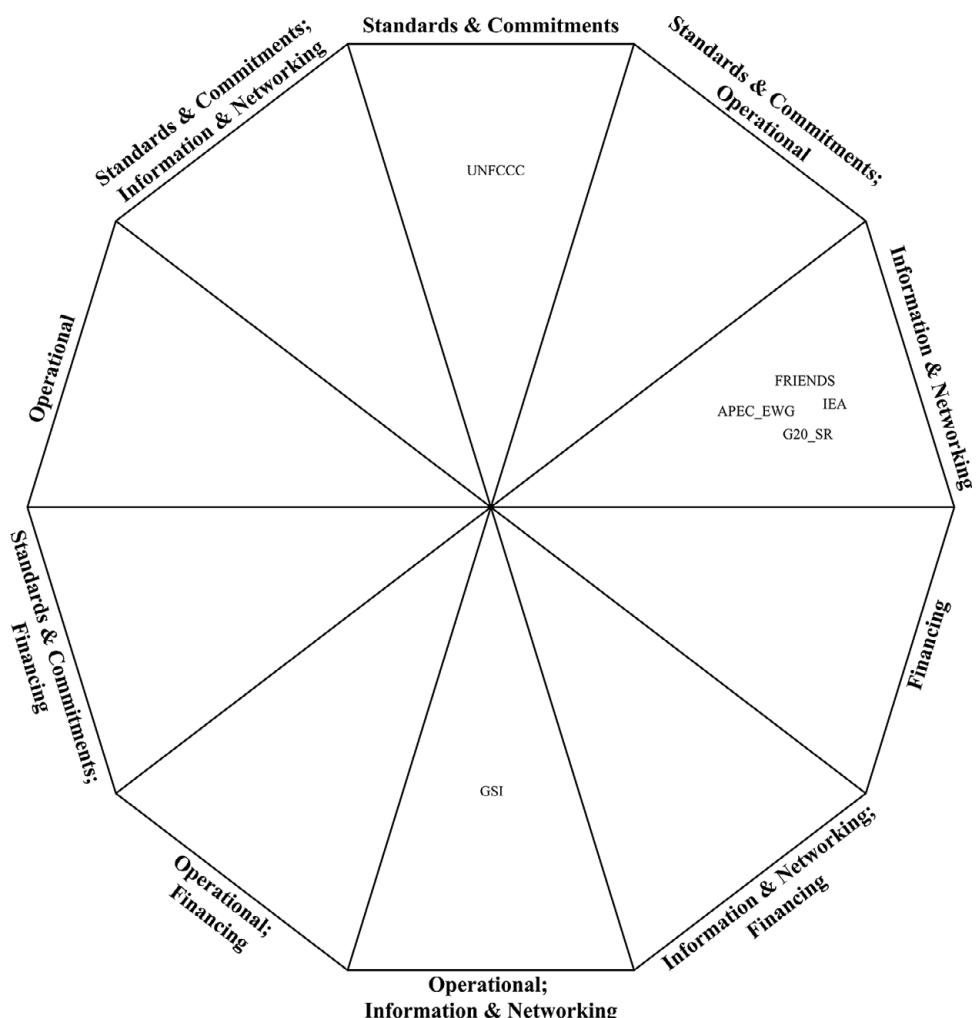


Figure 3.11 Governance decagon for the fossil fuel Subsidy reform sub-field (institutions per governance function) (Author's data).

on fossil fuel subsidy reform operate. No less than four of the six institutions adhere to this governance function. These include the IEA, Friends, APEC Energy Working Group, and G20 Subsidy Reform, which broadly focus on sharing information and organizing events to convince their members and the wider community of the urgency to reform fossil fuel subsidies. The remaining two institutions concentrate on standard-setting for this subfield (UNFCCC) and, respectively, ‘information and networking’ in combination with ‘operational’ activities (GSI).

### **3.5.3 Carbon Pricing**

The governance triangle in Figure 3.12 includes all institutions in the climate-energy nexus dataset that aim at putting a price on carbon, facilitating a carbon trade scheme, or providing a system for offsetting emissions. The institutional complex comprises fifteen individual institutions.<sup>6</sup> Of these, thirteen focus exclusively on carbon pricing.

Most institutions fall exclusively either into the public arena or the firm sector. Concretely, six institutions are constituted by (groups of) states, cities, and regions, for example, the WCI that supports the implementation of emissions-trading programmes, and PMR that offers country-specific guidance on Emissions Trading Registries (WCI 2018; PMR 2018). Six others count solely (groups of) firms, investors, and industry associations as their members. These include, for instance, the Verified Carbon Standard (VCS, recently renamed to VERRA), a voluntary programme for certifying emission-reduction projects, and the International Emissions Trading Association (IETA), which aims at establishing effective market-based trading systems for greenhouse gas emissions (IETA 2018; VERRA 2018). Finally, three institutions represent hybrid efforts. These include the UN Global Compact Caring for Climate (C4C) and CPLC, which consist of firms and public actors, and NCM, which is the only institution in this subfield that exhibits all three types of actors.

Figure 3.13 presents the governance decagon for the carbon pricing subfield, depicting the governance functions performed by each institution. Unlike the previous figures for renewable energy and fossil fuel subsidy reform, the main governance function for this subfield is setting ‘standards and commitments’ (by seven institutions). While the VCS and the CNP have established standards to certify emission reductions, the International Air Transport Association (IATA) provides a mechanism to offset carbon emissions for the aviation sector (IATA 2018). ‘Information and networking’ is performed by four institutions, for example by ICAP, which connects countries, subnational, and supranational entities that

<sup>6</sup> VER+ is, at the time of writing, no longer operative, but still included in the dataset, for which the final cut was made in January 2017.

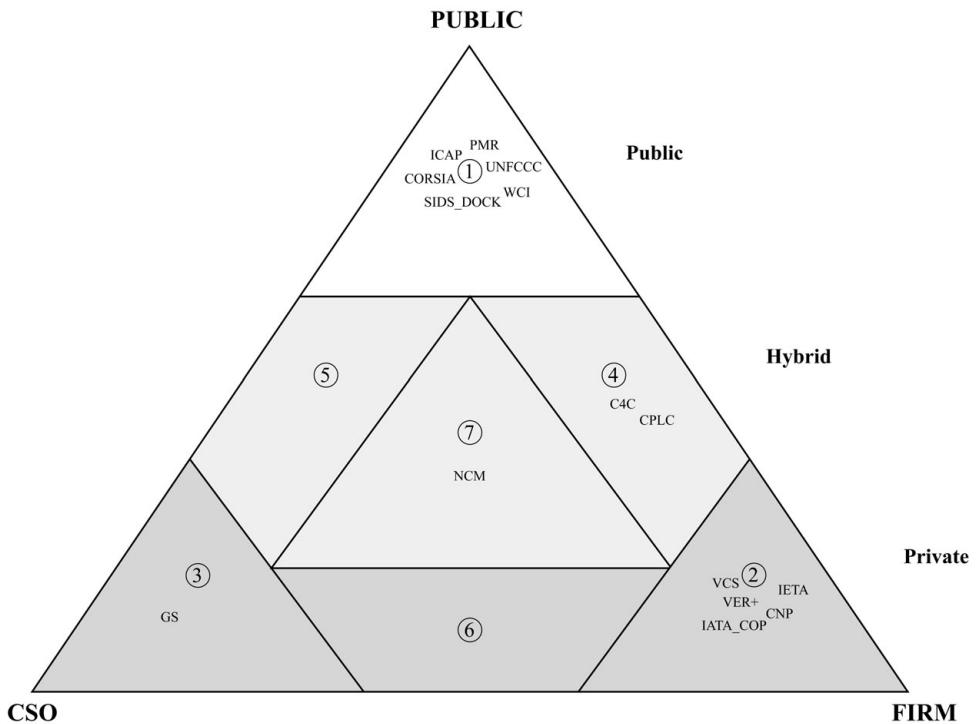


Figure 3.12 Governance triangle for the sub-field of carbon pricing. (Based on Abbott and Snidal 2009a; 2009b; Abbott 2012; and Author's data)

either have established carbon markets or plan to do so (ICAP 2018). In addition, PMR and the Small Island Developing States Sustainable Energy Initiative (SIDS\_DOCK) combine ‘information and networking’ with the development of ‘financing’ mechanisms. Finally, WCI falls into the category ‘operational’ as it provides administrative and technical services supporting the implementation of emissions-trading programmes.

### 3.5.4 Discussion

Having scrutinized the three subfields for renewable energy, fossil fuel subsidy reform, and carbon pricing, we arrive at interesting first insights on each of the institutional complexes. One key observation concerns regards the varying degrees of institutional complexity across the subfields.

The highest degree of complexity was found for the renewable energy subfield, in terms of the number of institutions, but also, as this section has shown, regarding memberships and governance functions. The subfield includes a wide range of public and private actors, while public institutions dominate. All governance

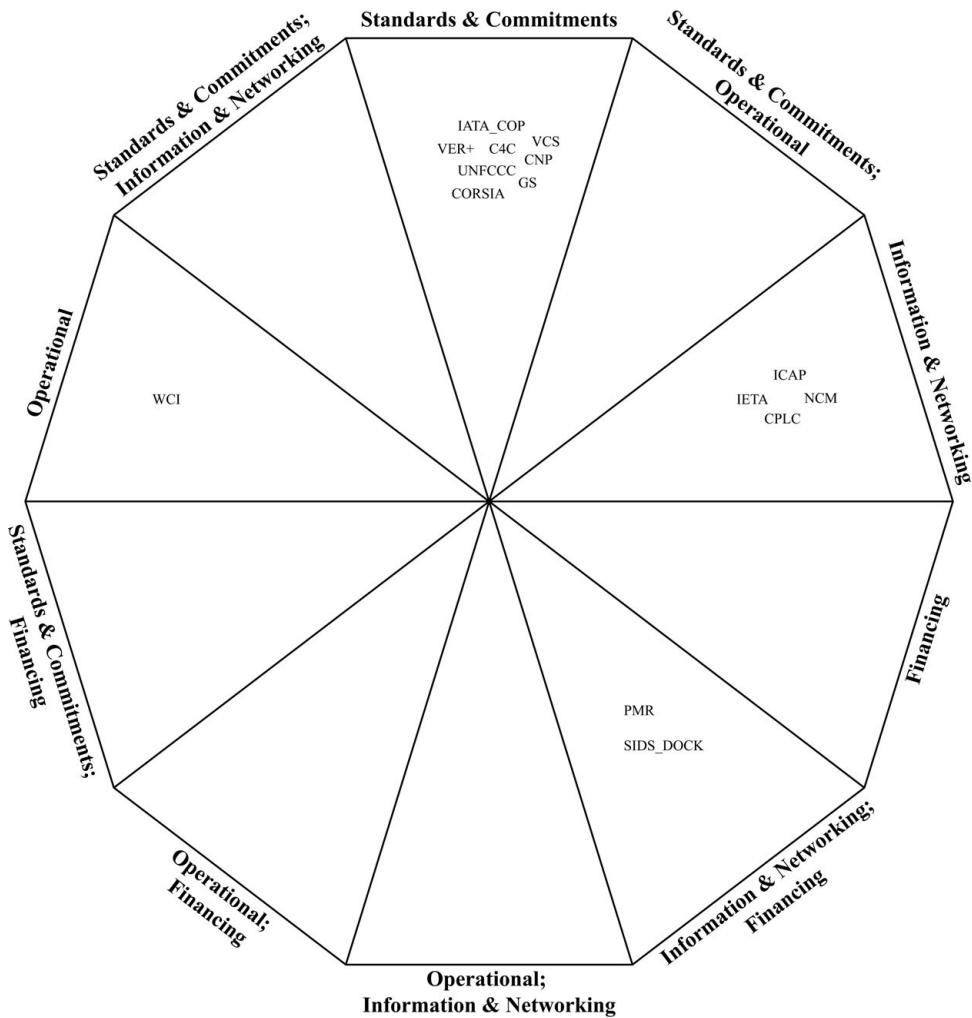


Figure 3.13 Governance decagon for the subfield of carbon pricing (institutions per governance function) (Author's data).

functions are addressed, while the main emphasis is laid on information-sharing, networking, and operational activities. Moreover, the subfield shows characteristics similar to the overall institutional complex addressing the climate-energy nexus – which is clearly related to the fact that the subfield of renewable energy is constituted by almost half of the institutions in the entire dataset.

The lowest degree of complexity, in turn, was found in the fossil fuel subsidy reform subfield: there are only seven institutions, of which six are exclusively public, and information and networking is the dominant instrument to govern subsidy reform. This said, it is important to consider other institutions as well.

These have not been included in this chapter's dataset, since they do not fit our selection criteria (Section 3.2.1). This is mostly due to their chief thematic foci that divert from, or go beyond, the climate and energy domains. Examples are the Organisation for Economic Co-operation and Development (OECD), the World Trade Organization (WTO), and the IMF. To complete the picture, these institutions are included and elaborated on in Chapter 5, which provides an in-depth analysis of the subfield.

In the middle of the continuum is the carbon pricing subfield, not solely with regard to the number and types of institutions involved, but also in terms of the governance functions they perform. The subfield features a balance of exclusively public institutions and purely private institutions. Furthermore, carbon pricing is predominantly governed through setting standards and commitment. This mostly includes certification schemes for emission reductions and carbon offsetting. Finally, we found an important distinction between institutions that aim to establish prerequisites for a carbon market and those that focus on existing ones. For instance, SIDS\_DOCK, an alliance between small island states, assists its members in connecting national energy sectors to EU and US carbon markets, but it does not facilitate carbon pricing, trading, or offsetting itself. As a result, this creates a discrepancy between the dataset included in this chapter and the cases studied in Chapter 6.

Furthermore, it is of interest to examine overlapping institutions across the three subfields and to what extent these represent thematic overlaps. Fossil fuel subsidy reform inherently supports the uptake of renewable energy; when harmful subsidies are removed, fossil fuels make way for renewables. Nevertheless, the fossil fuel subsidy reform and renewable energy subfields share only two institutions: the APEC Energy Working Group and the IEA, which are both intergovernmental cooperation efforts addressing energy issues in the broadest sense. Similarly, while putting a price on carbon provides an incentive to shift to renewable energy, only the CNP is an overlapping institution bridging both subfields. Finally, the one institution shared by all three subfields, and therewith providing the only connection between the fossil fuel subsidy reform and carbon pricing subfields, is the UNFCCC. This suggests that the central role of the UNFCCC regime is not restricted to global climate change governance, but transcends well into global energy governance as a major hub targeting the low-carbon transformation of energy systems.

### **3.6 Conclusions**

The Paris Agreement and Agenda 2030, and particularly SDG 7 to ensure sustainable energy for all, highlight the importance of an effective and integrated

approach to the interconnected climate and energy challenges. While existing studies have provided insights into the institutional complexity of either global climate or energy governance, governance scholars had yet to uncover the institutional complex addressing the nexus between both domains. Against this backdrop, this chapter first identified and mapped the macro level of this nexus, i.e. all institutions that address climate and energy challenges simultaneously. Furthermore, the chapter zoomed in on the institutions that constitute three subfields at the meso level: renewable energy, fossil fuel subsidy reform, and carbon pricing.

The climate-energy nexus can be characterised as institutionally complex, reflecting the past twenty-five years of intense discussions in the international community on both challenges and sustainable development more broadly. This chapter conveyed and analyzed this complexity in various ways. The climate-energy nexus involves a high number of very different institutions – with a strong presence of exclusively public institutions, while private actors contribute significantly through a fair share of private and multi-stakeholder institutions. Membership data further substantiates the dominance of public actors, and cities particularly. Second, even though all governance functions are performed across the institutional complex, there appears to be a strong focus on information and networking, and operational activities to some extent, while only a minority of institutions in the nexus focus on standards and commitments and financing mechanisms. Finally, while most institutions target various themes and activities, most attention is directed toward the uptake of renewables, transforming the transport sector, carbon pricing, and increasing energy efficiency.

Delving into the selected subfields at the meso level provided first insights on the differences and commonalities across the three respective complexes. The renewable energy subfield has the highest concentration of public, private, and hybrid institutions, which focus mostly on information-sharing and networking. On the other end, the subfield of fossil fuel subsidy reform is sparsely populated and marked by a prevalence of public institutions, which predominantly govern through information and networking. This leaves the carbon pricing subfield at the centre of the continuum, exhibiting a balance between public and private institutions, with both camps focusing mostly on standards and commitments.

While this chapter has provided an innovative and novel mapping, it could not go into detail on the processes taking place within and across the institutional complexes. Such much-needed analyses on questions of coherence, management, legitimacy, and effectiveness in the climate-energy nexus – will be provided by the

subsequent chapters of this book. The mapping serves as the empirical basis for these crucial endeavours. First, the comprehensive dataset has helped to select appropriate case studies for Chapters 4–6, which explore varying degrees of coherence and management attempts within the three subfields. Second, our chapter provides key data for evaluating the effectiveness and legitimacy of five individual institutions in Chapter 7. Finally, our findings support the comparative assessment of institutional effectiveness for the three subfields in Chapter 8, from which lessons can be drawn for the performance of the overall institutional complex governing the climate-energy nexus.

By the same token, the dataset presented in this chapter is the first step toward creating a knowledge base that can serve as a tool for policy makers, businesses, and other organizations alike. It improves our understanding of the institutional complexity that characterizes the climate-energy nexus, and guides actors to navigate the institutionally complex global climate and energy governance landscape.

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## **3.8 Annex I:**

### Database of Institutions in the Climate-Energy Nexus

| ZONE | ACRONYM          | NAME   | DATE         | MEM-BERS  | ACTORS           | TYPE             | ROLE   | THEME   |
|------|------------------|--|--------------|-----------|------------------|------------------|--------|---|
| 1    | ACE              | Association of Southeast Asian Nations Centre for Energy                             | 1999         | 10        | Public           | Public           | 3      | Multiple themes                               |
| 1    | AEEP             | Africa-EU Energy Partnership   | 2007         | 6         | Public           | Public           | 6      | Energy access                                 |
| 1    | APEC_EWG         | Asia Pacific Economic Cooperation Energy Working Group                               | 1990         | 21        | Public           | Public           | 3      | Multiple themes                               |
| 1    | AREI             | Africa Renewable Energy Initiative   | 2015         | 6         | Public           | Public           | 10     | Renewable energy                              |
| 1    | BASREC           | Baltic Sea Region Energy Cooperation   | 1998         | 11        | Public           | Public           | 2      | Multiple themes                               |
| 1    | CCREEE           | Caribbean Center for Renewable Energy and Energy Efficiency                          | 2015         | 19        | Public           | Public           | 6      | Multiple themes                               |
| 1    | CEM              | Clean Energy Ministerial   | 2009         | 24        | Public           | Public           | 6      | Renewable energy                              |
| 1    | CESC             | Clean Energy Solutions Center  | 2009         | 1         | Public           | Public           | 3      | Clean technology                              |
| 1    | CIF              | Climate Investment Funds   | 2008         | 36        | Public           | Public           | 4      | Climate mitigation finance                    |
| 1    | CLIMATE ALLIANCE | Climate Alliance of European Cities with Indigenous Rainforest Peoples               | 1990         | 1713      | Public           | Public           | 1      | Energy efficiency                             |
| 1    | CNCA             | Carbon Neutral Cities Alliance   | 2014         | 20        | Public           | Public           | 3      | Multiple themes                               |
| 1    | COM CORSIA       | Covenant of Mayors Carbon Offsetting and Reduction Scheme for International Aviation | 2008<br>2016 | 6115<br>1 | Public<br>Public | Public<br>Public | 1<br>1 | Multiple themes<br>Carbon pricing and trading |

|   |            |   |      |     |        |        |   |                            |
|---|------------|---|------|-----|--------|--------|---|----------------------------|
| 1 | ECO        | ECO Partnerships Clean Energy and Energy Efficiency   | 2008 | 2   | Public | Public | 3 | Multiple themes            |
| 1 | ECREEE     | Economic Community of West African States Center for Renewable Energy and Energy Efficiency | 2008 | 15  | Public | Public | 6 | Multiple themes            |
| 1 | EN_CITIES  | Energy Cities   | 1990 | 179 | Public | Public | 6 | Multiple themes            |
| 1 | ENERGIA    | International Network on Gender and Sustainable Energy                                      | 1996 | 22  | Public | Public | 2 | Energy access              |
| 1 | ENR        | European Energy Network   | 1991 | 1   | Public | Public | 3 | Multiple themes            |
| 1 | EUEI       | European Union Energy Initiative  | 2002 | 1   | Public | Public | 3 | Multiple themes            |
| 1 | EUROCITIES | EUROCITIES  | 2008 | 99  | Public | Public | 1 | Energy efficiency          |
| 1 | FFFSR      | Friends of Fossil Fuel Subsidy Reform   | 2010 | 9   | Public | Public | 3 | Subsidy reform             |
| 1 | G20_SR     | Group of Twenty Subsidy Reform  | 2009 | 20  | Public | Public | 3 | Subsidy reform             |
| 1 | GEEREF     | Global Energy Efficiency and Renewable Energy Fund  | 2008 | 1   | Public | Public | 4 | Climate mitigation finance |
| 1 | GFAAF      | Global Framework for Aviation Alternative Fuels   | 2009 | 1   | Public | Public | 1 | Transport                  |
| 1 | GMI        | Global Methane Initiative   | 2010 | 18  | Public | Public | 6 | Renewable energy           |
| 1 | GNESD      | Global Network on Energy for Sustainable Development  | 2002 | 2   | Public | Public | 6 | Energy access              |
| 1 | ICAP       | International Carbon Action Partnership   | 2007 | 31  | Public | Public | 3 | Carbon pricing & trading   |

(cont.)

| ZONE | ACRONYM | NAME   | DATE | MEM-BERS | ACTORS | TYPE   | ROLE | THEME                    |
|------|---------|--|------|----------|--------|--------|------|--------------------------|
| 1    | ICLEI   | Local Governments for Sustainability                                   | 1990 | 1156     | Public | Public | 8    | Multiple themes          |
| 1    | IEA     | International Energy Agency  | 1974 | 29       | Public | Public | 6    | Multiple themes          |
| 1    | IPEEC   | International Partnership for Energy Efficiency Cooperation            | 2009 | 16       | Public | Public | 3    | Energy efficiency        |
| 1    | IRENA   | International Renewable Energy Agency                                  | 2009 | 149      | Public | Public | 3    | Renewable energy         |
| 1    | ISCI    | International Solar Cities Initiative                                  | 2003 | 5        | Public | Public | 3    | Renewable energy         |
| 1    | ISGAN   | Implementing Agreement for a Co-operative Program on Smart Grids       | 2010 | 25       | Public | Public | 6    | Clean technology         |
| 1    | KP      | Kyoto Protocol   | 1997 | 192      | Public | Public | 1    | Multiple themes          |
| 1    | MEF     | Major Economies Forum  | 2009 | 17       | Public | Public | 3    | Renewable energy         |
| 1    | MI      | Mission Innovation   | 2015 | 23       | Public | Public | 7    | Clean technology         |
| 1    | NEG_ECP | New England Governors and Eastern Canadian Premiers' Annual Conference | 1973 | 11       | Public | Public | 8    | Multiple themes          |
| 1    | OLADE   | Latin American Energy Organization                                     | 1973 | 26       | Public | Public | 6    | Multiple themes          |
| 1    | PMR     | Partnership for Market Readiness                                       | 2010 | 31       | Public | Public | 7    | Carbon pricing & trading |
| 1    | R20     | Regions of Climate Action  | 2010 | 48       | Public | Public | 6    | Renewable energy         |
| 1    | RECP    | Africa-EU Renewable Energy Cooperation Program                         | 2010 | 2        | Public | Public | 7    | Renewable energy         |

|   |           |   |      |     |        |         |   |                          |
|---|-----------|---|------|-----|--------|---------|---|--------------------------|
| 1 | SEAD      | Super-Efficient Equipment and Appliance Deployment Initiative                       | 2010 | 17  | Public | Public  | 6 | Clean technology         |
| 1 | SEADS     | European Union Energy Initiative Strategic Energy Advisory and Dialogue Service     | 2004 | 1   | Public | Public  | 3 | Multiple themes          |
| 1 | SIDS_DOCK | Small Island Developing States Sustainable Energy and Climate Resilience Initiative | 2009 | 39  | Public | Public  | 7 | Multiple themes          |
| 1 | UN_EN     | United Nations Energy   | 2004 | 6   | Public | Public  | 1 | Energy access            |
| 1 | UNFCCC    | United Nations Framework Convention on Climate Change                               | 1992 | 195 | Public | Public  | 1 | Multiple themes          |
| 1 | WCI       | Western Climate Initiative  | 2007 | 4   | Public | Public  | 2 | Carbon pricing & trading |
| 1 | ZEV       | International Zero-Emission Vehicle Alliance  | 2015 | 14  | Public | Public  | 8 | Transport                |
| 2 | ACA       | Airport Carbon Accreditation  | 2009 | 1   | Firm   | Private | 1 | Transport                |
| 2 | BTEC      | Break Through Energy Coalition  | 2015 | 29  | Firm   | Private | 4 | Carbon pricing & trading |
| 2 | CATF      | Climate Action Takes Flight   | 2009 | 1   | Firm   | Private | 1 | Transport                |
| 2 | CNP       | CarbonNeutral Protocol  | 1997 | 1   | Firm   | Private | 1 | Carbon pricing & trading |
| 2 | FFC       | Fleets for Change   | 2010 | 2   | Firm   | Private | 8 | Transport                |
| 2 | GFA       | Green Freight Asia  | 2011 | 40  | Firm   | Private | 8 | Transport                |
| 2 | GFE       | Green Freight Europe  | 2012 | 72  | Firm   | Private | 8 | Transport                |
| 2 | GSA       | Global Solar Alliance   | 2015 | 3   | Firm   | Private | 3 | Renewable energy         |

(cont.)

| ZONE | ACRONYM   | NAME  | DATE | MEM-BERS | ACTORS | TYPE    | ROLE | THEME                      |
|------|-----------|---|------|----------|--------|---------|------|----------------------------|
| 2    | GSEP      | Global Sustainability Electricity Partnership (formerly the E8)       | 1992 | 11       | Firm   | Private | 6    | Renewable energy           |
| 2    | IATA_COP  | International Air Transport Association Carbon Offset Program         | 2009 | 1        | Firm   | Private | 1    | Carbon pricing & trading   |
| 2    | IEEA      | Industrial Energy Efficiency Accelerator                              | 2001 | 1        | Firm   | Private | 3    | Carbon pricing & trading   |
| 2    | IETA      | International Emissions Trading Association                           | 1999 | 135      | Firm   | Private | 3    | Carbon pricing & trading   |
| 2    | REC       | Renovate Europe Campaign  | 2011 | 18       | Firm   | Private | 3    | Energy efficiency          |
| 2    | TCC       | Think Climate Coalition   | 2015 | 10       | Firm   | Private | 3    | Transport                  |
| 2    | VCS       | Verified Carbon Standard (formerly the Voluntary Carbon Standard)     | 2007 | 1        | Firm   | Private | 1    | Carbon pricing & trading   |
| 2    | VER+      | VER+  | 2007 | 1        | Firm   | Private | 1    | Carbon pricing & trading   |
| 2    | WBCSD_E&C | World Business Council for Sustainable Development Energy and Climate | 1992 | 1        | Firm   | Private | 6    | Multiple themes            |
| 3    | CLASP     | The Collaborative Labelling and Appliance Standards Program           | 1999 | 1        | CSO    | Private | 1    | Energy efficiency          |
| 3    | EUROSOLAR | The European Association for Renewable Energy                         | 1988 | 1        | CSO    | Private | 6    | Renewable energy           |
| 3    | GFF       | Go Fossil Free  | 2014 | 1        | CSO    | Private | 3    | Climate mitigation finance |

|   |         |   |      |     |              |         |   |                          |
|---|---------|---|------|-----|--------------|---------|---|--------------------------|
| 3 | GS      | The Gold Standard   | 2004 | 1   | CSO          | Private | 1 | Multiple themes          |
| 3 | GSI     | Global Subsidies Initiative   | 2005 | 1   | CSO          | Private | 6 | Subsidy reform           |
| 3 | INFORSE | International Network for Sustainable Energy                                    | 1992 | 1   | CSO          | Private | 3 | Renewable energy         |
| 3 | WGBC    | World Green Building Council  | 2002 | 30  | CSO          | Private | 6 | Energy efficiency        |
| 4 | C4C     | United Nations Global Compact Caring for Climate                                | 2007 | 3   | Public/ Firm | Hybrid  | 1 | Carbon pricing & trading |
| 4 | CPLC    | Carbon Pricing Leadership Coalition   | 2015 | 138 | Public/ Firm | Hybrid  | 3 | Carbon pricing & trading |
| 4 | CTIPFAN | Climate Technology Initiative of the Private Financing Advisory Network         | 2006 | 7   | Public/ Firm | Hybrid  | 6 | Clean technology         |
| 4 | ENTSOE  | European Network of Transmission System Operators                               | 2008 | 40  | Public/ Firm | Hybrid  | 6 | Clean technology         |
| 4 | GEEAP   | Global Energy Efficiency Accelerator Platform                                   | 2012 | 1   | Public/ Firm | Hybrid  | 3 | Energy efficiency        |
| 4 | GGFRP   | Global Gas Flaring Reduction Partnership  | 2002 | 34  | Public/ Firm | Hybrid  | 8 | Energy efficiency        |
| 4 | LCTPI   | Low Carbon Technology Partnerships Initiative                                   | 2014 | 3   | Public/ Firm | Hybrid  | 6 | Clean technology         |
| 4 | SBCI    | United Nations Environment Program Sustainable Buildings and Climate Initiative | 2010 | 9   | Public/ Firm | Hybrid  | 6 | Energy efficiency        |
| 5 | GFEI    | Global Fuel Economy Initiative  | 2009 | 6   | Public/ CSO  | Hybrid  | 3 | Transport                |
| 5 | GGFAP   | Global Green Freight Action Plan  | 2015 | 9   | Public/ CSO  | Hybrid  | 3 | Transport                |

(cont.)

| ZONE | ACRONYM | NAME   | DATE | MEM-BERS | ACTORS               | TYPE    | ROLE | THEME                         |
|------|---------|--|------|----------|----------------------|---------|------|-------------------------------|
| 6    | GSC     | Global Solar Council                                   | 2015 | 39       | CSO/ Firm            | Private | 6    | Renewable energy              |
| 6    | ISES    | International Solar Energy Society                     | 1954 | 1        | CSO/ Firm            | Private | 3    | Renewable energy              |
| 6    | PPMC    | Paris Process on Mobility and Climate                  | 2015 | 2        | CSO/ Firm            | Private | 3    | Transport                     |
| 6    | RE100   | 100% Renewables  | 2014 | 2        | CSO/ Firm            | Private | 1    | Renewable energy              |
| 6    | RN!     | Refrigerants, Naturally!                               | 2004 | 5        | CSO/ Firm            | Private | 3    | Clean technology              |
| 6    | SE      | Shipping Efficiency                                    | 2001 | 2        | CSO/ Firm            | Private | 3    | Transport                     |
| 7    | CAA     | Clean Air Asia   | 2001 | 251      | Public/<br>CSO/ Firm | Hybrid  | 3    | Transport                     |
| 7    | CUD     | Connected Urban Development                            | 2006 | 2        | Public/ CSO/<br>Firm | Hybrid  | 3    | Energy efficiency             |
| 7    | DI      | Divest Invest Global Movement                          | 2014 | 41       | Public/ CSO/<br>Firm | Hybrid  | 7    | Climate mitigation<br>finance |
| 7    | E4I     | Energy for Impact<br>(formerly GVEP)                   | 2005 | 19       | Public/ CSO/<br>Firm | Hybrid  | 6    | Energy access                 |
| 7    | ENERGY+ | International Energy and Climate Initiative            | 2010 | 43       | Public/ CSO/<br>Firm | Hybrid  | 4    | Energy access                 |
| 7    | ENLIGHT | En.Lighten   | 2009 | 25       | Public/ CSO/<br>Firm | Hybrid  | 6    | Clean technology              |
| 7    | GACC    | Global Alliance for Clean Cookstove                    | 2010 | 1615     | Public/ CSO/<br>Firm | Hybrid  | 6    | Energy access                 |
| 7    | GBEP    | Global Bioenergy Partnership                           | 2007 | 37       | Public/ CSO/<br>Firm | Hybrid  | 6    | Renewable energy              |
| 7    | L&G     | Lean and Green   | 2008 | 1        | Public/ CSO/<br>Firm | Hybrid  | 8    | Transport                     |
| 7    | LEDS_GP | Low Emission Development Strategies Global Partnership | 2011 | 27       | Public/ CSO/<br>Firm | Hybrid  | 3    | Energy access                 |

|   |          |   |      |     |                   |        |   |                            |
|---|----------|---|------|-----|-------------------|--------|---|----------------------------|
| 7 | NCM      | Networked Carbon Markets Initiative   | 2013 | 1   | Public/ CSO/ Firm | Hybrid | 3 | Carbon pricing & trading   |
| 7 | PCFV     | United Nations Environment Program Partnership for Clean Fuels and Vehicles | 2002 | 76  | Public/ CSO/ Firm | Hybrid | 3 | Transport                  |
| 7 | PDC      | Portfolio Decarbonization Coalition   | 2014 | 4   | Public/ CSO/ Firm | Hybrid | 6 | Climate mitigation finance |
| 7 | REEEP    | Renewable Energy and Energy Efficiency Partnership                          | 2002 | 354 | Public/ CSO/ Firm | Hybrid | 4 | Multiple themes            |
| 7 | REN21    | The Renewable Energy Policy Network for the 21st Century                    | 2005 | 52  | Public/ CSO/ Firm | Hybrid | 3 | Renewable energy           |
| 7 | RSB      | The Roundtable on Sustainable Biofuels (RSB Standard)                       | 2007 | 80  | Public/ CSO/ Firm | Hybrid | 1 | Renewable energy           |
| 7 | SEFORALL | Sustainable Energy for All  | 2011 | 2   | Public/ CSO/ Firm | Hybrid | 1 | Energy access              |
| 7 | SLOCAT   | Partnership on Sustainable Low Carbon Transport                             | 2009 | 94  | Public/ CSO/ Firm | Hybrid | 3 | Transport                  |
| 7 | U4E      | United for Efficiency   | 2010 | 18  | Public/ CSO/ Firm | Hybrid | 3 | Energy efficiency          |
| 7 | UEMI     | Urban Electric Mobility Initiative  | 2014 | 21  | Public/ CSO/ Firm | Hybrid | 3 | Transport                  |

## 3.9 Annex II:

### Descriptions of Institutions in the Climate-Energy Nexus

| ACRONYM  | DESCRIPTION  |
|----------|--|
| ACA      | Airport Carbon Accreditation is an independent programme to enforce the accreditation criteria for airports on an annual basis. The ACA aims to reduce carbon emissions and to increase airport sustainability.  |
| ACE      | The ASEAN Centre for Energy serves as a high-performing institution, a regional centre of excellence that builds a coherent, coordinated, focused, and robust energy policy agenda and strategy for the Association of Southeast Asian Nations Centre for Energy, with three roles: an ASEAN Energy Think Tank; a catalyst to unify and strengthen ASEAN Energy Cooperation and Integration; and an ASEAN Energy Data and Knowledge Hub. |
| AEEP     | Established in 2007 as one of the partnerships under the Joint Africa-EU Strategy, the Africa-EU Energy Partnership (AEEP) is a long-term framework for strategic dialogue between Africa and the EU aimed at sharing knowledge, setting political priorities and developing joint programmes on the key energy issues and challenges in the twenty-first century.   |
| APEC_EWG | The work of the APEC Energy Working Group (EWG) aims to strengthen energy security; promote energy efficiency and sustainable communities; develop cleaner energy source; and enhance trade and investment in all energy sources to promote economic prosperity.   |
| AREI     | The Africa Renewable Energy Initiative (AREI) aims at enabling the installation of large-scale renewable energy capacity on the African continent by 2020, which would have a considerable impact on the reduction of greenhouse gas emissions in the continent.   |
| BASREC   | BASREC represents a unique and important regional forum for dialogue on energy policy and global climate change issues with an emphasis on the promotion of energy efficiency, the use of renewable energy and other sustainable supply sources.   |
| BTEC     | The Breakthrough Energy Coalition is a global group of twenty-eight high net worth investors committed to funding clean energy companies that are emerging from the initiatives of Mission Innovation, which was announced at the 2015 COP21. The group aims to bolster governmental assistance in renewable energy to 20 billion US dollars.  |

(cont.)

| ACRONYM | DESCRIPTION   |
|---------|---|
| C4C     | UN Global Compact, UNEP, and the secretariat of the UNFCCC's initiative to advance the role of business in addressing climate change. It provides a framework for business leaders to implement practical climate change solutions and help shape public policy.  |
| CAA     | Clean Air Asia is an international nongovernmental organization that leads the regional mission for better air quality and healthier, more liveable cities in Asia. It aims to reduce air pollution and greenhouse gas emissions in 1000+ cities in Asia through policies and programmes that cover air quality, transport, and industrial emissions and energy use. It works with ministries (energy, environment, health and transport), cities in Asia, the private sector, and development agencies to provide leadership and technical knowledge in the following areas: Air Quality and Climate Change, Low Emissions Urban Development, Clean Fuels and Vehicles, and Green Freight and Logistics. |
| CATF    | In 2008, the aviation industry presented the world's first global transport sector climate action framework, based on a set of three global goals, underpinned by four pillars of climate action. The framework set out aims at 1.5 per cent average annual fuel efficiency improvement from 2009 to 2020; stabilizing net aviation CO <sub>2</sub> emissions at 2020 levels through carbon neutral growth; and reducing aviation's net CO <sub>2</sub> emissions to 50 per cent of what they were in 2005 in 2050.   |
| CCREEE  | CCREEE aims at improving access to modern, affordable, and reliable energy services, energy security, and mitigation of negative externalities of the energy system (e.g. local pollution and GHG emissions) by promoting renewable energy and energy-efficiency investments, markets, and industries in the Caribbean. The centre complements and strengthens ongoing national/regional activities in the areas of policy and capacity development, knowledge management, and awareness rising, as well as investment and business promotion.  |
| CEM     | Global forum to share best practices and promote policies and programmes that encourage and facilitate the transition to a global clean energy economy. Its initiatives help reduce emissions, improve energy security, provide energy access, and sustain economic growth.   |
| CESC    | The Clean Energy Solutions Center helps governments, advisors, and analysts create policies and programmes that advance the deployment of clean energy technologies. The Solutions Center is an initiative of the Clean Energy Ministerial (CEM), a global forum to share best practices and promote policies and programmes that encourage and facilitate the transition to a global clean energy economy.   |
| CIF     | Provides developing and middle-income countries with urgently needed resources to mitigate and manage the challenges of climate change and reduce their greenhouse gas emissions; since 2008, it champions innovative country-led investments in clean technology, renewable energy, sustainable management of forests, and climate-resilient development.  |

(cont.)

| ACRONYM          | DESCRIPTION  |
|------------------|--|
| CLASP            | CLASP works hand-in-hand with policy makers, governments, technical experts, industry, funding organizations, consumers and consumer groups, and others to improve the environmental and energy performance of the appliances and related systems we use every day, lessening their impacts on people and the world around us.   |
| CLIMATE_ALLIANCE | Association of cities, municipalities, and districts committed to the protection of the global climate, aiming to reduce greenhouse emissions. For this, local climate strategies are developed and implemented, especially in the energy and transport sectors.   |
| CNCA             | The Carbon Neutral Cities Alliance (CNCA or ‘Alliance’) aims to address what it will take for leading international cities to achieve these deep emissions reductions and how they can work together to meet their respective goals more efficiently and effectively.  |
| CNP              | Market leaders and pioneers in the world of carbon neutral certification and carbon reduction; it provides a robust framework and credible certification that a company, brand, or product has reduced their carbon emissions to net zero.   |
| COM              | European network involving local and regional authorities, voluntarily committing to increasing energy efficiency and use of renewable energy sources on their territories. By their commitment, Covenant signatories aim to meet and exceed the European Union 20 per cent CO <sub>2</sub> reduction objective by 2020.   |
| CORSIA           | Under the Carbon Offsetting Scheme for International Aviation (CORSIA), aircraft operators will be required to purchase offsets, or ‘emission units’, for the growth in CO <sub>2</sub> emissions covered by the scheme. CORSIA aims to address any annual increase in total CO <sub>2</sub> emissions from international civil aviation above 2020 levels.  |
| CPLC             | The Coalition is a voluntary partnership of national and sub-national governments, businesses, and civil society organizations that agree to advance the carbon pricing agenda by working with each other toward the long-term objective of a carbon price applied throughout the global economy. The Coalition will collect the evidence base, benefiting from experience around the world in designing and using carbon pricing, and use this input to help inform successful carbon pricing policy development and use of carbon pricing in businesses. |
| CTIPFAN          | Multilateral public–private partnership, initiated by the Climate Technology Initiative and the UNFCCC, which connects clean energy businesses and projects with private sector financing. Through its network of private sector consultants, it provides targeted professional support and advice and technical assistance to selected projects on the preparation of commercially viable, sustainable, and climate-friendly business models for introduction to investors.   |
| CUD              | CUD demonstrates how to reduce carbon emissions by introducing fundamental improvements in the efficiency of urban infrastructure through information and communications technology. It was born from Cisco’s commitment to the Clinton Global Initiative to participate in helping reduce carbon emissions.   |

(cont.)

| ACRONYM   | DESCRIPTION  |
|-----------|--|
| DI        | D-I encourages inventors across the public and private sectors and across different types of funds to divest from fossil fuel industries and promote a clean energy future. In 2015 D-I represented more than 500 organizations and US \$3.4 trillion.   |
| E4I       | E4I (formerly GVEP) believes in a private sector approach to development, utilizing donor funding to help businesses succeed and grow. E4I focuses on supporting the development of business models to deliver energy access the enterprise approach, and believes it will result in long-lasting change and sustainable results.  |
| ECO       | The mission of the EcoPartnerships initiative is to elevate successful sub-national cooperation models to international prominence, and by doing so, to spur broad replication by their peers in the U.S. and China. The U.S.–China EcoPartnerships programme offers sub-national organizations from each country a unique opportunity to pair up and demonstrate breakthrough clean energy, climate change, and environmental solutions.  |
| ECREEE    | ECREEE aspires to contribute to the sustainable economic, social, and environmental development of West Africa by improving access to modern, reliable, and affordable energy services, energy security, and reduction of negative environmental externalities of the energy system. ECREEE aims to create favourable framework conditions and an enabling environment for renewable energy and energy efficiency markets by supporting activities directed at mitigating existing barriers within the technological, financial, economic, business, legal, policy, institutional, knowledge, and capacity-building framework. |
| EN_CITIES | European Association of local authorities in energy transition; its objectives are: to strengthen society's role and skills in the field of sustainable energy, to represent people's interests and influence the policies and proposals made by EU institutions in the field of energy, environmental protection, and urban policy, and to develop and promote people's initiatives through exchange of experiences, the transfer of know-how, and the implementation of joint projects.  |
| ENERGIA   | ENERGIA believes that projects, programmes, and policies that explicitly address gender and energy issues have better outcomes and improve the livelihood of entire communities. By involving women in the development delivery and use of modern energy, sustainability and adoption rates of these services are enhanced. In order to provide continued support and have gender be part of the developmental process, ENERGIA also creates unique training modules and tools for the energy sector.  |
| ENERGY+   | Led by the Norwegian Ministry of Foreign Affairs, the overarching purpose of the Energy+ Initiative is to contribute to providing access to efficient energy services to all by increased development of renewable energy and energy efficiency, and to mitigate energy's impacts on climate. It is an open partnership engaging, in particular countries in the developing world.   |

(cont.)

| ACRONYM    | DESCRIPTION  |
|------------|--|
| ENLIGHT    | Initiative by UNEP and GEF to accelerate a global market transformation to environmentally sustainable, energy-efficient lighting technologies, as well as to develop strategies to phase out inefficient incandescent lamps to reduce CO <sub>2</sub> emissions and the release of mercury from fossil fuel combustion. It serves as a platform to build synergies among international stakeholders; identify global best practices and share this knowledge and information; create policy and regulatory frameworks; address technical and quality issues; and encourage countries to develop National and/or Regional Efficient Lighting Strategies. |
| ENR        | EnR is a voluntary network with responsibility for the planning, management, or review of national research, development, demonstration, or dissemination programmes in the fields of energy efficiency and renewable energy and climate change abatement. It provides a first point of contact for national energy agencies in EU Member States. EnR dedicates its efforts toward joint activities where its unique character provides added value at both a European and individual Member State level.  |
| ENTSOE     | As the legally mandated body of electricity TSOs at the European level, ENTSO-E's mission is to fulfil its various legal mandates for the benefit of electricity customers and to leverage its mandated work products to shape future energy policy for the benefit of society. It aims to facilitate secure integration of new generation sources, particularly renewable energy, as well as significantly contributing to the EU's greenhouse gases reduction and renewable energy supply goals.   |
| EUEI       | The EUEI PDF is a multi-donor facility that contributes to the achievement of the Sustainable Development Goals, in particular on energy. As a flexible instrument of the European Union, EUEI PDF promotes sustainable energy for equitable development in Africa, Latin America, and Asia. Therefore, it facilitates energy dialogue and knowledge transfer; advises partners to create enabling environments for sustainable energy solutions; supports the development of sustainable energy markets; and conducts and promotes research, innovation, and capacity development.  |
| EUROCITIES | Network of major European cities; they offer members a platform for sharing knowledge and exchanging ideas. They influence and work with EU institutions to respond to common issues that affect the day-to-day lives of Europeans. Their goal is to reinforce the important role that local governments should play in a multilevel governance structure.   |
| EUROSOLAR  | EUROSOLAR conducts its work independently of political parties, institutions, commercial enterprises, and interest groups and is a registered non-profit organization. It is dedicated to the cause of completely substituting for nuclear and fossil energy through renewable energy. EUROSOLAR acts bring together expertise and   |

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| ACRONYM | DESCRIPTION  |
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|         | develops and encourages political and economic action plans. Additionally, it addresses and initiates action at the international level, and also the national, regional, and local level.   |
| FFC     | Fleets for Change works with the transportation sector to reducing GHGs in North America through implementing measures to increase fuel efficiency, reduce mileage, switch to low-carbon fuels, and to use new technology vehicles.  |
| FFFSR   | The FFFSR is in informal group of non-G20 countries working to build political consensus on the importance of fossil fuel subsidy reform. The Friends work internationally within forums such as the G20, APEC, OECD, World Bank, UNFCCC and the UN Sustainable Development Agenda to convince governments of the benefits of reform, and to help them with ways to do it. The friends advocate that reform needs to be ambitious and transparent.   |
| G20_SR  | The G20 Subsidy Reform aims to remove fossil fuel subsidies internationally, by means of a general political dialogue.   |
| GACC    | The Global Alliance for Clean Cook stoves (Alliance), hosted by the UN Foundation, is at the forefront of efforts to promote the adoption of clean cooking solutions and spur universal adoption of clean cook stoves and fuels. The Alliance and its partners are working to establish a thriving global market for clean cooking solutions by addressing the market barriers that impede the production, deployment, and use of clean and efficient cook stoves, and fuels in developing countries.  |
| GBEP    | Partnership that brings together public, private, and civil society stakeholders in a joint commitment to promote bioenergy for sustainable development. It focuses its activities in three strategic areas: sustainable development, climate change, and food and energy security.  |
| GEEAP   | Sustainable Energy for All is an initiative led by the UN secretary-general and the president of the World Bank, has as one of its three objectives for 2030 a doubling of the global rate of improvement in energy efficiency. The Global Energy Efficiency Accelerator Platform was established to help reach this objective. It will do so by driving action and commitments by national and sub-national leaders at the country, city, state, region, or sector level. A key deliverable will be Integrated Policy and Investment Roadmaps prepared with committed public and private partners. These Roadmaps will guide project implementation supported by a global network of experts, institutions, and businesses. |
| GEEREF  | Advised by the European Investment Bank Group, GEEREF is an innovative Fund-of-Funds catalyzing private sector capital into clean energy projects in developing countries and economies in transition.   |
| GFA     | GFA engages companies using road freight services and companies that own commercial road freight fleets. The key objective of the institution is to lower GHG emissions through decreasing fuel  |

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| ACRONYM | DESCRIPTION   |
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|         | consumption. It does so by sharing information on best practices regarding green technology, by providing a level playing field for companies to reduce emissions from their transport segment, and by providing a clear definition of what green transport is.   |
| GFAAF   | GAAF promotes the use of sustainable aviation alternative fuels is a key part of the basket of measures under consideration by ICAO Member States to achieve the aspirational goal of stabilizing emissions from international aviation at their 2020 levels. ICAO is actively engaged in activities facilitating, on a global basis, the promotion and harmonization of initiatives that encourage and support the development of sustainable alternative fuels for international aviation.  |
| GFE     | Similar to GFAN, GFE is an industry-led programme including companies engaging with or engaged in transportation over land and sea. It encourages GHG emission reduction by establishing an emissions monitoring and reporting platform, by promoting collaboration between carriers and shippers, and finally by encouraging engagement through certification.   |
| GFEI    | The Global Fuel Economy Initiative (GFEI) assist governments and transport stakeholders promote greater fuel economy. Using the skills and expertise of the GFEI partners, the GFEI Toolkit team are able to establish a baseline in each country; present policy options and case studies; and enable all stakeholders to engage in the policy process.  |
| GFF     | GFF is an international network of campaigns and campaigners working toward freeing communities from fossil fuels. While each campaign is independently run and may bring different emphases depending on their local context, the majority of campaigns are asking institutions to: immediately freeze any new investment in fossil fuel companies; divest from direct ownership and any commingled funds that include fossil fuel public equities and corporate bonds within five years; and end their fossil fuels sponsorship.  |
| GGFAP   | The goal of the Global Green Freight Action Plan is to enhance the environmental energy efficiency of goods movement in ways that significantly reduce the climate, health, energy, and cost impacts of freight transport around the world. Full implementation of the Action Plan will shape a more sustainable global freight sector where goods, materials, and trade flows move with the best available technologies and strategies through an efficient, cleaner and greener, multimodal, global freight supply chain. Performance data and best practices will be shared and exchanged via green freight programmes and in ways that enhance efficiency, cost savings, competitiveness, environmental performance, public health, and economic development. |
| GGFRP   | The Global Gas Flaring Reduction Partnership (GGFR) is a public-private initiative comprising international and national oil companies, national and regional governments, and international institutions. GGFR works to increase use of natural gas associated with oil production by helping remove technical and regulatory barriers   |

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|          | to flaring reduction, conducting research, disseminating best practices, and developing country-specific gas flaring reduction programmes.   |
| GMI      | The GMI is an international public–private initiative that advances cost-effective, near-term methane abatement and recovery projects and the use of methane as a clean energy source. Activities of the GMI are focused on reducing informational, institutional, and market barriers to project development by making available tools and resources, providing training and capacity building, conducting technology demonstrations, and offering direct project support.  |
| GNESD    | The Global Network on Energy for Sustainable Development (GNESD) is a UNEP facilitated knowledge network of Member Centres and network partners worldwide, renowned for their work on energy, development, and environment issues. Member Centers and Associates coordinate joint activities within these fields, exchange information, carry out analytical studies, and supply policy support.   |
| GS       | Gold Standard is a voluntary carbon offsetting standard. To receive the stamp of approval, all Gold Standard projects must be implemented following best practice rules, consult with local stakeholders, continually reduce greenhouse gas emissions, and improve the environment and people’s lives. Once certified, their projects are issued credits annually against independently audited climate and sustainable development outcomes. The purchase of these credits – by governments, business, impact investors, and individuals – provides on-going funding to project activities. |
| GSA      | The GSA is a community-oriented project initiated by leading trade exhibitions & business conferences in Europe, China, USA, with the purpose of driving the global development of the solar markets and industry. It strives to spread awareness, information, and advocacy among the professional community, the decision makers and the general public while promoting solar energy as a mainstream solution for a low-carbon economy.  |
| GSC      | The Global Solar Council was established by leading regional and national solar associations. It will unify the entire solar power sector at an international level, share best practices, and work collaboratively to accelerate solar electricity deployment worldwide.  |
| GSEP     | GSEP is a not-for-profit organization whose members are the world’s leading electricity companies. It promotes sustainable energy development through electricity sector projects and human capacity building activities in developing and emerging nations worldwide.   |
| GSI      | Established in 2005 by the International Institute for Sustainable Development (IISD), the Global Subsidies Initiative (GSI) is dedicated to analyzing subsidies – transfers of public money to private interests – and how they support or undermine efforts to achieve sustainable development.  |
| IATA_COP | IATA encourages the use of voluntary initiatives to address environmental impacts from aviation and promotes the use of industry   |

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| ACRONYM | DESCRIPTION   |
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|         | best practices where possible. Voluntary initiatives can be tailored to the specific needs of governments, industry, and other stakeholders. They can provide more flexibility and cost savings than regulatory measures. In order to further reduce aviation's impact on the environment, IATA has set up several programmes to assist airlines in improving their environmental performance.  |
| ICAP    | ICAP is an international forum for governments and public authorities that have implemented or are planning to implement emissions trading systems. It facilitates cooperation and best practices-sharing between countries, sub-national jurisdictions, and supranational institutions that have established or are actively pursuing carbon markets through mandatory cap and trade systems.  |
| ICLEI   | World's leading network of more than 1,000 cities, towns, and metropolises committed to building a sustainable future. By helping Members to make their cities and regions sustainable, low-carbon, resilient, eco-mobile, biodiverse, resource-efficient and productive, healthy and happy, with a green economy and smart infrastructure, they impact more than 20 per cent of the world's urban population.  |
| IEA     | The IEA is an autonomous organization that works to ensure reliable, affordable, and clean energy for its twenty-nine member countries and beyond. The IEA has four main areas of focus: energy security, economic development, environmental awareness, and engagement worldwide.  |
| IEEA    | The Industrial Energy Efficiency Accelerator (IEEA) works collaboratively with trade associations, sector companies, and technology providers to identify innovative opportunities for energy reduction. Working with key stakeholders in each sector they have identified innovations in equipment, processes, and product strategy. Their work with fourteen mid-energy intense industry sectors has identified energy, carbon emissions reduction averaging 29 per cent. |
| IETA    | IETA is a non-profit business organization created to establish a functional international framework for trading in greenhouse gas emission reductions. Membership includes leading international companies from across the carbon trading cycle; they seek to develop an emissions trading regime that results in real and verifiable greenhouse gas emission reductions, while balancing economic efficiency with environmental integrity and social equity.              |
| INFORSE | INFORSE is a global network of independent nongovernmental organizations working for sustainable energy solutions to reduce poverty and protect the environment. The aim of INFORSE is to raise awareness and provide advocacy; to build up capacity at local, national, and international level; to work for institutional reform; and to support research and development.  |
| IPEEC   | Autonomous international forum that provides global leadership on energy efficiency by facilitating government implementation of policies and programmes to yield energy-efficient gains. It is   |

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| ACRONYM | DESCRIPTION  |
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|         | dedicated to facilitating rapid deployment of clean energy technologies worldwide and promoting information exchange on best practices to facilitate initiatives that improve energy efficiency. It has been identified as the lead coordinating organization to carry out the G20 Energy Efficiency Action Plan.  |
| IRENA   | IRENA is an Intergovernmental organization that supports countries in their transition to a sustainable energy future and serves as the principal platform for international cooperation, a centre of excellence, and a repository of policy, technology, resource, and financial knowledge on renewable energy. It promotes the widespread adoption and sustainable use of all forms of renewable energy, including bioenergy, geothermal, hydropower, ocean, solar, and wind energy in the pursuit of sustainable development, energy access, energy security, low-carbon economic growth, and prosperity. |
| ISCI    | The International Solar Cities Initiative (ISCI) is an international non-profit organization dedicated to promoting new urban policies, planning, and practices that reduce city per capita greenhouse gas emissions to levels consistent with long term climate sustainability as estimated by the IPCC.  |
| ISES    | The underlying goal behind the work of ISES is to advance the transition to a renewable energy world. ISES is committed to 100 per cent renewable energy for all used efficiently and wisely. ISES provides key timely information on renewable energy technology and innovation breakthroughs, policy mechanisms and changes, investment strategies and deployment opportunities.   |
| ISGAN   | ISGAN creates a mechanism for multilateral government-to-government collaboration to advance the development and deployment of smarter electric grid technologies, practices, and systems. It aims to improve the understanding of smart-grid technologies, practices, and systems, and to promote adoption of related enabling government policies. ISGAN facilitates dynamic knowledge sharing, technical assistance, and project coordination, where appropriate.   |
| KP      | International agreement linked with the UNFCCC, which commits its Parties by setting internationally binding emission-reduction targets.   |
| L&G     | L&G has developed a simulation that encourages companies and government bodies to reduce their carbon footprint through taking cost saving measures. Furthermore, the institution provides awards to companies that prove they can reduce emission by 20 per cent over five years, and a star upon completion.   |
| LCTPi   | With a solid framework and clear agenda, LCTPi is a unique, action-oriented programme that brings together companies and partners to accelerate the development of low-carbon technology solutions to stay below the 2°C ceiling. LCTPi has gathered more than 150 global businesses with 70 partners to work collaboratively on the climate challenge.  |
| LEDS_GP | LEDS GP aims at reducing GHG emissions while also increasing resilience toward climate change impacts. It does so by linking   |

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| ACRONYM | DESCRIPTION  |
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|         | practitioners and policy makers in regional platforms and work groups that promote low emission development strategies. It has six workgroups working on topics including Agriculture and Forestry, Energy, Finance, and Transportation.   |
| MEF     | 17 major economies forum; it is intended to facilitate a candid dialogue among major developed and developing economies, help generate the political leadership necessary to achieve a successful outcome at the annual UN climate negotiations, and advance the exploration of concrete initiatives and joint ventures that increase the supply of clean energy while cutting greenhouse gas emissions.   |
| MI      | Mission Innovation (MI) is a global initiative of twenty-two countries and the European Union to dramatically accelerate global clean energy innovation. As part of the initiative, participating countries have committed to double their governments' clean energy research and development (R&D) investments over five years, while encouraging greater levels of private sector investment in transformative clean energy technologies. These additional resources will dramatically accelerate the availability of the advanced technologies that will define a future global energy mix that is clean, affordable, and reliable. |
| NCM     | Through the Networked Carbon Markets Initiative, the World Bank Group is convening civil society, governments, and the private sector to develop a framework for assessing climate mitigation efforts and infrastructure to support carbon market related functions. The end-goal is to facilitate linking or 'networking' of heterogeneous carbon markets so that the linked markets will have greater liquidity and deliver climate-smart financing more efficiently.  |
| NEG_ECP | Nonpartisan association of the seven governors of Northeast states: Connecticut, Maine, Massachusetts, New Hampshire, New York, Rhode Island, and Vermont. It encourages intergovernmental cooperation on issues affecting the economic, social, and environmental well-being of the Northeast. In the region, it is a forum for states to exchange information and undertake cooperative action on issues of mutual interest.   |
| OLADE   | OLADE aims to contribute to the integration, sustainable development, and energy security in the region, advising and promoting cooperation and coordination among its member countries. OLADE is the political and technical-support organization by means of which its Member States undertake common efforts to achieve regional and sub-regional energy integration.   |
| PCFV    | The Partnership for Clean Fuels and Vehicles (PCFV) is the leading global public-private initiative promoting cleaner fuels and vehicles in developing and transition countries. Established at the World Summit on Sustainable Development in September 2002 in Johannesburg, the PCFV brings together seventy-two organizations representing developed and developing countries, the fuel and vehicle  |

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| ACRONYM | DESCRIPTION  |
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|         | industries, civil society, and leading world experts on cleaner fuels and vehicles. The partners combine their resources and efforts to achieve cleaner air and lower greenhouse gas emissions from road transport by applying fuel quality improvements and proven vehicle technologies in use in leading global auto markets.  |
| PDC     | Portfolio decarbonization can be achieved by withdrawing capital from particularly carbon-intensive companies, projects, and technologies in each sector and by reinvesting that capital into particularly carbon-efficient companies, projects, and technologies of the same sector. It can also be achieved through targeted engagement by investors with portfolio companies. When large institutional investors start to engage and/or reallocate capital on the basis of companies' GHG emissions, it provides a strong incentive for those companies to re-channel their own investments from carbon-intensive to low-carbon activities, assets, and technologies. |
| PMR     | PMR is a Forum for collective innovation and action and fund to support capacity building to scale up climate change mitigation. It provides support to prepare and implement climate change mitigation policies – carbon pricing instruments – in order to scale up GHG mitigation. Serving as a platform to share lessons, countries work together to shape the future of cost-effective GHG mitigation.   |
| PPMC    | The PPMC is an open and inclusive platform that actively invites all organizations and initiatives that support effective action on transport and climate change to join in the process. The PPMC was created in early 2015 to strengthen the voice of the sustainable transport community in the UNFCCC process. The PPMC will engage global processes on sustainable development and climate change to ensure that implementation arrangements are conducive for action by the transport sector.   |
| R20     | To help sub-national governments around the world to develop low-carbon and climate-resilient economic development projects. It aims to help build an effective green deal flow at sub-national level by connecting Regions, Technology and Finance to build sustainable low-carbon projects.  |
| RE100   | RE100 contributes to global GHG mitigation through encouraging its members from the private sector to shift their electricity supply to 100 per cent renewable energy sources. For companies that are not ready for this commitment RE100 helps overcome barriers and develop transparent reporting schemes.   |
| REC     | The Renovate Europe Campaign (REC), launched in 2011, is an initiative of EuroACE, the European Alliance of Companies for Energy Efficiency in Buildings. It is the only EU-wide campaign that focuses exclusively on ambitious renovation of the building stock in the EU and is the voice that 'bangs the drum' for energy-efficient renovations, taking a technology neutral, integrated and holistic approach to energy-efficient renovations.   |

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| RECP    | The RECP supports market development in a variety of ways. This includes the provision of critical information on African energy markets, identification of concrete project opportunities through on-the-ground scouting activities, matchmaking between project developers, technology suppliers, and service providers for joint project and business development in Africa as well as facilitation of access to finance. In addition to these private sector focused activities, RECP also provides policy advisory services and supports local skills development by working with technical and vocational training institutions and academia. |
| REEEP   | REEEP invests in clean energy markets in developing countries to reduce CO <sub>2</sub> emissions and build prosperity. Based on a strategic portfolio of high impact projects, it works to generate energy access, improve lives and economic opportunities, build sustainable markets, and combat climate change.   |
| REN21   | Global renewable energy policy multi-stakeholder network that connects a wide range of key actors from Governments, International organizations, Industry associations, and science and academia as well as civil society, to facilitate knowledge exchange, policy development, and joint action toward a rapid global transition to renewable energy. It promotes renewable energy to meet the needs of both industrialized and developing countries that are driven by climate change, energy security, development, and poverty alleviation.  |
| RN!     | Initiative of international companies taking action against global warming and ozone layer depletion. They replace harmful greenhouse gases in our point-of-sales cooling and freezing units with climate-friendly natural refrigerants. The goal is to make them the preferred cooling technology – in a safe, reliable, and cost-effective manner.  |
| RSB     | International multi-stakeholder initiative that brings together farmers, companies, nongovernmental organizations, experts, governments, and intergovernmental agencies concerned with ensuring the sustainability of biomass, and biomaterial production and processing. Their certification system is based on sustainability standards encompassing environmental, social, and economic principles and criteria.   |
| SBCI    | The United Nation's Environment Programme's Sustainable Building and Climate Initiative (UNEP-SBCI) is a partnership of major public and private sector stakeholders in the building sector, working to promote sustainable building policies and practices worldwide.  |
| SE      | ShippingEfficiency.org is an initiative launched by the Carbon War Room and RightShip to increase information flows around the energy efficiency of international shipping and ultimately help reduce the environmental impacts of the world's shipping fleet.  |
| SEAD    | SEAD is about governments working together to save energy, turning knowledge into action to advance global market transformation for  |

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| SEADS     | energy-efficient products. The SEAD initiative support this effort by providing knowledge and tools; raising awareness; identifying and highlighting technologies; and providing technical expertise.   |
| SEFORALL  | The EUEI PDF offers Strategic Energy Advisory and Dialogue Services (SEADS) to support the development and improvement of energy policies, strategies, and regulations in order to create an enabling environment for sustainable energy investments. The EUEI PDF has been a pioneer in supporting policy change to create favourable frameworks for sustainable energy market development in developing countries.  |
| SIDS_DOCK | Global initiative that brings together top-level leadership from all sectors of society – governments, business, and civil society – to mobilize action from all sectors of society in support of three interlinked objectives: providing universal access to modern energy services, doubling the global rate of improvement in energy efficiency, and doubling the share of renewable energy in the global energy mix.  |
| SLOCAT    | SIDS DOCK aims to help develop a sustainable energy sector in small islands, providing the foundation for low-carbon economic growth and adaptation to climate change, with the aim of helping small islands achieve by 2033 50 per cent electric power from renewable sources, a 25 per cent decrease in conventional transportation fuel use, and a 25 per cent increase in energy efficiency (using a 2005 baseline).  |
| TCC       | Multi-stakeholder partnership of more than eighty organizations (representing UN organizations, Multilateral and Bilateral development organizations, NGOs and Foundations, Academe, and the Business Sector). It is a Type II Partnership under the UN, meaning that it is a non-legal and non-binding partnership, established to provide a global voice on Sustainable Transport.  |
| U4E       | Think Climate is a multi-stakeholder coalition of ten associations with interests in waterborne transport infrastructure. By furthering understanding, providing targeted technical support, and building capacity, the coalition's 'Navigating a Changing Climate' initiative will encourage the owners, operators, and users of waterborne transport infrastructure to: reduce greenhouse gas emissions and shift to low carbon maritime and inland navigation infrastructure; and act urgently to strengthen resilience and improve preparedness to adapt to the changing climate. |
| UEMI      | U4E contributes to climate governance by encouraging global markets to switch to more energy-efficient lighting, equipment, and appliances. The institution works under the SE4ALL initiative.  |
| UEMI      | UEMI aims at phasing out conventional vehicles to be replaced by at least 30 per cent electric vehicles by 2030. Further, UEMI aims to widen the concept of urban sustainability and a 30 per cent GHG emissions reduction in urban areas by 2030. In doing so, UEMI is also  |

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|           | developing tools to integrate e-mobility into society, to make a 2-degree pathway, and to assess the impact of electric vehicles.   |
| UN_EN     | UN-Energy was initiated as a mechanism to promote coherence within the United Nations family of organizations in the energy field and to develop increased collective engagement between the United Nations and other key external stakeholders. Its envisaged role was to increase the sharing of information, encourage and facilitate joint programming, and develop action-oriented approaches to coordination.   |
| UNFCCC    | International environmental treaty with the objective of stabilizing greenhouse gas concentrations in the atmosphere at a level that would prevent dangerous anthropogenic interference with the climate system; it provides a framework for negotiating aiming limits GHG emissions.   |
| VCS       | World's leading voluntary greenhouse gas programme founded by a collection of business and environmental leaders who saw a need for greater quality assurance in voluntary carbon markets.  |
| VER+      | The VER Plus (VER+) is a carbon offset standard and that follows the Kyoto Protocol's project-based mechanisms (CDM and JI). It was developed by TÜV SÜD.   |
| WBCSD_E&C | The Energy and Climate focus area of the WBCSD provides members with a platform to engage with their peers and stakeholders in energy and climate, to address critical industry issues, and to share ways to solutions. The project delivers business input to the design and implementation of the post-Kyoto climate architecture through an active involvement into international processes.   |
| WCI       | Collaboration of independent jurisdictions in North America working together to identify, evaluate, and implement emissions trading policies to tackle climate change at a regional level. This is a comprehensive effort to reduce greenhouse gas pollution, spur investment in clean-energy technologies that create green jobs, and reduce dependence on imported oil.   |
| WGBC      | WGBC fosters and supports new and emerging Green Building Councils by providing them with the tools and strategies to establish strong organizations and leadership positions in their countries. By driving collaboration and increasing the profile of the green building market, the WGBC works with its member councils to ensure that green buildings are a part of any comprehensive strategy to deliver carbon emission reductions.  |
| ZEV       | The International Zero-Emission Vehicle Alliance (ZEV Alliance) is a collaboration of national and sub-national governments working together to accelerate adoption of ZEVs. The participants set ambitious, achievable targets for ZEV deployment, take actions to achieve those targets as appropriate in each jurisdiction, act together to achieve individual and collective targets, and encourage and support other jurisdictions in setting and achieving ambitious ZEV targets. |