

From Oil Security to Global Energy Governance

The International Energy Agency in a Contemporary Global Energy Regime Complex

Even Senander



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Abstract

The creation of the International Energy Agency (IEA) in 1974 was conducted under very particular institutional and geopolitical circumstances. It was a time when relations in global energy were defined largely by the rivalling factions of oil producers and consumers. After producer-consumer animosity culminated in the oil shock of 73', the major consumers were plunged into chaos, and as a direct response, they established the IEA. Its primary purpose: to correct shortcomings in energy security among consumers by providing safe supply of oil to its member countries.

Since the agency's early years, however, significant changes and developments have taken place in global energy. The demands for institutional governance of energy at a global level has expanded significantly beyond that of oil security, and a host of energy institutions have come into play to address this. As a result, the IEA now operates in a crowded institutional environment, rather than being largely the only major energy institution working with consumers. Additionally, the IEA represented in its early years consumers who stood for the vast majority of global energy consumption. As global energy turns increasingly multipolar, spearheaded by emerging consumers such as China and India, the IEA's share in global energy has diminished significantly. These developments have jeopardized the original functions of the IEA.

In my analysis, I assess the effects these changes have on the IEA. I find that, while taken at face value they appear to threaten to render the organization increasingly redundant, the reality is not as bleak. While the agency has undergone no reforms and experienced little to no formal changes in its structure, they have recognized these developments and taken considerable steps to address them. In many ways, the changes present the IEA with a great opportunity to cement its position as a central institution in global energy. Yet, owing to significant path-dependence and various factors that can be traced back to the circumstances surrounding its creation, the IEA is also left with considerable challenges in the years ahead.

With this study, the aim is to contribute to the growing body of literature on the IEA and global energy governance.

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List of Acronyms

ASEAN	Association of Southeast Asian Nations
BRIC	Brazil, Russia, India, China
CBE	Committee on Budget and Expenditure
CRD	Committee on Research and Development
CVW	Combined Voting Weight
CERM	Coordinated Emergency Response Measure
CERT	Committee on Energy Research and Technology
ECT	Energy Charter Treaty
EITI	Extractive Industry Transparency Initiative
ERC	Energy Regime Complex
ESS	Emergency Sharing System
EU	European Union
EU ETS	European Union Emissions Trading System
GEFC	Gas-Exporting Countries Forum
GHG	Greenhouse Gas
GVW	General Voting Weight
IAEA	International Atomic Energy Agency
IEA	International Energy Agency
IEF	International Energy Forum
I.E.P	International Energy Programme
IOC	International Oil Company
IPCC	Intergovernmental Panel on Climate Change
IPEEC	International Partnership for Energy Efficiency Cooperation
IRENA	International Renewable Energy Agency
JODI	Joint Organisations Data Initiative

NMC	Committee on Non-Member Countries
OAPEC	Organization of Arab Petroleum Exporting Countries
OECD	Organisation for Economic Co-operation and Development
OLADE	Organización Latinoamericana de Energía
OPEC	Organization of the Petroleum Exporting Countries
OVW	Oil-Consumption Voting Weight
SEQ	Standing Group on Emergency Questions
SGD	Standing Group on Global Energy Dialogue
SLT	Standing Group on Long Term Co-Operation
SOM	Standing Group on the Oil Market
SPC	Standing Group on Relations with Producer and Other Consumer Countries
UNEP	United Nations Environment Program
UNFCCC	United Nations Framework Convention on Climate Change
WTO	World Trade Organization

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1 Introduction

1.1 Research Aim and Research Question

The International Energy Agency (IEA) is an intergovernmental organization consisting of 30 member states, all drawn from the Organization for Economic Co-Operation and Development (OECD) – previously the world's largest consumer of energy. Since its inception, the IEA's primary mission has been to ensure the safe supply of energy to its member countries, and to coordinate energy supply measures and improve governance of long-term energy issues. Established in 1974, the organization was created as a direct response to the 1973 oil crisis, where governance shortcomings among major oil consuming nations were abruptly revealed by sudden oil price shocks. These shocks took two primary forms; Firstly, the Organization of Arab Petroleum Exporting Countries (OAPEC) started embargoing exports of oil to countries with Middle-East-related policies that OAPEC-countries disagreed with. Secondly, the Organization of the Petroleum Exporting Countries (OPEC) suddenly and dramatically increased oil prices. This took the OECD completely off-guard, as they had allowed themselves to become highly dependent on imported oil from these exporters. They found themselves with few effective mechanisms to deal with these price shocks - either collectively or individually (Florini, 2011, p. 40-41; Van de Graaf, 2012, p. 233). To this end, the IEA was established.

However, in the days since, the institutional environment of the IEA, as well as the global geopolitical landscape, have undergone considerable changes. The IEA was, during its fledgling years, largely the only international energy organization working with major consumers. Today, that number has proliferated, as the IEA currently finds itself in an environment operating with various overlapping and parallel energy institutions. Additionally, emerging energy consumers operating outside of the OECD/IEA framework are becoming more and more prominent in the field of international energy politics. In many ways, these changes have threatened to render the organization increasingly redundant, with a waning capacity of utilizing and performing its core functions. This has led to critics calling for the IEA to evolve and adapt to these changing circumstances, deeming it a necessity if it is to remain a relevant and effective body for international energy policy coordination (Florini, 2011, p. 42; Colgan, 2009, p. 3)

This thesis aims to analyze how the IEA has coped with these changes that have taken place in global energy relations. Thus, I formulate the following research question:

What are the effects of changes in the global energy regime complex for the IEA?

Why a study on the IEA? Despite mounting interest on the topic of institutions in global governance, various dynamics of international organizations has up until recently been “under-examined and under-theorized” (Helfer, 2006, p. 658) and “uncharted territory” (Hug and König, 2007, p. 105). As outlined by Van de Graaf (2012, p. 295), a study on the IEA makes an interest prospect for two reasons: Firstly, most studies on international organizations tend to focus on the ‘usual suspects’, or a select case of large international organizations such as the World Bank, the EU, the IMF or some specialized agency of the UN. These are all organizations with substantial competencies, budgets and staffing, and are therefore not necessarily representative of the wider universe of international organizations. While by no means a small organization, the IEA is still dwarfed by the aforementioned, and can thus offer a somewhat fresh perspective. Secondly, the IEA is among the world’s foremost and oldest institutions for multilateral energy cooperation. Yet, barring some scholarly works by Keohane (1978; 1984), the IEA has seen relatively little systemic, academic research from a political-science point of view up until the recent decade. By examining the effects of changes in the global energy regime complex for the IEA, this paper hopes to contribute to the scholarly literature on international organizations, but more specifically to the growing body of literature on the IEA and global energy governance.

1.2 Terms and Definitions

The research question solicits the clarification of three concepts: *the energy regime complex*, *changes* and *effects*.

The *energy regime complex* essentially encompasses the institutional environment in which the IEA exists and operates. In its early days, the IEA existed in relative solitude as far as international institutions operating within the issue-area of energy was concerned. Since then, however, the number of international energy institutions have proliferated, as the rise of many new problems in the global energy sector has led to the demand and subsequent creation of many new institutions to deal with these issues. Yet, rather than existing apart and decomposed from one another, the increasing density of institutions gives way to what Raustiala and Victor

(2004) refer to as a *regime complex*. In the case of the energy sector, this is often referred to as the *energy regime complex* (ERC) or the *global energy architecture*. Both of these concepts refer to interlocking governance structures that lie in-between fully integrated legal systems on the one hand and total fragmentation on the other (Colgan and Van de Graaf, 2015, p. 459).

Regime complexes have been identified and studied in a variety of issue-areas, ranging from climate change (Keohane and Victor, 2011) to plant genetics (Raustiala and Victor, 2004) to international trade (Busch, 2007) and, of course, to energy (Colgan et.al., 2012; Van de Graaf, 2013; Colgan and Van de Graaf, 2015). Raustiala and Victor (2004, p. 279) define a regime complex as “an array of partially overlapping and non-hierarchical institutions governing a particular issue-area [...] marked by the existence of several legal agreements that are created and maintained in distinct fora with participation of different sets of actors”. A global governance architecture, meanwhile, is defined as “the overarching system of public and private institutions that are valid or active in a given issue area [in world politics]... [comprising] organizations, regimes and other forms of principles, norms, regulations and decision-making procedures” (Heubaum and Biermann, 2015, p. 230; Biermann et.al., 2009, p. 15). Given largely coinciding definitions, these terms will be used interchangeably in this paper.

When analyzing the *changes* in the energy regime complex, I am essentially looking at ways in which the demands of institutional governance in the global energy architecture have changed or evolved. Organizational environments are commonly attributed a great deal in terms of affecting the structures and functions of organizations existing within them. These environments are usually seen to consistently develop towards increased complexity (Emery and Trist, 1965, p. 21). The evolution of organizations and their institutional environments are often seen as an interchangeable process whereby increasing complexity in an institutional environment leads to increasing complexity in the organizations within them, and vice versa (Scott, 2003, p. 30; p. 146-147). The IEA was created during a time when its institutional environment was sparse, with relatively low complexity. Thus, the research question assumes changes to encompass what these developments towards supposed complexity in the ERC actually entail.

As for *effects*, I assess the outcome of these changes for the IEA in two primary ways: (1) the implications they hold for the IEA and (2) the actual responses they have prompted from the IEA. The effects thus consist of both a theoretical and a practical component. First, by implications is essentially meant in what position the changes leaves the IEA; is the

organization in a position of being well equipped to handle these changes and strengthen its position within its institutional architecture, or do the changes hold negative connotations for the IEA, constraining the agency's potential to utilize its strengths and functions? Second, by responses is meant what the IEA are actually doing to address the changes.

1.3 Thesis Composition

This thesis is composed of 8 chapters. Chapter 1 has presented the research aim, research question, and defined important terms relating to the research question.

In chapter 2, I introduce and discuss the theory and theoretical concepts important to this thesis. Two concepts are of particular importance in this regard: the energy regime complex and global energy governance. I first discuss the energy regime complex as the environment within which the IEA exists, and its importance in regards to shaping the structures and functions of the organization. As I uncover the changes that have taken place in the ERC, I find they increasingly lead towards the notion of global energy governance. Thus, this chapter aims to properly conceptualize this term.

In chapter 3, I present the theoretical framework. The framework is a slightly tweaked take on Van de Graaf's (2013) three underlying logics structuring the energy regime complex; the strategic logic, the functional logic, and the organizational logic. While these three logics are inherently complementary in explaining the dynamics of the energy regime complex, I take the approach of drawing a contrast between the strategic and the functional logic. The purpose is to draw on this when discussing the changes that have taken place in the global energy regime complex – whereby the ERC has transitioned from being largely defined by the dynamics of the strategic logic towards the dynamics of the functional logic. The changes are underlined by factors pertaining to the organizational logic.

In chapter 4, I discuss the research design and methodology of this paper. I discuss the research design approach taken by this paper, that of the single case, or within-case study. More specifically I adhere to a theory-guided, ideographic case study. I then discuss the methodological approach, before moving on to discuss the data I utilize, and lastly consider issues of validity and reliability, and potential strengths and weaknesses of the study

Chapter 5 through 7 constitute the analysis of this thesis. In order to assess what the effects of changes in the energy regime complex are for the IEA, I first establish what these changes are. Chapter 5 and 6 are dedicated to this. In order to establish the changes that have taken place in the energy regime complex, I apply the theoretical framework of logics, which is to be elaborated upon in chapter 3.

Chapter 5 is dedicated to assess the ERC during the time of the IEA's creation and shaping. I establish that it was an institutional architecture pertaining to the strategic logic. Chapter 6 then discusses changes that took place in the ERC, a trend that can be seen as starting around the early 1990's, that led to the global energy architecture of today. In many ways, this saw the ERC transition towards the dynamics of the functional logic. In both these chapters, I assess the IEA's goodness of fit within these respective institutional architectures, both the ERC pertaining to the strategic and functional logics.

Chapter 7, then, is where I discuss the effects these changes have on the IEA. As established, these changes constitute the various implications they have for the IEA, as well as the actual responses they have prompted from the organization. I argue that, while the agency is struggling to cope with certain aspects of these changes given their path-depend nature, the changes ultimately entail various opportunities for the IEA to cement a strong position in the ERC, something that is underlined by the actual responses the agency has shown in response to the changes.

Chapter 8 rounds off the thesis with a conclusion.

2 Theory and Theoretical Concepts

In order to answer the research question posed in this thesis, it is necessary to elaborate on the IEA's institutional environment that is the energy regime complex, as well as the concept of global energy governance.

2.1 On the IEA's Institutional Environment: The Energy Regime Complex

Every organization or institution exists in a specific environment to which it must adapt. No organization is entirely self-sufficient, as they ultimately depend on relations established with the larger systems in which they take part (Scott, 2003, p. 23). The research question posed by this paper builds heavily on this assumption, that institutions or organizations are products of their wider environments. Often referred to in scholarly literature as 'organizations as open systems', it infers that organizations' goals, functions, structures and constraints are results of, or at least heavily influenced by, their respective institutional environments. Scott argues that ideas of organization-environment linkages were often overlooked or underestimated in early scholarly literature on organizations, and that it took "a long time for [organizational analysts] to begin to comprehend the extent to which organizations are creatures of their distinctive times and places" (Ibid; 1995B, p. 131). Early scholarly literature on this idea of open systems can be traced back to the late 1960's, and since then it has since gained considerable traction (see Buckley, 1967; Katz and Kahn, 1978; Meyer and Rowan, 1977; Meyer et.al., 1980; Meyer and Scott, 1983; Scott, 1995B & 2003). In the case of the IEA, this thesis assumes the energy regime complex to be that environment.

The concept of international regimes, or simply regimes, encompass a variety of different definitions. Young (1980, p. 332) refers to them "recognized patterns of practice around which [states'] expectations converge". Krasner (1982, p. 185-186), in attempting to identify a usage of the concept consistent with other popular formulations, defines regimes as "sets of implicit or explicit principles, norms, rules and decision-making procedures around which actors' expectations converge in a given issue-area of international relations". The concept of international regimes can thus be seen to have a tight-knit link to international institutions. These regimes matter in international relations and global governance in how they affect the behavior of states where, in the most basic sense, they serve as intervening variables standing

between basic causal factors on the one hand, and the actual outcomes and behaviors on the other (See Figure 2.1).

Figure 2.1



Source: Based on Krasner (1982).

Keohane (1984, p. 61) suggests the scope of international regimes generally corresponds to the boundaries of its respective issue-areas, as governments establish these regimes to deal with problems that are regarded so closely linked that they should be dealt with together. Issue-areas are thus defined as “sets of issues that are dealt with in common negotiations and by the same, or closely coordinated, bureaucracies, as opposed to issues that are dealt with separately and in an uncoordinated fashion”. Since issue-areas depend on actors’ perceptions and behavior rather than on the inherent qualities of the subject matter, the boundaries of issue-areas can vary gradually over time. As issue-areas are defined and redefined by the changing patterns of human intervention, so too are international regimes.

In assessing under what conditions international institutions and regimes are expected come into existence and be involved in the governance of a particular issue-area, Keohane and Nye (1974, p. 54-55) outlines a variety of contingencies. In a general sense, however, it can be expected when the issue-area consists of problems requiring some central point of agency for policy coordination. Thus, international regimes are likely to be most extensively involved on complex multilateral issues in which major actors perceive the need for information and communication with other actors. As the number of actors partaking in the politics of a given issue-area increases, so too does the demand for communication with other actors. This places the international institutions and regimes at the center of crucial combination networks, as they acquire influence as brokers or facilitators of new or different approaches. This creates interdependence between state actors and institutions of a regime, as the institutions will remain dependent on state governments for funds and legal powers, while states in return will often depend on the institutions for information on things such as policy coordination, which may be required for the state to reach its own objectives.

2.2 Conceptualizing Global Energy Governance

The importance of energy in world politics and economy can hardly be overstated. Despite this, energy has remained curiously understudied by social scientists or scholars of international relations, in stark contrast to the vast bodies of literature on related topics such as security, trade and environmental issues. Sovacool (2014) criticizes the long-running trend of the ‘classic paradigms’ of natural science and economics dominating energy-studies, with social science often playing a secondary role. Indeed, Hughes and Lipsky (2013, p. 465) concluded in their survey that the scholarly literature on the politics of energy is still in its infancy, with many questions yet to be answered. For a long time, energy as a policy area has also remained woefully underequipped or underrepresented in the global landscape of international institutions, as noted by former director-general of the International Atomic Energy Agency (IAEA), Mohamed ElBaradei:

“The need for co-ordinated political action on energy and related issues [...] has never been more acute. Yet there is no global energy institution in which the countries of the world can agree on joint solutions to the potentially enormous problems we see emerging. We have a World Health Organisation, two global food agencies, the Bretton Woods financial institutions and organisations to deal with everything from trade to civil aviation and maritime affairs. Energy, the motor of development and economic growth, is a glaring exception. Although it cries out for a holistic, global approach, it is actually dealt with in a fragmented, piecemeal way. A number of institutions focus on energy, but none with a mandate that is global and comprehensive and that encompasses all energy forms.”

(ElBaradei, 2008)

Dubash and Florini (2011) underlines this sentiment, and argues it deserves to be changed. To that end has emerged a new major field of inquiry in studies on international energy relations, namely that of *global energy governance* (see Goldthau and Witte, 2009 & 2010; Florini and Sovacool, 2009 & 2011; Florini, 2011; Cherp et.al., 2011; Dubash and Florini, 2011; Van de Graaf, 2012, 2013 & 2015; Sovacool and Florini, 2012; Heubaum and Biermann, 2015; Van de Graaf and Colgan, 2016). Of course, studies on international energy relations comfortably predate the emergence of this particular scholarly angle, however they have often donned the hard-nosed perspectives of security, neorealism and geopolitics. Scholars of global energy governance seek to broaden the scope and understand how energy is governed at a global level, who governs what, and with what consequences. Energy as an issue area thus currently offers a rich but largely unexplored empirical ground upon which to explore new directions in international relations theory (Van de Graaf, 2013, p. 8; Van de Graaf and Colgan, 2016, p. 1).

Table 2.1 – Conceptualizing governance, global governance and global energy governance

Term	Definition
<i>Governance</i>	Any and all of the myriad ways in which groups of people attempt to solve collective action problems, deal with market failures and ensure the provision of public goods
<i>Global Governance</i>	Efforts to deal with the wide range of border-crossing issues involving multiple states and other actors from multiple parts of the world
Global Energy Governance	Making and enforcing rules to avoid the collective action problems related to energy at a scale beyond the nationstate

Source: Sovacool and Florini, 2012, p. 238.

So what is global energy governance, and why is it important in scholarly literature on topics related to energy? As proposed by Sovacool and Florini (2012, p. 238) (see Table 2.1), *Governance* is a generic term referring to efforts through which groups of people attempt to solve collective problems, deal with externalities and provide public goods. *Global Governance* is an extension of this term, when applied cross-borders. *Global Energy Governance*, then, becomes the efforts through which actors and institutions “make and enforce rules to avoid the collective action problems related to energy at a scale beyond the nation-state. In the simplest sense, it can be defined as “international collective action efforts undertaken to manage and distribute energy resources and provide energy services”” (Heubaum and Biermann, 2015, p. 231). This concept is presented with the aim of providing various types of insights for research on energy related issues. It also serves as a an analytical tool to make sense of the socio-political climate in international energy politics – in particular with reference to the shift from the classic, realist nation-centered governance structures to the more complex, multi-layered, non-hierarchical structures espoused by private actors and international institutions in the modern day.

The reason for the surge in scholarly interest on energy and global energy governance is often attributed to the dramatic transitions the global energy sector is has undergone over the past decades. Van de Graaf and Colgan (2016, p. 2) highlights three primary determinants of this transition: (1) *Climate change*. Global climate change is easily among the biggest challenges the world is currently facing, and energy plays a major part in this issue. Current trends in the energy sector are far too carbon-intensive, as world energy production and consumption

represents almost 70% of global greenhouse gas (GHG) emissions (IEA, 2017D, p. 9). Thus, there is an imminent need of decarbonizing energy systems in the global economy. New governance structures and networks will be necessary to create incentives to push this transition. (2) *Energy security concerns over price volatility*. The last decade in particular has seen increasing volatility on oil and gas markets. This applies even in the absence of changes linked to climate change, as oil prices have swung markedly over the past years. This, of course, has serious implications for global energy security. (3) *The emergence of a multipolar global energy sector*. Emerging economies such as China and India are increasingly becoming energy-consumer heavyweights - and important players in international energy politics by extension - and their emergence has taken place outside of most meaningful institutional apparatuses for global energy governance.

While global energy governance is quite broad in its definition, the precise nature of its scope remains a much-discussed topic. Van de Graaf and Colgan (2016, p. 4), in surveying the landscape of literature on global energy governance, identifies five primary objectives of global energy governance. These primary objectives, as displayed in Table 2.2, each comprise their own individual *governance arena*. These governance arenas are *energy security*, *economic development*, *international security*, *environmental stability* and *domestic good governance*. Each of these five objectives are to varying degrees pursued by different actors in global energy.

Table 2.2 – Global Energy Governance Arenas

<i>Governance Arena</i>	<i>Associated Activities</i>
<i>Energy Security</i>	Managing petroleum reserves in case of energy market shocks or upsets
	Energy market information-sharing and analysis
	Addressing midstream sector-issues such as pipeline politics and transit routes
	Managing long-term investment issues
<i>Economic Development</i>	Reducing energy poverty
	Facilitating technology transfer and cooperation
	Managing long-term investment profitability and macroeconomic stability
<i>International Security</i>	Reducing risk of nuclear proliferation, nuclear terrorism and nuclear accident
	Addressing the links between oil, international arms purchases and warfare
	Addressing sea-piracy targeting oil and natural gas tankers
	Combating terrorist attacks on pipelines and other types of energy infrastructure
<i>Environmental Stability</i>	Facilitating cooperation on global climate change
	Developing renewable energy sources, markets and regulations
	Managing national and regional pollution and environmental degradation deriving from energy production and consumption
	Facilitating carbon pricing policies
<i>Domestic Good Governance</i>	Addressing human rights violations associated with extractive industries
	Helping governments adopt rational, best-practices in regulation
	Encouraging transparency in energy markets and governance

Source: Van de Graaf and Colgan, 2016, p. 4.

According to Van de Graaf (2013, p. 34-35) the nominal definition of global energy governance needs to be supported by an analytically grounded rationale as for why multilateral governance at the global level is a requirement in this policy field. He argues that energy encompasses a variety of policy issues that require global multilateral governance, either next to or as at least as a complement to action on lower political scales. This argument is based on two grounds. First, even for energy-related issues that play out on a local level, benefits can be reaped from international cooperative action complementary to the necessary local and domestic action. Relatively small energy-issues with little to no global implications such water problems playing out at local level or local electricity depravations are quite common around the world. However, while their implications may not demand global multilateral governance, there are benefits to

be had for all parties in sharing in the dissemination of information and practices in regards to handling these local issues.

Second, and far more importantly, multilateral cooperation is necessary to provide *global public goods* that neither a single state nor the marketplace can deliver on its own. This concept can serve to rationalize why energy as a policy field has so many dimensions requiring international cooperation. By definition, a global public good offers benefits that are both non-excludable (no single country can be prevented from enjoying them) and non-rival (any one country's enjoyment of the goods does not impinge on another's potential enjoyment). These goods are universally desired, however they are often underprovided due to free-riding dynamics – when a single party can enjoy the benefits of such a good if others provide it, why would that party invest in supplying it? For this reason, the supply of global public goods is dependent on international cooperation. The governance problems related to energy as an issue-area contains many characteristics of public goods, or public 'bads', such as in the case of externalities like climate change and nuclear proliferation. In the case of global energy issues, good global governance and international cooperation is required to avoid dilemmas of collective action, such as free riding or prisoner's dilemma.

Ultimately then, the argument for the need of global energy governance stems from a combination of the interconnectedness of the challenges the global energy systems face, and the fragmented state of the global energy architecture. In a way, global energy governance aims to be a solution to the various challenges caused by a fragmented energy regime complex by bringing about multilateral governance structures to help alleviate the many challenges of currently unsustainable trends in the energy sector, and subsequently bring about the global public good of a sustainable energy system.

3 Theoretical Framework

The global multilateral framework within which the IEA was created and has evolved did not come into existence spontaneously, nor was it the result of a grand plan or design. Its emergence was in fact largely historically contingent, marked by a significant degree of chance. Since multilateral governance structures in international energy relations came to prominence in the era post-WWII, state efforts have given way to a fragmented institutional landscape, populated by loosely coupled regulatory arrangements, rather than an integrated or hierarchically ordered legal regime, this being the energy regime complex. In attempting to uncover the mechanisms by which the global energy regime complex has emerged and changed over time, Van de Graaf (2013) develops a theoretical framework. Building on the work of Keohane and Victor (2011), it builds on the assumption that the institutional design of the energy regime complex is the result of three interactive forces: First, the distribution of state preferences and capabilities relevant to the issue area. Second, issue-specific attributes like problem diversity and political sensitivity. Third, institutional feedback mechanisms that can either move things along the same path or provoke path departure.

These interactive forces are categorized respectively into three primary logics: (1) *The strategic logic*, referring to a variety of international and domestic factors leading to dispersion of state interest and power in the energy sector. (2) *The functional logic*, referring to issue-specific attributes, or specific properties related to energy as an issue-area. (3) *The organizational logic*, referring to institutional feedback mechanisms. These underlying logics, which can be summarized as state power- and interest constellations, issue-specific properties and contextual constraints, ultimately mold the global energy architecture into its form, and through mutual interaction account for the degree of fragmentation and integration in the global energy architecture (Van de Graaf, 2013, p. 65).

As this study builds on the assumption that institutions are products of their wider environments, with the energy regime complex considered to be this environment for the IEA, I conclude that the framework is appropriate.

3.1 Framework Model

According to Keohane and Nye (2012, p. 49), no single theoretical or analytical model is likely adequate to explain world politics, as conditions vary too greatly. To automatically attribute a large amount of factors as relevant to any given model begs the question of which factors are more important than others, or whether they should be combined. Due to the drawbacks related to these complexities, they argue it is better to seek explanation by starting with simple models, and adding complexities to it as necessary. This is precisely the path taken with Van de Graaf's analytical framework. The strategic logic serves as a relatively straightforward baseline model from which the framework departs, emphasizing the distribution of states' interests and power relevant to the issue-area. This framework assumes the classic realist assumption that states are rational, satisficing actors. As such, states create, shape and reform multilateral institutions, all the while attempting to align the functions of these institutions with their own interests. The more issue-specific power a state has, the greater its weight in the institution. Thus, the expectation is for the existence of multilateral institutions and their functions to change in alignment with state interest and power shifts. As argued by Colgan (2012, p. 118), where conflicts of interest are not severe and power is concentrated, incentives to cooperate can lead to the construction of robust and integrated international regimes, as for instance in the case of the international trade regime centered around the World Trade Organization (WTO). Where interests and power are more disperse, however, incentives for cooperation may exist still, yet international cooperation is then likely to be more fragmented, often taking the form of a regime complex, as in the case of energy.

If such power/interest-functions are sufficient in explaining state behavior and institutional outcomes, further complexities may be omitted from the model. However, as Keohane and Nye (2012, p. 49) argues, complex inference based purely on a baseline model is rarely, if ever, successful. Thus, further factors can be added in to attempt to improve upon the model. The mechanics of the strategic logic are rather simple in their realist nature, and new elements can be added to the model with relative ease. While a wide variety of factors could be taken into account, Van de Graaf (2013, p. 68) argues that two in particular stand out, namely issue-specific attributes and contextual constraints, respectively categorized into the functional and organizational logic.

The baseline model of the strategic logic can provide useful first-cut explanations of discrete events, however it is far less fit to account for changes occurring over extended periods of time. Thus, when the study pertains to more than merely static decisions and towards long-term change, explanatory domains become increasingly dependent on empirical attributes pertaining to the issue-area at hand (Legro and Moravcsik, 1999, p. 52). Issue-areas may vary greatly in terms of stakes, number of actors and distribution of conflict. These characteristics can play a big part in determining institutional strategies and outcomes in the long run, thus is added to the model the functional logic, to complement the strategic logic (Van de Graaf, 2013, p. 68).

As a further extension of the baseline model, contextual variables are factored in. When states make decisions regarding the design of an institution, these decisions are made in the context within which decision-makers at the time reside and confront problems of institutional choice. States make decisions regarding the design of institutions within a specific social and historical context, each particular context laden with normative, structural and relational constraints. From this, one may infer that institutions are products of their own particular contexts. Hence, the organizational logic is applied to the framework, taking into account elements of the decision context, such as institutional path dependence and the various contextual constraints this imposes. As put by Van de Graaf (2013, p. 68): “by focusing on both the strategic choices and the specific context in which these were made, this interpretive framework occupies the reasonable middle ground between purely historical analyses and more rigorous and parsimonious rational-choice theories”.

3.2 The Strategic Logic

The central characteristic of the strategic logic is the dispersion of state interests and power in international relations. As mentioned, when states create, shape and reform multilateral institutions, they do so with the purpose of aligning the functions of these institutions with their own interest. The more issue-specific power a state possesses, the greater its weight in reforming institutions. Thus, this underlying logic assumes the existence and functions of international institutions align with state interest- and power shifts, and that the primary force behind the organizations of a regime complex is the distribution of state power and interest. The power and interest configurations in world politics often vary significantly across issue areas, and in the area of energy, power and interest arguably appear more dispersed than in most other policy issue areas. This is evident when for instance considering how different countries

may have wildly different understandings of the concept of energy security, whether it be based on geographical location, position in regard to international relations, political system or economic disposition. This logic thus underlines the difficulty of creating a cohesive and integrated international energy regime (Van de Graaf, 2013, p. 13, 68-69).

Two broad factors that influence state preference interests and powers are identified; on an international level, control over energy resources and markets, and on a domestic level, domestic political economy.

In regards to actors control over energy resources and markets, geography plays a pivotal part in forming state interests and powers in international energy relations. Natural resources and energy reserves are not distributed fairly and equally across geographical areas, but concentrated in specific regions. Thus, endowment of energy resources play a major part in states' foreign policies, as they affect both the interest- and power configurations in the international system. Countries may wield diplomatic weight disproportionate to their power and size by conventional measures such as demography, economy and geographical size owing to potential large reserves of energy resources. Looking beyond the physical ownership of resources from a geographical perspective, other dimensions of power in the global energy markets include military control, monetary hegemony, market size and foreign exchange reserves. Power and interest configurations will often vary along these dimensions depending on energy source and period observed. The multiple cross-cutting and ever-shifting zones of contention within the global energy architecture ensures that no one state or actor is able to command sufficient power to impose its own set of preferences in international energy relations, and thus dispersion of state interests and powers remain a key characteristic (Ibid., p. 69-74).

Domestic political-economic factors also play a significant role in shaping states' interests and power. Considerable insights into the preferences of states concerning the design of international energy regimes and institutions can be found by looking at the structure of individual states' internal energy markets: by identifying what sources of energy states consume and produce, how import-dependent the states are in regards to these energy sources, how vulnerable they are to potential external price and supply shocks, and whether countries are characterized by state-led monopolist structures as opposed to being privatized and liberalized (Ibid, 2013, p. 74-76).

3.3 The Functional Logic

The functional logic is associated with issue-specific attributes, and deals with the influence of the characteristics of energy on its global governance structure. Van de Graaf (2013, p. 14) describes international energy relations as an integrated, socio-technical system that embodies its own distinctive governance challenges, made up of various components in which the slightest change in one may have ripple effects for the system as a whole.

States' power and interests do not account for all possible observable institutional outcomes in global energy governance. Energy as an issue-area is notoriously complex and politically sensitive, covering a wide variety of problems that are quite diverse in terms of actor and interest constellations, political cleavages and administrative challenges. Energy systems are fraught with externalities such as climate change, nuclear proliferation, poor governance and underdevelopment. Most global issues today can be seen as having a link to energy, so rather than there being single energy issue that needs solving, energy as an issue-area can be seen as a lens through which many global issues refract. Underdal (2002A, p. 3) notes: "some problems are intellectually less complicated or politically more benign than others, and are hence easier to solve". As an issue-area, energy is anything but (Van de Graaf, 2013, p. 77).

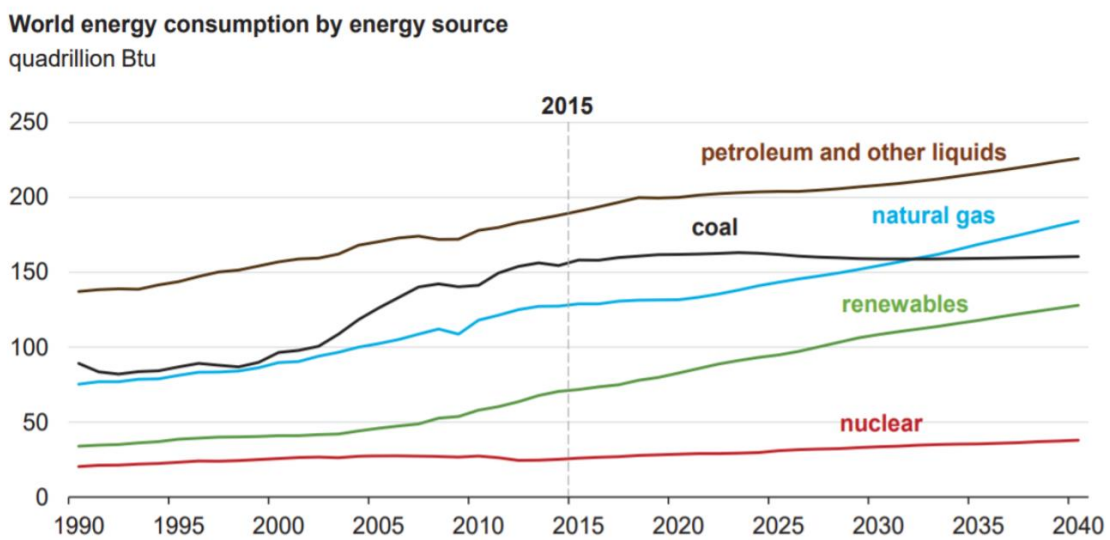
3.3.1 The Energy System

The functional logic centers around the idea of the 'energy system', or that energy as an issue-area is not simply a patchwork of sub-issues, but rather an integrated system within which there exists a variety overlapping issues, externalities and system-spillovers. Central to this idea of energy as a system is its inherent vulnerability, as well as the interconnectedness of different energy issues concerning different energy sources.

Consider, for instance, the idea of energy resource depletion, a vital issue in terms of energy consumption for the coming generations. To this day the world is heavily reliant on exhaustible fossil fuels in order to satisfy global energy demand, and despite a concentrated global effort to transition to renewable and sustainable energy sources at the expense of fossil fuels, the importance of exhaustible fossil fuels is predicted to remain high in the foreseeable future (see Figure 3.1). In recent years, debate and discussions on this topic commonly manifests itself in the theory of 'peak oil'. This theory predicts that the world's total oil production is close to, or has already, reached its peak, and that with knowledge of current reserves and production levels,

we can with some certainty predict when the world will run out of conventional oil. As Cherp and Jewell (2011, p. 336) point out, while the majority of this ‘peak’ debate pertains to oil, similar stories have also emerged in other energy sectors such as on gas, coal and even water. However, the peak theory is often heavily criticized by many scholars, as its deterministic nature tends overlooks a variety of important factors (such as conventional economic peak theory, the salience of the market, conservation- and efficiency technologies and government policies and intervention – see Noreng (2013)).

Figure 3.1: World Energy Consumption by Energy Source



Source: EIA (2017)

Regardless of the debatable nature of the peak oil theory, the fact remains that the world quite reliant on fossil fuels in order to satisfy its energy demand, and that ever-increasing demand for exhaustible resources go hand-in-hand with ever-decreasing availability. This makes painfully visible the potential long-term vulnerability of the energy system. The fact that these very exhaustible resources are a central culprit for climate change further necessitates thinking of energy in terms of a system, incentivizing the rapid transition from an unsustainable energy system based on non-renewable fossil fuels towards a sustainable energy system based on renewable energy sources. Renewable and non-renewable energy sources are thus not independent from each other, but rather interact within a complex socio-technical and socio-ecological system (Van de Graaf, 2013, p. 79).

From the inherent interconnectedness of different issues in the energy-system stems complexity and vulnerability. As put by Lovins and Lovins (1982, p. 19): “Failures in complex systems are

seldom simple. Simple threats can and often do act in bizarre ways on the complex interdependencies that bind those systems together. The assessment of vulnerability, therefore, cannot rest on a mechanical collection of assessments of the vulnerability of separate parts”. Lovins and Lovins’ provide an example with the drought that hit California in the latter half of the 1970s: During this time, rainfall was 60 percent lower than the average from the past five decades, reducing the region’s hydroelectric output by roughly 40 percent during this period. In turn, this caused the hydro-dependent company Pacific Gas & Electronic Company to burn an extra fifty million barrels of oil, which again in turn caused the company a significant increase in its operating expenses. Meanwhile, the agricultural sector, which commonly saw a water allotment of around 85 percent of the regions water, had its water allotments reduced by over 60 percent. Efforts to make up for these vast agricultural losses caused by the drought included pumping up groundwater, which in turn cost roughly one billion kilowatt-hours of additional energy. The interaction between energy and water problems could have been even worse, as per Lovins and Lovins (1982, p. 12): “The interaction between energy and water problems could have been even worse if proposed coal slurry pipelines had been operating: they would have had such a low water priority that their operation would probably have been cut back severely. The result: two supposedly independent energy systems – hydroelectricity and coal-electric – would have failed at the same time”.

Energy related challenges, then, characterized by their complex and interconnected nature, consist of direct or indirect global components that often support or constrain national policy options and private sector behaviors. These include rapidly rising energy demand in the face of increasing geographic concentration of remaining deposits of conventional fuels, a need to mitigate the impact energy systems have on the climate and a lack of access to modern forms of energy for billions of people. Energy systems need then reliably meet the growing demands of societies that are increasingly sensitive to the slightest disruptions, all with minimal health and environmental impacts and risks of accidents. The challenges inherent in energy as a policy field then form an increasingly large proportion of the issues of global governance (Cherp et.al., 2011, p. 75-76). Ultimately, then, there is clearly a link between the idea of the energy system and interconnectedness between the various governance arenas considered in global energy governance.

3.3.2 The Functional Logic and Global Energy Governance

Clearly, when considering the issue-area of energy as an integrated system with high levels of complexities and interconnectedness, it seems to call for increased levels of governance. Thus, the ideas that make up the functional logic are very much tied to the idea of global energy governance. We assume that, in line with Keohane's (1984) argument, regimes are established to deal with closely linked problems defined within particular issue-areas, and Keohane and Nye's (1974) assumption that the institutions that make up these regimes are established within their respective issue-area when there is demand for multilateral governance to deal with these problems. From this, it follows that, with the dynamics of the functional logic representing increased complexity of energy issues and an increased density of institutions to respond to these issues, there is increased need for global energy governance

The global energy architecture is commonly criticized for being ill equipped to deal with such global governance issues, as the interconnected nature of the problems related to the various governance arenas (Table 2.2) are often treated in isolation from each other by current governance structures. Consider the governance arenas of energy security and environmental stability; keeping pace with the global market's fossil-fuel demands is vital to the arena of energy security, however it is tremendously at odds with the challenges related to the arena of environmental stability - where these very demands are a core issue. Conversely, imposing fossil fuel-related constraints with the aim of alleviating issues of environmental stability can have dramatic consequences for the energy security in many countries. Adding other governance arenas into the mix further complicates matters; consider the arena of economic development, where combating energy poverty is a vital issue. Combating energy poverty is a vital issue to tackle, certainly from a humanitarian perspective, yet it carries with it considerable implications for other governance arenas, as it would lead to increased emissions, aggravating issues of environmental stability, and further deplete energy resources, similarly aggravating issues of energy security. These different governance arenas are interdependent, and it follows then that these issues should not be addressed in isolation from one another. Yet, that is precisely how the majority of the current governance structures are set up (Cherp et.al., 2011, p. 83).

A self-regulating market alone has often proved insufficient in providing satisfactory outcomes to issues plaguing the energy-system, which has created the rationale for some sort of governance to deal with these potential externalities. According to Cherp et.al (2011, p. 75)

effective global energy governance requires “striking a tenuous balance between the determination and efficiency needed to drive energy transitions with the flexibility and innovation necessary to deal with complexity and uncertainty”. However, while energy goals are often widely shared and supported among international actors, there is little to no realistic case for the potential construction of an internationally integrated, coherent regime, or a single “global energy government” in the global energy architecture (Van de Graaf, 2013).

While the strategic logic leans heavily towards classic realist assumptions, the functional logic is built on ideas more commonplace in institutionalist literature, and is very much tied to the idea of global energy governance. The aforementioned factors ensure energy does not easily lend itself to integrated international regime building, with an energy system ill designed to cope with the various interconnected challenges it is faced with. This creates crucial problems for good and effective energy governance (Goldthau and Sovacool, 2012, p. 238). As established, global energy governance essentially attempts to address challenges presented by a fragmented energy regime complex through multilateral governance structures. These challenges that stem from the interconnectedness and complexities of the energy system then serve both as the idea upon which the functional logic is built, and the question to which global energy governance attempts to provide an answer.

3.4 The Organizational Logic

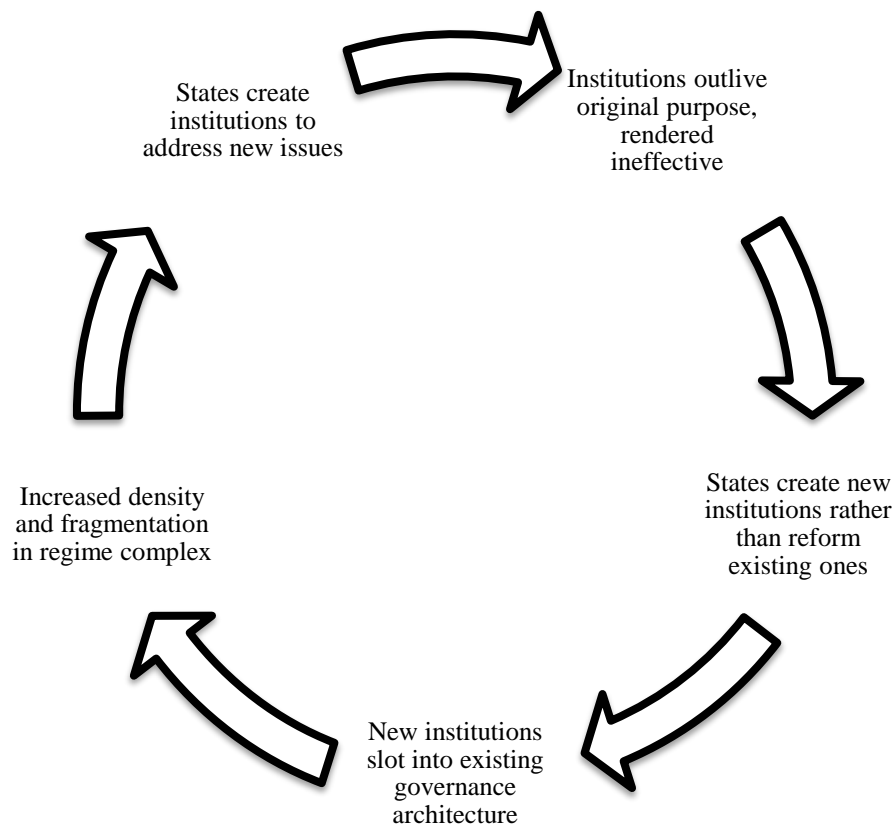
The organizational logic deals with institutional feedback mechanisms, more specifically with contextual constraints on the design of institutions. The organizational logic suggests that fragmentation seen in global energy governance is underlined by the fact that many institutions have come to be due to dissatisfaction over a particular status quo. Institutions thus come in to existence with the goal of purposefully altering the status quo. Often they will then continue to exist beyond their usefulness or relevance, and thus constrain the evolution of subsequent institutions.

There are several contextual constraints on the rational design of institutions, one such being path dependence. International regime complexes do not emerge from a single, creative moment, but rather over time through the accumulation of individual design choices made collectively by states. Often these institutions come into being because state actors are dissatisfied by the status quo and wish for change. Once an institution comes into being, it is

then very difficult to redesign, and institutional stasis, or incrementalism at best, will persist until a breaking point is reached. Commonly this occurs in the form of some major shock or trigger event, such as in the case of the oil shock that led to the creation of the IEA. However, once established, institutions are rarely replaced or abolished in the short- or medium term, even in the face of clear signs of problems or institutional weaknesses. As will be discussed in the case of the IEA, they had tremendous difficulties in dealing with the second oil shock of 1979, yet the organization was neither abolished nor even substantially reformed despite failing to deal with the very issue it was designed to handle in the first place. As such, when the discrepancy between the preferences of major states and what is possible within a given institution grows too large, states may decide to abandon the institution and create new institutional arrangements. These new institutional arrangements are then usually situated within their respective extant institutional environments (Van de Graaf, 2013, p. 81).

Indeed, state actors tend to add an institution to into the global architecture rather than subtract one. Institutions within the global energy architecture never seem to die, but are instead supplemented by new ones. The design of these new institutions that come into being are then shaped by past decisions and institutional trajectories. This path dependence can help explain why states are willing to encourage or tolerate such a wide variety of regulatory institutions, particularly when their interests diverge and no unique focal points have emerged. Such a multiplicity of institutions do after all offer opportunities for forum shopping or other cross-institutional strategies. Once many different institutions are firmly in place within a given global architecture, fragmentation is difficult to reverse (Ibid, p. 82; Keohane and Victor, 2011, p. 9).

Figure 3.2: The Cycle of the Regime Complex



Source: The Author.

The organizational logic is very much tied to the theory of punctuated equilibrium. As opposed to the assumption of change being a continuous and gradual process, punctuated equilibrium theory highlights prolonged periods of stasis with little significant innovation, ‘punctuated’ by shorter periods with bursts of significant innovation. These punctuations can be triggered by a variety of mechanisms or events, such as the 73’ oil shock prompting the creation of the IEA after prolonged periods of increased import-dependence among consumers. Originally coined in evolutionary biology theory (Eldredge and Gould, 1972), punctuated equilibrium theory has gained much traction in contemporary literature in the social sciences. Although primarily applied in studies of public policy at domestic level (see Eissler et.al., 2016; Baumgartner and Jones, 2009), the theory of punctuated equilibrium has seen some implementation in international studies such as on international law (Diehl and Ku, 2010), international norms (Goertz, 2003) and environmental regimes (Young, 2010). As Colgan et.al. (2012, p. 118) point out, its general use is rather sparse in regime complex theory, yet it is quite apt when applied to the energy regime complex.

3.5 A Slightly Altered Take on the Framework

The theoretical framework of this paper is a somewhat modified framework based heavily on the logics outlined by Van de Graaf (2013). The primary changes made consist of attributing certain values to the strategic and functional logics. As per Miles and Huberman (1994, p. 18), the purpose of a framework is to “explain, either graphically or narratively, the main things to be studied – the key factors, constructs or variables – and the presumed relationships among them. They can be rudimentary or elaborate, theory-driven or commonsensical, descriptive or causal”. Scientific constructs and categories are here labelled ‘intellectual bins’, containing discrete events and behaviors. These bins derive usually from theory, experience, and from the general objective of the study in question. In constructing a framework, it is important to be clear about the nature and relationship between these bins. For the purposes of this paper, I identify three primary bins, with values attributed to describe concrete information about the strategic and functional logics, summarized in Figure 3.3. These are:

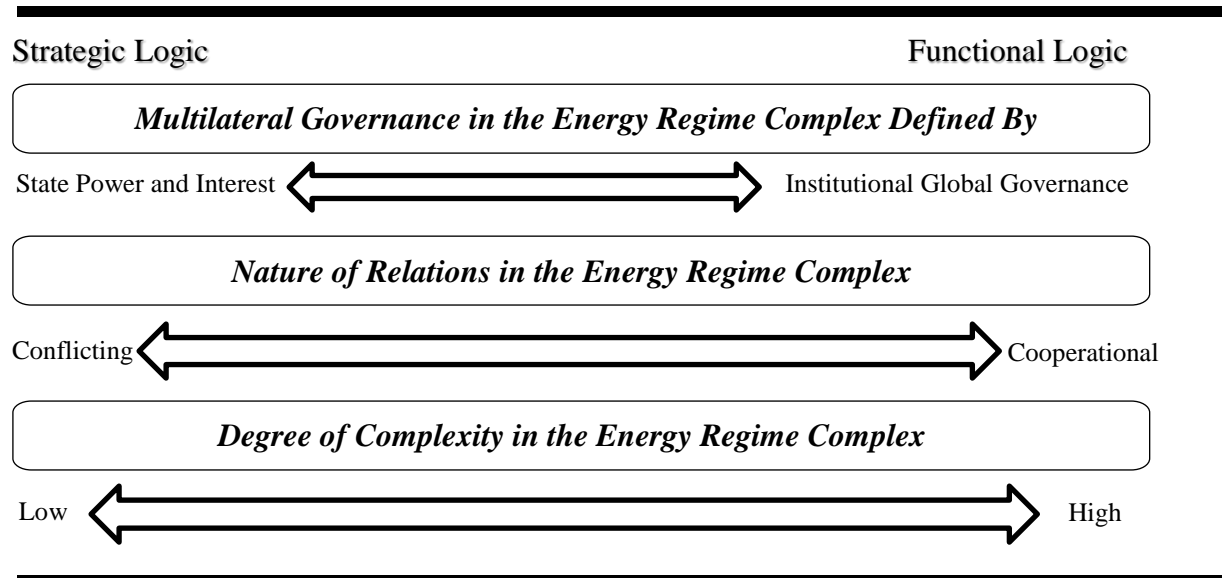
(1) *Multilateral Governance in the Energy Regime Complex*. Here, the strategic logic implies that patterns of behavior in the ERC are explained primarily by state actor’s powers and interests, whereas the functional logic implies global governance through institutional arrangements. It is important to emphasize that this does not paint a picture of either/or, as states and institutions inevitably both exist and operate interchangeably within the energy regime complex. Indeed, one would be hard-pressed to find an institutional architecture in which patterns of behavior could be explained solely by either the state actors or international institutions. They do, however, serve as rather contrasting entry points as to how to approach the issue of global multilateral governance in the issue area of energy, whether through individual state efforts borne out of necessity or demand, as implied by the strategic logic, or by global governance through institutional cooperative efforts as implied by the functional logic.

(2) *Nature of Relations in the Energy Regime Complex*. Here is painted a simple distinction between conflicting or cooperational relations among actors in the energy regime complex, where the strategic logic pertains to the former, while the functional logic pertains to the latter. While it is indeed rudimentary in nature, it is an important contrast between the strategic and functional logic.

(3) *Degree of Complexity in the Energy Regime Complex*. This concerns actors and issues present in the issue-area. Where the number of actors partaking in the issue area-, issues constituting the issue-area-, and the interconnectedness of these issues, is low, the degree of complexity is low - and vice versa. These, in turn, are complementary. Usually, when the number of issues within an issue-area increase, so too will the number of actors involved, as more problems breed more actors and institutions dealing with these problems. Thus, complexity increases. A good example of complexity in an issue-area is interconnectedness of issues or system-spillovers, where various seemingly unrelated issues within the same issue-area have unintended and unforeseen consequences for each other. Issues breed more issues, and more actors get involved to handle these issues. In regards to this paper, complexity will thus constitute a broader focus on the 'energy system', or the interconnected challenges of the various governance arenas established in chapter 2, with the subsequently increased density of actors and institutions arising to tackle these issues.

In each of these three categories, there are contrasting values attributed to the strategic and the functional logic. Thus, these values serve to differentiate between the underlying logic structure of the strategic and the functional logic, rather than having them primarily work as interchangeable variables explaining institutional patterns of the regime complex, as in the original framework. Primarily they serve to draw the strategic logic more in the way of classic realist views, whereas the functional logic becomes more akin to institutionalist views (see Keohane, 1984, p. 7-8). To be clear, this paper does not assume this contrast an absolute, indeed, dynamics of both logics serve explain patterns of behavior in international energy relations interchangeably. The purpose of illustrating the contrast is to draw on this when explaining the changes in the energy regime complex by illustrating a transition whereby the dynamics of the strategic logic made it the primary underlying logic of the ERC during the IEA's infancy, however changes have since taken place drawing it towards the dynamics of the functional logic. This is consistent with Emery and Trist's (1965) assumption that institutional environments generally move towards increased complexity. Ultimately, the purpose of the thesis is to analyze the effects these changes have for the IEA.

Figure 3.3: Dynamics of the Strategic and Functional Logics



Source: The Author

4 Research Design and Method

In their much-celebrated work, King et.al. (1994, p. 7-8) outline four pillars that define scientific research, whether qualitative or quantitative: *The goal is inference, the procedures are public, the conclusions are uncertain, and the content is the method.* In short, the goal of scientific research is to make inferences about the world based on empirical data or information, whilst adhering to a specific set of rules or methods upon which the validity of the inference rests. In this chapter, I will discuss how this paper utilizes data to draw inference, and the method by which this data is collected and analyzed. Assessing the effects of changes in the energy regime complex for the IEA does not lend itself well to quantitative, statistical analysis. Thus, the research design applied by this study is of a qualitative nature - that of the *case study*. This chapter is divided into three parts: First, I present the research design and discuss the methodology of the case study adhered to in this paper. Then, I present and discuss the data used. Lastly, I discuss issues of validity and reliability, and this analysis' potential strength of inference.

4.1 Research Design

A research design concerns “how to pose questions and fashion scholarly research to make valid and descriptive inference” (King et.al., 1994, p. 3). Selecting the appropriate research design to draw said inference ultimately rests upon the nature of the research question (Kristoffersen et.al, p. 30). Thus, my thesis will adhere to the principles of the case study. So, what is a case study – or more specifically, what is a *case*? Providing a simple and concise definition of this is no simple task. As Gerring (2007, p. 17-19) points out, the concept of the case study is a “definitional morass”, as it can refer to so many different things. In attempting to come up with a clear and useful definition, he defines a case as “a spatially delimited phenomenon (a unit) observed at a single point in time or over some period of time, [comprising] the type of phenomenon that an inference attempts to explain”. Beach and Pedersen (2016, p. 5), meanwhile, defines a case study as “an instance of a causal process playing out, linking a cause (or set of causes) with an outcome”. Regardless of the many varying and similar definitions of what a case study is, they all constitute the same root idea: they are histories with a point, or ‘cases of something’ (Moses and Knutsen, 2012, p. 133). The case

under study is interesting because of that ‘something’, of a larger theoretical concern, or a specific research project.

Scholarly literature often separate between two general approaches to case study research. Gerring (2007, p. 1) illustrates with a house-building analogy: There are two ways to learn how to build a house – one can study the construction of a wide variety of different houses, or one can intimately study the construction of a single, particular house. The same is true for the social researcher, who may observe either lots of different cases superficially, or one or a few cases intensively. The former is commonly known as the *cross-case method*, whereas the latter is the *within-case*, or simply *case study* method. This study adheres to the latter approach.

Because of the broad nature of the case study, scholarly literature on the topic is quite rich, and the concept has been defined in a wide variety of categories beyond the general distinction discussed above. These include atheoretical-, interpretive-, hypothesis-generating-, theory-confirming-, theory-informing- and deviant case studies (see Lijphart, 1971, p. 691), or configurative-ideographic-, disciplined-configurative-, heuristic-, plausibility probe- and crucial case studies (see Eckstein, 2009). In building upon the established categories, Levy (2008, p. 3-4) streamlines the categorizations of case studies into several different typologies. This paper falls into one such, namely the *ideographic* case study. As Levy (Ibid.) further denotes, the aim of the ideographic case study is to describe, explain, interpret and/or understand a single case as an end in itself rather than as a vehicle for developing broader theoretical generalizations.

He further denotes this type of case study into subtypes, one such being *theory-guided* case studies, which fits the approach of this paper. A theory-guided case study is structured by “a well-developed conceptual framework that focuses attention on some theoretically specified aspects of reality and neglects others” (Ibid.). According to Andersen (1997, p. 69) its purpose is to analyze a unique case in light of already existing knowledge from the larger context within which the case exists, applying theoretical concepts and ideas in order to structure the empirical material. As for my thesis, questions could be asked regarding whether the framework this paper is structured by is “well-developed”, as Van de Graaf (2013, p. 83) explicitly states the purpose of the framework of logics is not to develop a novel general theory. However, the framework is still built on well-established tropes and motifs in international relations literature. As per Andersen’s argument, scholarly research on the IEA and the ERC (or regime complex theory

in general) is plentiful, insofar as my particular case being a unique case within the context of previously extant knowledge.

As Gerring (2007, p. 49) notes, all research essentially boils down to making a choice: knowing more about less, or knowing less about more. By virtue of the selection of case, this paper most certainly leans heavily towards the former. The choice is ultimately a trade-off. While the narrowness of the case study approach this paper takes comes at the expense of generalization potential, going the opposite route will run the risk of not saying particularly much about a single case. Strong potential for generalization is ultimately not a goal of this study. With this in mind, the narrow path of the ideographic, within-case study seems the most appropriate research design to provide an answer to the research question posed in this thesis.

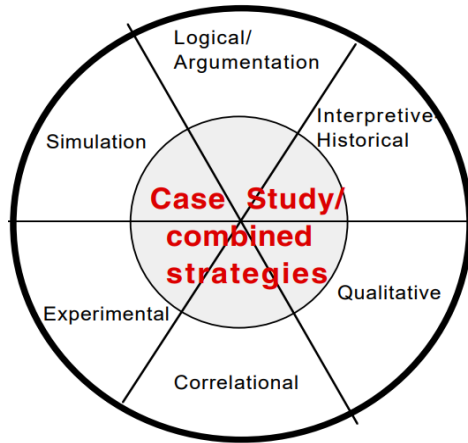
4.1.1 On the Methodology of the Case Study

There have been a significant amount of discussion regarding the methodology of the case study. Some (see Yin, 2003) place heavy emphasis on the methods and techniques that constitute a case study. Yin (Ibid., p. 10) argues that shortcomings of the methodology of case studies often derive from researchers allowing evidence to bias and influence the direction of their findings, and that this can be remedied through following sufficiently systematic procedures. Others (see Stake, 1998; Johansson, 2003) argue that, crucial to case study research is *not* the methods of investigation, but rather the object of the study, which is the case. As put by Johansson (2003, p. 2), “as a form of research, case study is defined by interest in individual cases, not by the methods of inquiry used”. This thesis ultimately adheres to the latter, more open and inclusive definition of the case study methodology. Admittedly, this does open the study up to some of the problems pointed out by Yin. These concerns are addressed later in the chapter.

Advantages of the case study methodology can be found in its ability to base research on a breadth of different data material, with a flexibility that makes it suitable to illuminate or explain complex phenomena in ways that experimental- or survey research often fail to capture (Zaidah, 2007, p. 4). However, as Yin (2003) underlines, this same flexibility poses the threat of attaining uncertain conclusions. Johansson (2003, p. 3-4) argues that the advantage of the case study methodology lies in its’ combining of elements from other research methods, as illustrated by Figure 4.1. He emphasizes that the case study is not necessarily structured by elements from

each, but that it has the ability to borrow elements from various other methods in its approach to research.

Figure 4.1: Case Study Combined Strategies



Source: Johansson, 2003, p. 3

Initially, in the preparatory stages of this project, qualitative elite interviews were intended to be the primary methodological approach to this study. However, despite some effort, no interviewees were attainable. Additionally, attempts were made at procuring official primary-source documents from the IEA, not publicly available, to incentivize an approach to document-analysis. This endeavor was also unsuccessful. These approaches might have allowed the study to lean more in favor of Yin’s emphasis on systematic case study procedures. However, given the nature of the research question and data available, I adhere to the principle that the interest in the individual case in itself is what drives the research. Considering the aforementioned factors, I conclude this to be the best approach to provide a satisfactory answer to this thesis’ research question.

4.2 Data

A short and simple definition of the purpose of scientific research is to draw inference based on data. Data, then, is defined as “systematically collected elements of information about the world” (King et.al., 1994, p. 23). In analyzing and discussing effects of changes in the energy regime complex for the IEA, I make use of various primary and secondary sources. In case study research, Yin (2003, p. 14) emphasizes the importance of including a wide variety of sources in order to best provide answers to research questions, arguing the need of “multiple sources of evidence, with data needing to converge in a triangulating fashion”. In short, data

triangulation involves using evidence from different types of data sources, such as primary- and secondary research and/or interviews, documents, publications etc. The data I make use of cover a variety of the aforementioned to ensure proper data triangulation.

The primary sources I make use of are publicly available, official documents by the IEA and the OECD. These include the IEA's own official *History of the IEA*¹, the founding document of the IEA, the International Energy Programme (I.E.P)², OECD publications such as the OECD Observer³, auxiliary publications or articles by and interviews with IEA or OECD officials⁴, as well as other official documents and information readily available through official IEA and OECD channels. In addition to that, I also make use of energy data and statistics to illustrate my findings.⁵

Considering the aforementioned unavailability of interviewees and official, non-public documents, I make use of a variety of secondary sources to supplement the analysis. These sources include journal articles and other forms of academic literature, as well as newspaper articles. Most of the newspaper articles are collected from sources such as *Financial Times* and *Reuters* freely available through online searches⁶. Additionally, some of the secondary academic literature contains primary source-level data such as citations from and interviews with (often anonymous) IEA or OECD officials.

4.3 Strengths and Weaknesses of the Study: Validity and Reliability

4.3.1 Validity and Reliability

According to Yin (2003, p. 19), case study designs should attempt to maximize four conditions related to design quality: (1) *construct validity*, (2) *internal validity*, (3) *external validity* and (4) *reliability*. Validity and reliability are two very common concepts in scientific research, and

¹ By Scott (1994A;1994B;1995A) and Bamberger (2004)

² Freely available through IEA's website (IEA, 2014A).

³ Official OECD-published magazine presenting "concise, authoritative analysis [on] economic, social and environmental issues, [aimed at] policymakers, businesspeople, NGO's, journalists and researchers" (OECD, 2017).

⁴ As mentioned, I was unable to attain respondents for primary interviews. Several secondary publications and interviews are available, however, through sources such as Lantzke (1975), Priddle (2007) and IEA (2015A).

⁵ Primarily gathered through BP (2017), EIA (2016; 2017) and various IEA publications.

⁶ Note: Some of the newspaper articles (mostly from *Financial Times*) were behind paywalls at the time of writing.

despite some scholarly disagreement regarding the relevance some of these criteria, they are commonly regarded as important in assessing the quality of qualitative research (Bryman, 2016, p. 383).

Validity is related to measurements, or more specifically, that we are measuring what we think we are measuring (King et.al., 1994, p. 25). Construct validity refers to establishing correct operational measures for the concepts being studied (Yin, 2003, p. 34). Internal validity refers to the approximate correctness of inference regarding causal relationships in the research (Trochim, 2006A; Yin, 2003, p. 34), or, as Gerring (2007, p. 2017) puts it: “the correctness of a hypothesis with respect to [the particular case studied by the researcher]”. External validity refers to the degree to which findings can be generalized beyond the particular study, across settings (Bryman, 2016, p. 384)

Construct validity is often a sore point of case study research, as it often comes under scrutiny for not having developed sufficient operational sets of measures, relying instead on “subjective” judgements in collecting the data (Yin, 2003, p. 35). This problem will be elaborated upon in later sections of the chapter. However, Yin does present some tactics to counteract this subjective judgement. Among these is using multiple sources of evidence. This papers’ use of data triangulation thus aims to counteract issues of construct validity.

Compared to other types of research designs, case study research (or within-case studies) tend to have inherently strong internal validity, but also weaker external validity (Gerring, 2007, p. 43). As established, generalization as per external validity is not an aim of this paper. Regarding internal validity, Yin (2003, p. 34) argues this is primarily of concern to causal studies, not descriptive studies. The role causation plays in this paper is arguably somewhat debatable. The aim is not to establish a complex, direct causal chain between variable X(‘s) and Y that led to the changes in the energy regime complex, separating actual causal conditions from spurious effects. Instead the aim is to showcase how the IEA’s institutional environment has changed drastically since the agency’s inception. This illustration is descriptive in nature, only drawing “conclusions about particular phenomena in a bounded context that [...] only applies to a single case” (Miles and Huberman, 1994, p. 90). Causation is found in analyzing the *effects* these changes have for the IEA. Assessing these effects is arguably synonymous with causation, and here causation is assessed in such a broad nature, under such clear circumstances. It follows from this that internal validity is strong.

Reliability is related to the methods of data-collection, and refers to the ‘consistency’ of the content in the study. As Trochim (2006B) puts it: “a measure is considered reliable if it would give us the same result over and over again (assuming that what we are measuring isn't changing)”. In other words, reliability means that applying the same procedure in the same way will always produce the same measure. Reliability is strong if a later researcher applies the same procedures as an earlier researcher, conducts the same study over again, and arrives at the same conclusions as the earlier researcher (Yin, 2003, p. 37). In the case of my thesis, this essentially means that other researchers, by using the same sources I use, will reach equal or similar conclusions. Case studies are very flexible in nature, however, and are rarely replicated to the point of being identical or close to identical.

In my paper, it is difficult to provide accurate measurements to reliability. Most of the data I use for this paper is drawn from written, publicly available sources, and all are referenced both in the text and in the appendix. This makes the content of the sources quite transparent and verifiable, and should serve to strengthen reliability. Data based on field-observations or interviews, for instance, are more difficult to replicate and verify. A considerable challenge this research design (and others like it, for that matter) inevitably faces, is the potential for *selection bias*. As laid out by King et.al. (1994, p. 128), this refers to when the researcher, knowing full well what he or she *wants* to see as the outcome of the research (or when craving the confirmation of a hypothesis), selects data and observations on the basis of variables that support the desired findings or conclusion. This can happen subtly or less subtly, and (perhaps more dangerously so), subconsciously. Indeed, many critics of the case study method argue that study of small number of cases offers little to no ground for establishing reliability, and that intense exposure to the study of a case runs the risk of biasing the findings (Soy, 1997).

Unfortunately, there is no sure-fire way to accurately verify that selection bias can be disregarded entirely in my research, or that bias may have affected selection of observations in some way. This can feasibly lead to others not necessarily arriving at the same conclusions as I. Solid documentation of references remains this study’s primary way of ensuring reliability.

4.3.2 Strength of Inference

King et.al (1994, p. 46) defines inference as the process of using facts we know to learn something about facts we do not know. When it comes to drawing inference, however, as per the King et.al’s definition of scientific research, all knowledge and all inference is inherently

uncertain (Ibid, p. 31). While sources of error may differ over different research designs, inference is, by definition, an imperfect process. Uncertainty over inference in case studies often comes from the tendency to attach more significance to evidence that correspond to the theoretical expectations (George and Bennett, 2005, p. 99). However, as Bennett and Checkel (2014, p. 29-30) argue, during the scientific process of uncovering details and sequences of events, it can be useful to revise theoretical expectations. In the case of this thesis, modifying and attaching certain values to differentiate between the strategic and functional logic may then contribute towards increasing the certainty of inference.

As argued by Underdal (2002B, p. 49), a major challenge for single-case research on topics of international politics is that key variables identified in the models and theories call for a large degree of judgmental assessment rather than straightforward observation or measurement. As mentioned earlier this criticism is underlined by Yin (2003), and cited as the reason for why certain researchers disdain the case study strategy. It is difficult to formulate an exhaustive set of precise and operational criteria to guide the judgmental assessment this analysis inevitably entails, when compared to for instance statistical analysis of variables with an objective nature. Consequently, the process becomes less transparent, and the results less reliable. Thus, the inferences drawn in this thesis are ultimately and inevitably associated with some degree of uncertainty.

5 The Early Decades of the IEA and the Energy Regime Complex

This chapter addresses the circumstances of the IEA and the ERC during the years in which the IEA was created and shaped. I establish that the strategic logic was the dominant logic explaining the ERC during this time. The purpose of this chapter, then, is to assess the interplay between the IEA and a global energy architecture as pertaining to the strategic logic, and determine the IEA's goodness of fit within this institutional environment. The aim is to draw on this in subsequent chapters when assessing how later changes to the ERC affect the IEA.

The energy regime complex during the decades after the creation of the IEA largely consisted of the IEA and OPEC, with relations defined by adversarial hostility between the two. This was hardly surprising given the context that prompted the creation of the IEA. Indeed, relations between OPEC and the IEA for the first few decades after its creation were so hostile and politically sensitive that they were not even on speaking terms, communicating with each other only indirectly through the media (Van de Graaf and Lesage, 2009, p. 300).

5.1 Pre-IEA: Events Leading to the Oil Shock of 73' and Subsequent Creation of IEA

The primary agenda in global energy prior to the creation of the IEA was that of oil, after it became the first fuel to be traded internationally in large quantities sometime after the end of WWII. Global energy relations during this time was largely defined by hostile relations between two primary factions: oil consumers and producers. Major consumers consisted largely of Western states, with the United States at the helm; whereas the major producers were primarily states from the Middle East, spearheaded in many respects by Saudi Arabia. Indeed, as much as 85% of imported oil to Western Europe before the IEA were created came from the Middle-East (Bromley, 2005, p. 230).

These two factions would usually counteract one another on the global oil market through means of cartelization. In relation to oil, an apt definition of a cartel is “a single seller, or group of sellers, operating in unison to reduce output level below competitive levels in order to obtain a price above competitive levels” (Claes, 2001, p. 240). From the consumers side, cartelization was done through a series of international oil companies (IOC's) dubbed “The Seven Sisters”

(see Sampson, 1976). The power these companies had in influencing the oil producers ensured, for a relatively long period of time after the end of WWII, “a remarkably stable system of relationships [...] providing the companies with ample profits and the consumers in industrialized countries the import of petroleum at declining real prices” (Keohane, 1982A, p. 165). Key to the success of the consumers achieving this dominance through the IOC’s was the United States’ sufficient capacity to provide oil security to the industrialized consumer countries should issues of oil supply arise (Scott, 1994A, p. 27).

During this pre-IEA era, we can trace the creation of two organizations that would have a major impact on the oil crisis that led to the creation of the IEA - OPEC⁷ and OAPEC⁸. Both ultimately came about as political and economic responses to Western dominance in global energy relations (see Van de Graaf, 2013, p. 48; Danielsen, 1982, p. 153). As discussed in the introductory section of the paper, these two organizations each played pivotal role in causing the oil shock of 73 that would lead to the creation of the IEA.

Come the 70’s, consumers had developed an excessive reliance on import of oil, which created serious risks of energy crises and durable problems of energy supply management. Producers took advantage of this by pursuing a series of policies to increase their grip on the oil reserves. What followed was a surge in resource nationalism that placed the majority of reserves under state control. This fundamentally altered the international oil game, as OPEC wrenched control of its national oil and gas sectors, and essentially replaced the Seven Sisters as the dominant global cartel, with OPEC countries now able to set prices on the global market (Bradshaw, 2013, p. 49; Van de Graaf, 2013, p. 51-52). The world oil market thus effectively transitioned from a buyers-market to a sellers-market (Scott, 1994A, p. 28), which set the stage for the oil shock of 73 and subsequent creation of the IEA.

⁷ Established in 1960 by founding members Venezuela, Saudi Arabia, Iran, Iraq and Kuwait

⁸ Established in 1968 by founding members Kuwait, Saudi-Arabia and Libya

5.2 IEA: The Early Years

5.2.1 The Circumstances Surrounding the Creation of the IEA

The major oil consumers reacted to the 1973 oil shock in an uncoordinated and competitive manner, some pressuring their oil companies into giving them preferential treatment, and others imposing restrictions on the export of petroleum (Colgan et.al., 2012, p. 125). As noted in the documents on the official history of the IEA (Scott, 1994A, p. 19), the major consumer countries of the OECD had accepted for some years prior to the creation of the IEA the short-term luxury of growing oil import dependence, and as such, they were themselves largely responsible for the very predicament in which they found themselves. The OECD-countries' contributions to the extent of the crisis included excessive reliance on imported oil, insufficient investments in exploration and exploitation of alternative energy sources, and in diversification of energy sources and development of energy technologies. OECD countries were also lacking in other key areas, such as in their woefully underdeveloped conservation- and energy efficiency measures, their inadequate collection and use of data on the operation of the oil market and an absence of arrangements for workable systems of oil supply shortfall management. As Scott points out, however, the OECD-countries "realized the scope of these shortcomings and joined to take rapid and decisive action to remedy the situation and address the aforementioned shortcomings through organized international cooperation". To this end, the IEA were created.

The IEA was thus established as an organization to tackle issues of energy security. In the simplest sense, energy security can be defined as "reliable and adequate supply of energy at reasonable prices" (Ciută, 2010, p. 126). The concept of energy security is quite broad, however, consisting of many dimensions with both long- and short-term implications. Long-term energy security primarily deals with timely investments to supply energy in line with economic development, as well as sustainable environmental needs. Short-term energy security, on the other hand, is focused on the energy sector's ability to react promptly to sudden changes within the supply-demand balance. The latter of these was the primary focus of the IEA at the time. A lack of energy security, then, is tied to the negative economic and social impacts of either the tangible unavailability of energy, or prices that are overly volatile or not competitive (Zhu, 2016, p. 28).

The realities surrounding the creation of the IEA were more strategic and confrontational in nature than the aforementioned evaluation would have it appear. At the time, the United States was the primary superpower of the Western world, and they played a considerable part in the creation and subsequent shaping of the IEA. While some Western nations remained largely self-reliant, the U.S was experiencing a drastic increase in oil-import dependence. By the early 70's, they had gone from being largely self-reliant on oil production to becoming quite dependent on imports. By the time of the 73' oil crisis, more than one third of U.S oil was imported, and almost half of U.S energy consumption stemmed from oil (Remen, 2007, p. 35). The United States had long benefitted from the company-dominated oligopoly of the Seven Sisters. With OPEC overtaking the role as the dominant price-driving cartel on the international oil market, the U.S needed to respond (Van de Graaf, 2013, p. 51-52).

Thus, after the oil shock plunged Western oil consumers into a crisis, the U.S took the initiative to set up the IEA. At the behest of then-American Secretary of State, Henry Kissinger, the IEA was established as an autonomous agency within the framework of the OECD (Van de Graaf and Lesage, 2009, p. 312). Originally, the U.S envisioned the IEA as an anti-OPEC measure, an authoritative organization for multidimensional cooperation among OECD countries with the aim of limiting oil imports and stimulating non-OPEC production. Kissinger intended to organize the oil-consuming nations into a unified group that would resist the power of the OPEC-cartel, and generally strengthen the West. The assumption was that, if demand could be curtailed, OPEC would be unable to reduce output, and would consequently be forced to lower their prices. The IEA would then provide the oil consumers with an ideal platform for negotiating with OPEC (Leverett, 2010, p. 247; Katz, 1981, p. 69-70).

For a variety of reasons, this vision of the IEA did not come to pass. For one, the U.S never consistently or effectively pursued policies that would have enabled them to meet this serious vision of reducing overall oil-demand. Additionally, other large oil consumers in Europe, as well as Japan, were considerably more vulnerable to oil supply disruptions than the U.S, and were thus wary of following Kissinger's strategy of confrontation - out of fear of antagonizing OPEC-nations who were, after all, in control of their economic lifelines. This was precisely the reason why France did not initially join the IEA⁹, despite the agency somewhat ironically

⁹ France did eventually join the IEA in 1992.

having its headquarters in Paris. France also feared that an organization of consumer nations led by the United States would only amplify the impression of confrontation, and lead to further deteriorating relations with oil-exporters, and subsequent cuts in oil supplies (Walton, 1976). This initial failure led to many critics and commentators at the time dismissing the IEA's contribution in global energy as potentially insignificant (Leverett, 2010, p. 247). While some lauded the IEA as “the first line of defense against disastrous interruptions of oil-supplies”, “a shield against the exertion of supplier pressure” and a “wall preventing price gouging by petroleum exporters”, others found the IEA to be only a well-intentioned but essentially innocuous forum, paralyzed by the diversity of its members' interests and lack of commitment (Katz, 1981, p. 67).

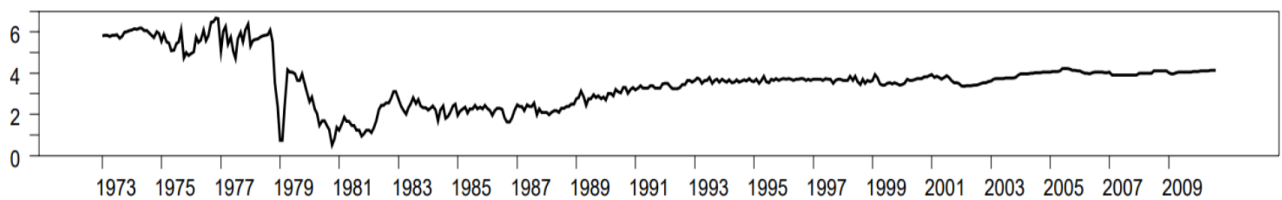
Thus, the IEA did not become the anti-OPEC measure it was originally envisioned to be. However, it did gather consumers within a solid institutional framework built around oil supply security. The founding document of the IEA, the International Energy Programme (I.E.P) came to establish the primary emergency procedures for the IEA to deal with oil supply shortcomings, the Emergency Sharing System (ESS). As this takes up a large bulk of the I.E.P, it is often regarded as the “centerpiece” of the IEA (Van de Graaf and Lesage, 2009, p. 301). It established three core commitments for IEA member states: (1) To maintain strategic petroleum reserves of 60 (later changed to 90) days' worth of net oil imports, in other words maintaining emergency oil reserves sufficient to sustain consumption over a three-month period without oil imports. (2) To restrain oil demand in the event of oil supply disruption, which in practice meant having ready programs of oil-sharing and demand-restraint measures equal to 7% of national oil consumption. (3) To participate in an oil allocation system, sharing available oil supplies if necessary during severe emergencies (Colgan, 2009, p. 6)

5.2.2 The Second Oil Shock and Decline of OPEC

Not long into the lifespan of the IEA came another oil shock, which, like the first, was heavily associated with events in the Middle East. Over the course of the late 70's and early 80's, two separate events took place, often perceived as a singular oil shock due to them occurring in such short succession. First, Iranian output, and world oil supplies by extension, were reduced in the wake of the Iranian Revolution in 1979. Although Iranian production increased to about half of pre-revolution numbers later that same year, it was knocked right back down again upon the outbreak of the Iran-Iraq war in 1980 (see Figure 5.1). The combined loss of production would

amount to roughly 6% of total world production at that time (Graefe, 2013; Hamilton, 2011, p. 16-17). Despite a supply loss of only about one-twentieth of global oil demand outside of the centrally planned economies, the shortage lasting only about three months, and OPEC oil-production rates reaching record heights (OECD, 1980, p. 10), the market reacted to the shortfall in a wildly exaggerated manner, causing what came to be known as the second oil shock.

Figure 5.1: Iran Monthly Oil Production Rates in mb/d



Source: Hamilton (2011, p. 45)

While the market had been relatively balanced in the years following the first oil shock and prior to the second, the market's reaction to these events was a price-explosion, as indicated by Figure 5.2. This oil shock had serious economic ramifications for the OECD: it contributed to a fall in the OECD economic growth rate from 3,4 percent in 1979 to minus 0,5 percent in 1982, inflation increased from 8 percent in 1979 to 12 percent in 1980, and unemployment in OECD countries rose from 18,9 million in 1979 to 24,7 million in 1981. According to OECD economists, the second oil shock cost each individual man, woman and child in OECD countries \$1,300¹⁰ (OECD, 1984, p. 28).

Importantly, it was not fundamental realities of the supply-and-demand balance that caused this price hike; rather, it was fear, uncertainty and speculation among actors on the oil market. This exposed serious shortcomings in the IEA's methods of coping with oil supply emergencies, and would eventually lead to the organization adopting a new, market-based way of coping with potential disruptions. This will be elaborated upon in chapter 7.

In the wake of the two oil shock of the 70's, Western consumer countries – with the U.S at the helm – started implementing a variety of policies aimed at countering OPEC's market dominance and reducing their own dependence on OPEC. These policies were built on the idea that market mechanisms should play a dominant role in the international oil system. Van de

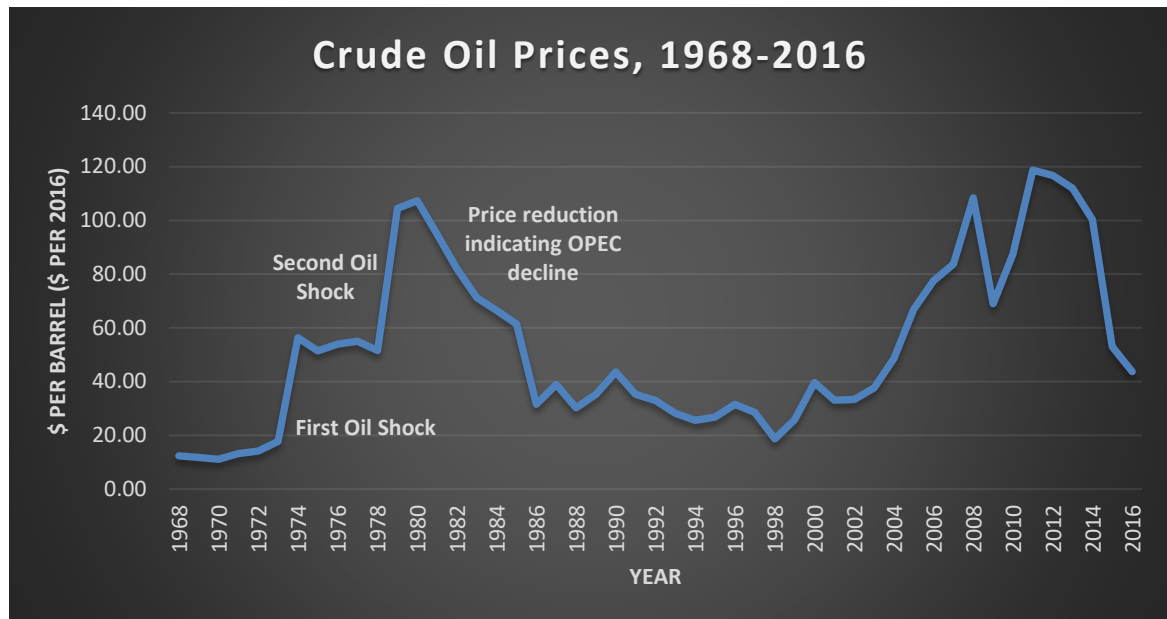
¹⁰ This is equivalent to slightly above \$3.000 today. Numbers ran through various calculators, receiving results of \$3.122 (Inflation Calculator, 2018A), \$3.135 (US Inflation Calculator, 2018) and £3.202 (Inflation Calculator, 2018B).

Graaf (2013, p. 52) illustrates two primary stages in which the U.S pushed through this liberalist oil agenda. First, during the 70's, the U.S embraced a strategy of so-called "circumscribed liberalism". This encompassed strict regulatory policies designed to shield consumers from rising oil prices and protect smaller oil firms domestically, while emphasizing the insurance-role played by the IEA internationally (as opposed to the market- interventionist role it was initially envisioned to have). In other words, the IEA's emergency system was only to be activated when vital national interests were at stake, not to alleviate prices during an emergency. Secondly, during the 80's when the Reagan administration took office, the U.S turned to a strategy of outright laissez-faire liberalism – that is, the complete absence of government intervention from domestic and international oil markets altogether.

In the aftermath of the oil shocks, then, as consumer nations actively attempted to reduce their dependence on OPEC, this eventually culminated in OPEC's decline. As already established, they adopted a focused switch towards a liberalized global oil market. Consumer nations would also invest heavily into research-programs aimed at developing alternatives to oil, while commercial exploration ensured developments of oil-fields outside of OPEC, such as in Siberia, Alaska, the North Sea and Mexico. Essentially, steps were taken to ensure that worldwide demand for oil would drop considerably, all the while increasing production of oil from sources outside of OPEC. This led to OPEC's market share dropping from roughly 50% in the late 70's to roughly 30% by the mid 80's (Boussena, 1994, p. 68).

Up until this point, the supply-and-demand balance on the global oil market since the late 60's and early 70's had effectively let OPEC set prices and production rates. However, with the increase of supply from other regions leading to uncompetitive OPEC prices and the general lowered demand for OPEC oil, they struggled to keep up the effective cartelization. In fact, in an attempt to drive the cartelization during these market developments, OPEC introduced a formal production quota system for its members in 1982, however it proved ineffective, as most OPEC members ended up producing above the quota. Eventually, in 1985, Saudi-Arabia, the most important OPEC-member, abandoned the administered pricing system that had driven their cartelization, and adopted instead a formula-based pricing where price markers were derived from the market rather than by OPEC directly. This was the culmination of the international oil market moving towards market-based pricing, which saw OPEC lose control of its cartelized administering of price-setting, and opened a new chapter in the history of the oil marked (Fattouh and Sen, 2016, p. 77-78).

Figure 5.2: Crude Oil Prices, 1968-1990



Source: BP (2017)

As Kuzemko et.al. (2016, p. 65-67) notes, in order to drive effective cartelization around a particular product, there is a requirement for the inclusion of a producer who can ensure large excess capacity of the product in question. This producer can then provide the discipline and control necessary to engage in cartelization. During the era of the Seven Sisters, the United States was a big producer of oil in addition to being a major consumer of it, which allowed them to act as such a guarantor. In OPEC's case, Saudi Arabia's enormous oil reserves, production capacity, stock in foreign currency holdings and ability to absorb potential losses enabled OPEC to effectively manage supply and minimize price variation. However, cartels can also be inflating and self-defeating by nature. Given inelasticity in demand, the more successful a cartel is in cooperating to reduce production, the greater the profits will be for the cartel. Yet, the more profitable the cartel becomes, the bigger the incentive is for a market response to move away from the cartelized product, or to diversify sources of supply away from the cartel. This is precisely what would come to dethrone OPEC after its peak cartel years.

5.3 Examining the Structure and Functions of the IEA

This section will attempt to examine the functions and structure of the then-newly formed IEA in light of an ERC defined by the strategic logic. Upon the creation of the IEA, the I.E.P,

established that the Agency should consist of a *Governing Board*, a *Management Committee*, a *Secretariat* and various technical *Standing Groups* each delegated specific task areas. Additionally, the Agency should have a dedicated Secretariat to assist the aforementioned organs in their tasks (IEA, 2014A, p. 23).

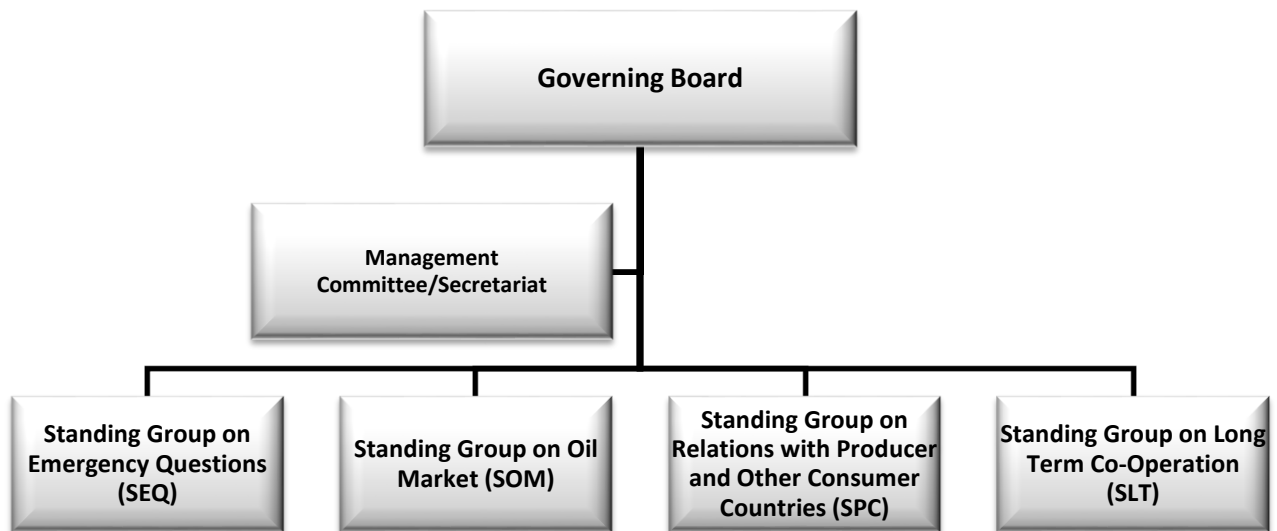
The Governing Board was established as the main decision-making body of the IEA, to act as “the body from which all acts of the Agency derive”, having the last word on matters of Agency policy, commitments of member countries made under IEA auspices, and everyday operations of the agency (Scott, 1994A, p. 157). The Management Committee, composed of senior representatives of member states’ governments, was tasked with carrying out functions assigned to it in and any other function delegated to it by the Governing Board. It would act as an intermediary body between the technical Standing Groups and the Governing Board (Ibid., p. 228-229). The Secretariat, meanwhile, consisted of highly qualified personnel, each deriving from individual member countries, however remained impartial from their respective countries in representing the agency (Ibid., p. 241). As for the Standing Groups, four major groups were established at the outset with the purpose of carrying out the day-to-day operations of the Agency under guidance of the Governing Board: A Standing Group on *Emergency Questions* (SEQ), on the *Oil Market* (SOM), on *Long Term Co-operation* (SLT) and on *Relations with Producer and other Consumer Countries* (SPC) (Ibid., p. 230). While the I.E.P permitted the Governing Board to establish additional organs as it deemed fit, no other Standing Group have been established to this day. Certain new committees and organs have been established by the Board, however, such as the Committee on Budget and Expenditure (CBE) and the Committee on Research and Development (CRD)¹¹.

As opposed to Board-created organs and committees, the Standing Groups were created by I.E.P Agreement and not by the Board itself, and thus enjoyed “treaty status”, with mandate provided broadly by the I.E.P rather than by the Board directly (Ibid., p. 217-218). All of the Standing Groups were each given a clear relationship with the Secretariat, and thus, virtually all substantive matters of consequence that made its way to the Governing Board had previously been discussed at least to some degree in a Standing Group. It follows then, that whenever a case would make its way to the Board, it would usually be preceded by some degree of overlapping discussion in-between the Secretariat and a Standing Group. Thus, when assessing

¹¹ Later renamed Committee on Energy Research and Technology (CERT).

the agenda of the Standing Groups, one would essentially be assessing the agenda of the IEA (Keohane, 1978, p. 934).

Figure 5.5: Basic Overview of Initial IEA Organizational Hierarchy



Source: The Author

Note: Figure is intended to provide simple overview and does not account for subsequent organs and further complexities in IEA organizational structure

Standing Group on Emergency Questions (SEQ)

This standing group was predominantly tasked with handling the core issue for which the IEA was created; developing systems for coping with emergencies that might threaten the oil supplies of IEA countries (IEA 2014A). The Secretariat had the power to make ‘findings’ on when reduction of oil supplies to IEA countries occurred, and trigger mandatory demand restraint when necessary. As the Secretariat was designed with strict impartiality from individual countries, the system was designed in a way as to prevent singular powerful IEA-members from overturning Secretariat decisions. In practical terms, this essentially meant that neither the most influential member of the IEA, the United States, nor particular groups of European countries, could block the Secretariats trigger by acting alone. The European countries would have to agree in unison, whilst the United States would need support from several other countries in order to block a Secretariat trigger (Scott, 1994B, p. 90).

Upon the Secretariat triggering emergency provisions, various actions by national governments would become mandatory. For instance, governments needed implement measures to restrain domestic oil demand and accept IEA allocations of oil as established in the I.E.P. However, formal sanctions were not provided for the IEA by the I.E.P. Thus, other forms of punishment needed to be established upon member countries' potential non-compliance. Any country that failed to meet obligations imposed by the IEA were denied benefits under the agreement outright. For instance, if a net importer reneged on its obligations during an emergency and purchased more than its share of oil abroad, the IEA would request international oil companies to ship their oil elsewhere to compensate for the 'illegal' oil being reaped by the renegade government. As for the major oil companies, the IEA held no direct official sanctions on these, but cooperation between them were incentivized given how IEA guidelines provided legitimacy for company allocations of oil – thus relieving companies of the necessity to cope with conflicting demands (Keohane, 1978, p. 935).

However, certain shortcomings of this emergency system showcased its reliance on individual member countries. For instance, if oil companies were to refuse to cooperate with the IEA during emergency triggers, perhaps out of fear of actions against it from an oil-producer state, the IEA would need to depend on its home governments for legal sanctions. The emergency system leveraged particular reliance upon the United States, given their political superiority and domestic levels of oil production. While theoretically possible for the emergency system to be put into effect despite U.S resistance, this was virtually inconceivable in practice (Keohane, 1978, p. 936).

Additionally, controlling oil prices on the international markets during potential emergencies were beyond the reach of the IEA. As per Keohane (Ibid.): "If the parties cannot settle the issue [of settling oil prices], final resolution would be sought through normal commercial channels, including possible binding arbitration, outside of the IEA, or litigation. Thus IEA action will not foreclose the possibility of severe and prolonged disputes over prices of oil shipped during an emergency". Thus, essentially, price-setting of oil on international markets were left in the hands of individual states and companies.

The power and influence the United States' had in this Standing Group, and the primary function of the IEA by extension, was highlighted by the second oil shock, as the U.S' circumvented the IEA's formal allocation systems. As Keohane (1984, p. 229) argues: "The most remarkable aspect of the IEA's behavior during the 1979 crisis was not what it did, but

what it did not do. Despite efforts that had been devoted to establishing an emergency oil-sharing system over the previous years, this arrangement was never activated”. After the events that lead to the second oil shock, the IEA, rather than utilizing its emergency provisions, resorted instead to informal measures by facilitating oil shipments to countries suffering shortages in these crises. This was much due to the preferences of the powerful states like the United States preferring the allocation system not be activated. While for instance Sweden formally requested the system be activated during the oil shock, the U.S was able to override the preferences of the weaker states (Colgan and Van de Graaf, 2015, p. 465-466).

Standing Group on the Oil Market (SOM)

The SOM was responsible for establishing information systems on situations in the oil markets and activities of oil companies, as well as consulting with them on important aspects of the industry. This Standing Group was mainly established at the behest of IEA member countries who were net oil importers but did not control any major international oil company, as they were seeking a system to gain additional information about company pricing policies on the oil market. This would allow them to compare import costs for oil they imported against IEA figures, and thus assess the reasonableness of the prices that they paid. The SOM would report data on oil prices using information supplied by its members governments, which would result in a highly divisive issue within the IEA; whether the agency would receive disaggregated data from governments, supplied in a company-by-company basis, or whether governments would put all the data into aggregate form before submitting it.

The majority of the member countries expressed views preferring disaggregated data, on the basis of ensuring full transparency on the oil market. The bigger states such as the United States and the United Kingdom, however, preferred aggregate data, fearing that disaggregated data would facilitate collusion among oil companies and undermine U.S antitrust law. Additionally, they argued that compelling companies to supply commercially sensitive information to the IEA might jeopardize cooperation between oil companies. Eventually the Governing Board approved a proposal that was an attempt at a compromise, whereby aggregate data would be used, however the Secretariat would review disaggregated data with one or more participating country only if it found anomalies in the aggregate data. Hence, while the majority of the IEA leant heavily towards disaggregate data, U.S influence remained the crucial factor in determining the direction taken by the Board. The United States, together with some other IEA

member countries, were able to force a compromise that was in fact far more in line with U.S interest than the interest of the IEA at large (Keohane, 1978, p. 937-938; p. 947).

Standing Group on Relations with Other Producer and Consumer Countries (SPC)

As an agency established within the framework of the OECD, the IEA exhibited clearly its Western, transatlantic nature. However, it was not lost on its founding fathers that management of external relations was important. This was established in the I.E.P, as it does provide a broad framework for cooperation with other countries and organizations. Indeed, the SPC was primarily concerned with issues relating to global governance and cooperation towards addressing a wide variety of energy issues – factors pertaining to the functional logic. In fact, at the very outset of the Agency, this was a primary concern of then-Executive Director Ulf Lantzke. In a paper published not long after the establishment of the Agency, he noted that, as the Agency was not territorially limited, it had strong potential to provide for international energy cooperation on a world-wide basis. In the conclusion of his paper, he affirmed that:

“The improvement of relations between producing and consuming countries is of vital importance to both sides. For a considerable time to come, [consumers will depend on producers] for securing their oil on reasonable terms, [and producers will depend on consumers] for good relations with the industrialized world. Both sides stand to gain through an amicable development of their relations; both stand to lose by a continuation of adversary or restrictive policies. [...] The basis for long-term cooperation has been established; the idea that [oil consumers and producers] have common interests has made very considerable progress”

(Lantzke, 1975, p. 225-227)

However, while the IEA’s founding fathers certainly foresaw its need, this Standing Group existed with relatively little strength in the agency. As per Keohane (1978, p. 939), the majority of functions within the IEA were largely focused on relations in and among its own members. The activities of the SPC was only loosely connected to the work of the rest of the agency. Indeed, this Standing Group’s lifespan was ultimately short-lived, and often regarded as disappointing. The SPC lost many of its functions to an Ad Hoc group established already in 1977¹² (Scott, 1994B, p. 329), and was later rebranded entirely into the Standing Group on Global Energy Dialogue (SGD) (IEA, 2018A).

¹² Which in 1990 became Committee on Non-Member Countries (NMC)

Standing Group on Long Term Co-Operation (SLT)

This Standing Group was mandated by the I.E.P to “examine and report to the Management Committee on cooperative action [in areas such as] conservation of energy [...], development of alternative sources of energy [and] energy research and development¹³” (IEA, 2014A, p. 20-21). Lacking powers of enforcement, the IEA would depend heavily on having power over governments through influence, and in this way the SLT was particularly acute. An example is seen in the establishment of “The Twelve Principles” in 1977 (OECD, 1977, p. 9-10). These twelve principles were designed to instruct governments on a variety of energy policy issues, including issues on domestic energy prices, energy conservation, energy research and development and energy policy planning. With its I.E.P-mandated task of examining and reporting on these actions, the SLT could essentially utilize these review processes to prod or embarrass governments who had failed to live up to the policy practices demanded by the IEA (Keohane, 1978, p. 942). While the practical efficacy of this power-exertion is difficult to measure, an unnamed high-rank IEA official claims in an interview (Ibid, p. 949) that “pressure by colleagues, and the internal discussions to the effect that governments are not living up to their commitments, are quite effective”. Thus, the SLT enjoyed a strong position in the organization.

5.3.1 Concluding Discussion on the Structure and Functions of the IEA

Given its mandates, relative soft-power over member-states and the formally impartial nature of its structure, the IEA was clearly designed in a way that saw significant derogation of national sovereignty of oil. Clearly, then, it made the IEA a central actor in global energy governance of energy security (Florini, 2011, p. 41), which did after all make up the bulk of the ERC at the time. However, in reality, many of the formal decision-making processes of the IEA in its early days are adequately described by the strategic logic’s focus on state power and interest – primarily the interest of its most powerful state, the United States. As Keohane (1978, p. 945) noted: “The student of the IEA, faced with the question of which country is the most influential in the organization, has an easy task”. The U.S did, after all, take the lead in establishing the organization, utilizing its power as a leader of western military- and political alliances. In fact, according to Kapstein (1990), the U.S, during the drafting phases of the IEA, threatened

¹³ Later reallocated to the CRD (Keohane, 1978, p. 939)

uncooperative allies with partial NATO troop withdrawals. The United States followed it up with consistently trying to develop and settle the organization's functions, which was borne out with much success on the U.S' part, despite majority interest conflicting on a variety of organizational issues. U.S cooperation was ultimately essential for the IEA to perform its tasks of operating oil emergency schemes and oil-market information systems. This led to observers noting that "nothing important can happen in the IEA unless the United States desires it", and that "the United States cannot be considered a member like any others in the IEA. It is the equivalent of Saudi Arabia in OPEC, though even more dominant" (Colgan and Van de Graaf, 2015, p. 465).

While the foundation for tackling issues of the functional logic was certainly established and nested within the IEA, its formal functions and structures clearly reflect that the organization was created and shaped under the ERC of the strategic logic.

5.4 Summary of Findings: Assessing the IEA's Goodness of Fit

During the decades before and after of the creation of the IEA, multilateral governance in international energy relations was clearly dictated by state power and interest, driven largely by the interests of the most powerful states among producers and consumers. Nature of relations were hostile, even to the point of exclusion of direct dialogue. The level of complexity, too, was low, with oil security being largely the only energy-issue addressed, and institutions making up the ERC being the IEA and OPEC. Clearly then, the strategic logic was the dominant logic in explaining the energy regime complex during this time.

The story of the ERC of the strategic logic in the decades pre- and post IEA-creation was largely a story of producers and consumers wrestling for political and economic power on the global oil market. During this time, energy security was largely the only governance arena being addressed in the global energy architecture, as the ERC only really demanded institutional governance of oil security. Indeed, the IEA was created with this particular purpose in mind, as consumers created the IEA in response to producers asserting power on the global oil market at consumers' expense. Attention leveraged upon issues of other governance arenas can be seen as having some tie to energy security at large, and in practice, energy- and oil security was largely the only issue the IEA existed to address.

The IEA did not become the pure anti-OPEC measure as was initially envisioned. It failed to tackle a new oil shock a mere half-decade after it was created. Yet, it is easy to argue that the IEA's goodness of fit within this institutional architecture of the strategic logic was quite strong. Consumers' general unpreparedness and carelessness towards increasing oil import dependence is what allowed producers to wrench power from consumers in the years before the IEA was created, and the agency came into existence exactly to address these deficiencies. Despite initial shortcomings, the organization provided consumers with a solid institutional energy security framework, which is exactly what they had been lacking. Considering the ERC of the strategic logic had its primary agenda pertain to energy- and oil security, and the IEA represented the large bulk of major consumers, it follows that its goodness of fit within this ERC of the strategic logic was strong. The IEA functioning as a security measure among consumers during their focused shift towards a laissez-faire oil market, which eventually saw the decline of OPEC's market dominance, is testament to this.

6 Changes in the Global Energy Regime Complex

This chapter addresses changes that took place in the energy regime complex in a trend developing sometime in the late 80's or early 90's, essentially leading to the global energy architecture of today. These changes saw the ERC in many ways transition from the strategic logic to the functional logic, bringing about a host of implications for the IEA. This chapter will forgo lengthy discussions on their effects on the IEA, however, as that is the topic of the next chapter. Instead, the aim of this chapter is to analyze the changes that took place in the ERC and lay the groundwork for the next chapter to assess the effects they have had on the IEA. Conclusively, this chapter assesses the IEA's goodness of fit given the observed changes in the ERC.

With the decline of OPEC and low oil-prices during the late 80's through 90's, the value of the IEA's original primary function of coordinating oil shock preparedness was threatened. Key changes were taking place in the global energy architecture, with the emerging agenda of global energy governance. At the center of this was energy actors' recognition of the need of a transition towards a sustainable global energy system. This transition encompassed a broadening of the scope of issues being tackled in the global energy architecture, as the demands for institutional governance in the ERC expanded from oil and energy security to the wide array of governance arenas (Table 2.2). Consequently, a host of new institutions came into the ERC to address the various challenges related to this. Additionally, when the IEA was established as the institutional energy security framework for consumers, oil imports among members accounted for the vast majority of internationally traded oil. Rapid economic growth and energy-demand in emerging economies such as China and India has increasingly deflated that characteristic of the IEA (Florini, 2011, p. 45). Put together, these factors meant the IEA's tasks and functions increasingly risked obsolescence (Van de Graaf, 2012, p. 235-236).

6.1 Institutional Arrangements: Towards Global Governance

Prior to the 1990's, relations between producers and consumers were primarily antagonistic. Producers would act according to their own interest at the expense of consumers, and vice versa.

The early 90's and onwards would mark a shifting trend in this regard. As argued by Goldthau et.al., (2010, p. 355-356) "the energy world of the future is unlikely to be a world of producers vs. consumers, or of old consumers versus new ones". This is owing to interdependence and shared interest among all energy actors.

This was clearly showcased by the creation of the International Energy Forum (IEF). The IEF's roots can be traced to the 1991 inaugural ministerial seminar, at the initiative of France and Venezuela, where ministers of producers and consumers gathered to discuss global energy issues. Presently one of the most inclusive global energy forums, it now consists of more than 80 participating countries, including all IEA and OPEC member countries. It also gives an important voice to key importing countries outside the IEA-framework such as China and India (Van de Graaf, 2013, p. 58). The IEF considers itself a "neutral facilitator of informal, open, informed and continuing global energy dialogue. Recognizing their member countries' interdependence in the field of energy [...] the IEF provides a neutral framework under which states can cooperate to foster greater mutual understanding and awareness of common energy interest" (IEF, 2012). Indeed, the IEA deemed themselves "strong supporters of this producer country-consumer country dialogue, and [an] active participant in the work of the forum since the beginning" (OECD, 2010, p. 41), signaling their early recognition of this shift towards cooperative relations in the energy regime complex.

This general increase in cooperative efforts through institutional arrangements are representative of the times' emerging buzz around 'global governance'. During the 1980's and 90's - not only in the case of energy, but also in scholarly literature on international politics in general - there was an emergence of discussion on the topic of global governance, and the subsequently reduced impact individual states had on the international society. As Strange (1996, p. 183) writes: "Ever since the end of the Cold War [...], scholars have set up new centers for the study of something called 'global governance'. The words are supposed to convey some kind of alternative to the system of states, yet something subtly different from world government. [...] What the sudden mushrooming of these new centers suggests though, is that the search is on for better ways of managing society and economy than has so far been achieved through the unaided efforts of individual nation-states".

The term began to become widely used in development policy circles sometime during the 80's, and from there spread among social scientists more generally. The emergence and rapid spread of this term can be seen as a result of global shifts in the past few decades such as financial

deregulation, trade liberalization and the consolidation of global production networks. These shifts are said to have eroded the capacity of traditional state-based regulations to steer society, both domestically and internationally. Whereas governance in the past was commonly assumed to be synonymous with the activities of national governments, it is today understood to also encompass activities of local and international non-governmental organizations as well as activist groups and decisions crafted in corporate boardrooms and at global conferences (Van de Graaf and Zelli, 2016, p. 55).

While some narratives of this ‘retreat of the state’ are often considered to be overstated (Ibid.), plenty of evidence suggests that non-state actors have come to play a more important role in issues of public policy. Indeed, international institutions have adopted the management of many key ventures in international energy politics where efforts of individual states fall short (see Goldthau et.al., 2010).

6.2 Towards the Functional Logic: The Sustainable Energy Transition

As for global governance in relation to energy, the functional logic establishes that there is no such thing as ‘the’ global energy challenge. Rather, energy as an issue-area consists of many different problems, where issues in the various governance arenas are often highly interconnected. In accordance with Keohane and Nye’s (1974, p. 54-55) assumption, it follows that this creates demand for global energy governance. At the center of the global energy architecture’s move towards the agenda of global energy governance is a vital issue that has seen increasing recognition among actors in the ERC in recent decades: the need to transition from an unsustainable to a sustainable global energy system, often referred to as a low-carbon energy system.

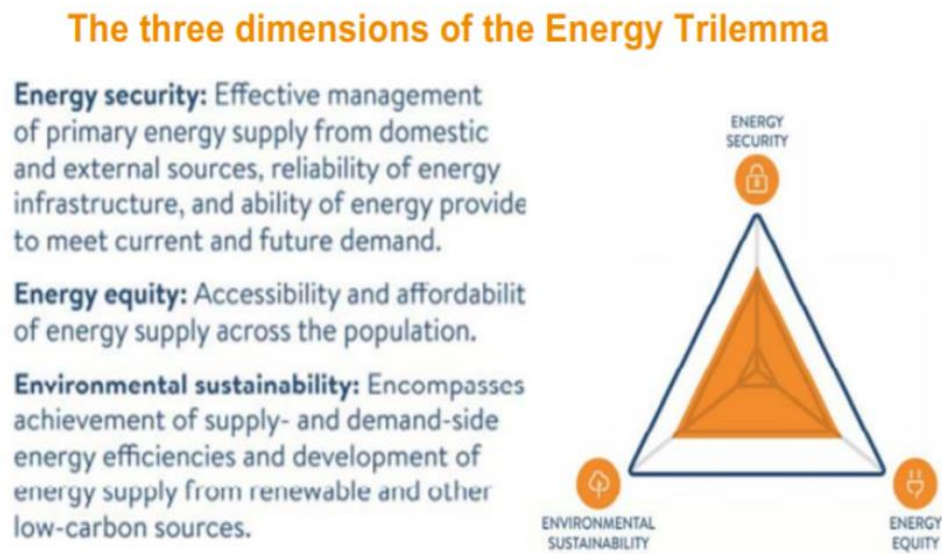
This transition from a high carbon to a low carbon energy system is vital in order to mitigate the impact energy systems have on the climate. Such a transition will likely have a drastic effect on how the world produces, transmits and consumes energy – penetrating all societal levels, from global economy to individual households. This transition will occur against the backdrop of states’ increasing interdependence of energy systems and the spread of energy externalities beyond national borders. States’ capacity to control and design their own energy systems are waning, and fewer and fewer states can continue to rely on their own energy resources. Many

states also lack the capacity to mobilize the necessary capital and expertise to acquire and implement technological solutions that are likely to accompany said energy transition, such as carbon capture and storage, nuclear energy and renewable energy facilities (Cherp et.al., p. 76). This serves to highlight the importance of institutional global governance of energy.

Indeed, the IEA concluded in 2008 that energy trends were unsustainable: environmentally, due to widespread environmental degradation and GHG emissions associated with energy use; economically, due to high and overall volatile prices on the energy market; and socially, due to the high costs of energy contributing to poverty, with billions left without access to modern energy services (IEA, 2008, p. 37; Bradshaw, 2013, p. 50). This is an issue bearing implications of increased complexity and cooperative efforts through global institutional arrangements – all aspects of the functional logic.

This sustainable energy transition is not a singular challenge, as it involves addressing a variety of overlapping issues in the different governance arenas of energy, often referred to as the ‘energy trilemma’ (Figure 6.1): Can we have *secure*, *affordable* and *equitable* supplies of energy that are also *environmentally benign*? (Bradshaw, 2014, p. 21). Solving these issues is difficult due to their complexity, as different goals associated with the different governance arenas are hard to achieve simultaneously. This trilemma in particular highlights the complex nature of pursuing the various interests of the governance arenas of energy security, environmental stability and economic development. With different actors having different needs and preferences in areas of global energy governance, solving energy problems through means of global governance inevitably involves prioritization and trade-offs that will reflect different worldviews and values (Van de Graaf and Zelli, 2016, p. 50)

Figure 6.1: The Three Dimensions of the Energy Dilemma



Source: World Energy Council (2017, p. 23)

6.2.1 The Key to the Energy Transition: Environmental Stability

Since the early days of the IEA, when the strategic logic dominated the ERC, concerns over global warming has vastly increased in all aspects of everyday life. In tandem with this, the governance arena of environmental stability has seen significantly increased attention in the ERC. While issues of other governance arenas such as energy security and economic development remain of vital importance, the catastrophic implications of the ERC's potential failure to address the issues related to environmental stability comfortably dwarf all others.

To this end, a variety of institutional arrangements have spawned in the ERC. These include a large and ever-growing body of rules and regulations managing energy-related externalities relating to the environment, most prominently the United Nations Framework Convention on Climate Change (UNFCCC), within which has spawned several international agreements such as the Kyoto Protocol and the Paris Agreement. Other examples include organizations or institutions dedicated to renewable energy sources and energy efficiency, such as the International Renewable Energy Agency (IRENA), the Intergovernmental Panel on Climate Change (IPCC) and the International Partnership for Energy Efficiency Cooperation (IPEEC), as well as various carbon-trading schemes (most notably the European Union Emissions Trading Scheme (EU ETS)).

Considerable importance, then, has been leveraged upon this governance arena with the changes occurring in the ERC. The IEA was not created with this in mind, and it would take some time for the organization to fully address these developments, which is to be detailed in the next chapter.

6.2.2 Energy Security in a Liberalized Global Energy Market

As established, the IEA was predominantly created to serve as oil consumers' facilitator of energy security under a global energy architecture of the strategic logic. Despite the ERC branching out to tackle new governance arenas with the transition towards the functional logic, the importance of energy security did not lessen. As mentioned in the introductory phases of this thesis, and as was reflected in the scholarly literature in decades past, geopolitical frames for a long time dominated debates on energy security (Van de Graaf et.al., 2016, p. 6-7). While this was a fair reflection of the realities of the ERC under the strategic logic, the transition towards the dynamics of the functional logic resulted in this view of energy security coming under scrutiny. Goldthau and Witte (2009, p. 374) argue that the "geopolitical dimension of energy security is based on the erroneous presumption that global energy politics is necessarily a zero-sum game in which one country's energy security is another's lack thereof".

Certainly, the IEA has always been at the center of global governance of energy security. However, the emergence of new institutions and initiatives exemplify an evolution in this particular governance arena. As already discussed, the IEF serves as a facilitator for global energy governance in most regards, with energy security being no exception. OPEC's role in the governance of energy security has also seen a very interesting evolution in tandem with the IEA, which is also to be discussed in more detail in the next chapter.

In short, however, post-geopolitical views of energy security sees it as having a tight-knit link to the governance arena of domestic good governance. Energy security no longer centered around ensuring satisfactory import or export of energy sources at the expense a direct adversary in a market defined by producer versus consumers. With the liberalization of the energy market, ensuring predictability of prices is vital. While oil prices were low throughout later 80's through 90's, prices have often been quite volatile in the days since (Figure 5.2). While transparency in energy markets is an activity listed under the governance arena of domestic good governance, it clearly has implications for energy market information sharing-and analysis, or energy security at large. In this regard, a variety of institutions and initiatives

have emerged to provide significant contributions. Examples include the Joint Oil Data Initiative (JODI), an organization that was founded for the purpose of increasing transparency and reliability of oil data statistics, with the aim of reducing oil price volatility on the global market (JODI, 2016); and the Extractive Industries Transparency Initiative (EITI), the “global standard for promoting open and accountable management of oil, gas and mineral resources” (EITI, 2018). Additionally, larger organizations such as the World Bank has actively promoted national revenue funds to compensate for price fluctuations in the global energy market (Carbonnier and Brugger, 2013, p. 74).

6.2.3 Observed Changes Towards the Functional Logic

Thus, at the core of changes occurring in the ERC’s is a branching out from largely tackling issues of energy security towards tackling the broader scope of governance arenas – or simply, addressing issues of global energy governance. So far this chapter has leveraged focus on the arenas of environmental stability, given its importance in the energy transition taking center stage in the ERC, and energy security, given its nature as a central aspect of the IEA. It is important to emphasize, however, that the other energy arenas are leveraged considerable importance as well.

As Bradshaw (2014, p. 20) notes, accomplishing the transition towards a sustainable energy system through global institutional governance is *not* going to happen at the cost of economic growth, as any policy aimed at reducing carbon emissions by foregoing economic growth is deemed politically unacceptable. This means that pursuing the goals of environmental stability will not come at the expense of the goals of economic development. Additionally, the activities associated with the governance arena of domestic good governance clearly hold implications for the other arenas. Assisting governments in adopting rational, best-practices in regulations can significantly assist environmental stability, while transparency in the global energy markets is vital for energy security. International security (albeit the arena receiving least attention in the ERC, to be touched upon in the next chapter) also hold implications for other governance arenas such as energy security.

The observed changes towards the functional logic in the ERC since the early 90’s in many ways occurred as a result of energy actors’ increased focus on the sustainable energy transition. Tackling the wider array of governance arenas means increased complexity. Actors’ realizations of interdependence sees relations turn cooperative through a focus on global

dialogue aimed at tackling global governance challenges. Indeed, the very existence of multilateral governance institutions like the IEF illustrated that the gap between the previously opposing factions in the ERC had been significantly reduced, and that producers and consumers adopted a less antagonistic approach to each other, concurring instead on the desirability of cooperation and dialogue. Additionally, issues of global energy were increasingly addressed through institutional arrangements of global governance rather than the traditional state-led system.

Whereas the ERC under the strategic logic largely consisted of the IEA and OPEC, changes in the institutional environment has seen the density of the regime complex increase significantly. As Colgan et.al (2012, p. 131) argue, no single account can do justice to the multiplicity of rules and institutions that make up the full energy regime complex today. This stands in stark contrast to the largely bilateral global energy architecture observed under the strategic logic.

Table 6.1: Global Energy Governance Actors Constituting the Modern ERC.

<i>Some of the Institutional Arrangements Constituting the Energy Regime Complex</i>		
G1	G2	G3
International Atomic Energy Agency (IAEA)	European Union (EU)	Kyoto Protocol
Organization of Petroleum Exporting Countries (OPEC)	G8(G7)	European Union Emissions Trading Scheme (EU ETS)
International Energy Agency (IEA)	G20	Extractive Industries Transparency Initiative (EITI)
Energy Charter Treaty (ECT)	The United Nations (UN) <ul style="list-style-type: none"> United Nations Environment Program (UNEP) 	United Nations Framework Convention on Climate Change (UNFCCC)
International Energy Forum (IEF)	World Bank	
Gas-Exporting Countries Forum (GEFC)		
Joint Oil Data Initiative (JODI)		
Latin American Energy Organization (OLADE) ¹⁴		
International Partnership for Energy Efficiency Cooperation (IPEEC)		
International Renewable Energy Agency (IRENA)		

G1: International organizations or forums focused on energy issues.

G2: Larger organizations branching out towards energy issues.

G3: International regimes, rules, regulations and collaborative initiatives influencing the energy sector

Note: This Table serves as an illustration of the increased density of the ERC. It does not reflect its entirety, or take into account role played by various non-state- and commercial actors (See Van de Graaf and Zelli, 2016, p. 60-63).

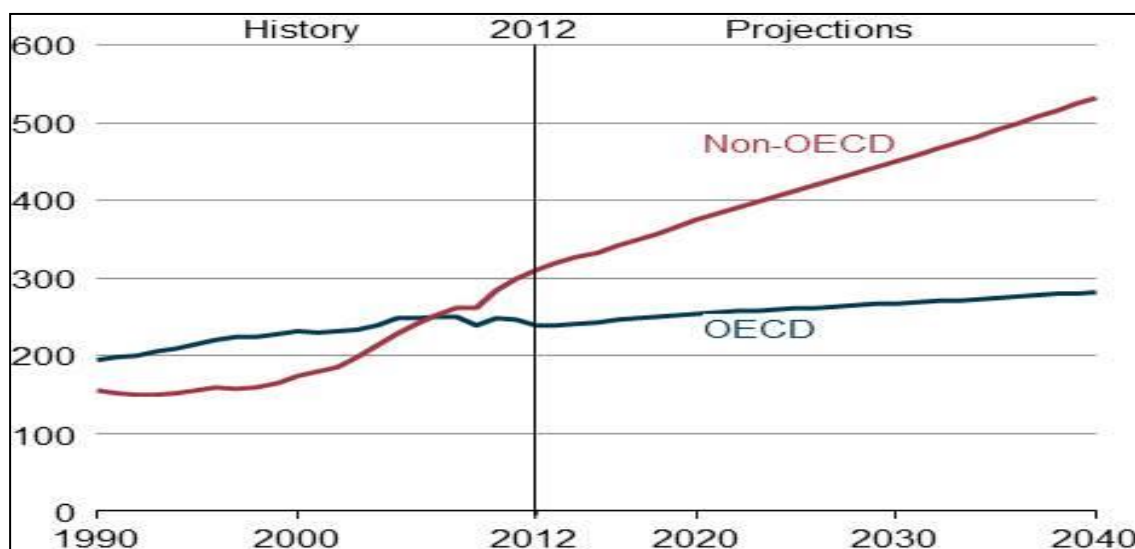
6.3 A Multipolar World of Energy Politics: The Rise of Emerging Consumers

Despite the general buzz around the idea of global governance through institutional arrangements as an alternative to the traditional, state-led international energy system, the role of the state in the energy sector remains crucial. After all, energy is still primarily governed and addressed at the national level of government (Van de Graaf and Zelli, 2016, p. 55). Indeed, institutions possess an inherent limitation in that energy sovereignty ultimately lies with states, given their “right [to] determine exploration, development, and disposition of energy resources as well as the structure of the sector” (Dickel, 2010, p. 102).

¹⁴ Acronym taken after original Spanish title of the organization, Organización Latinoamericana de Energía

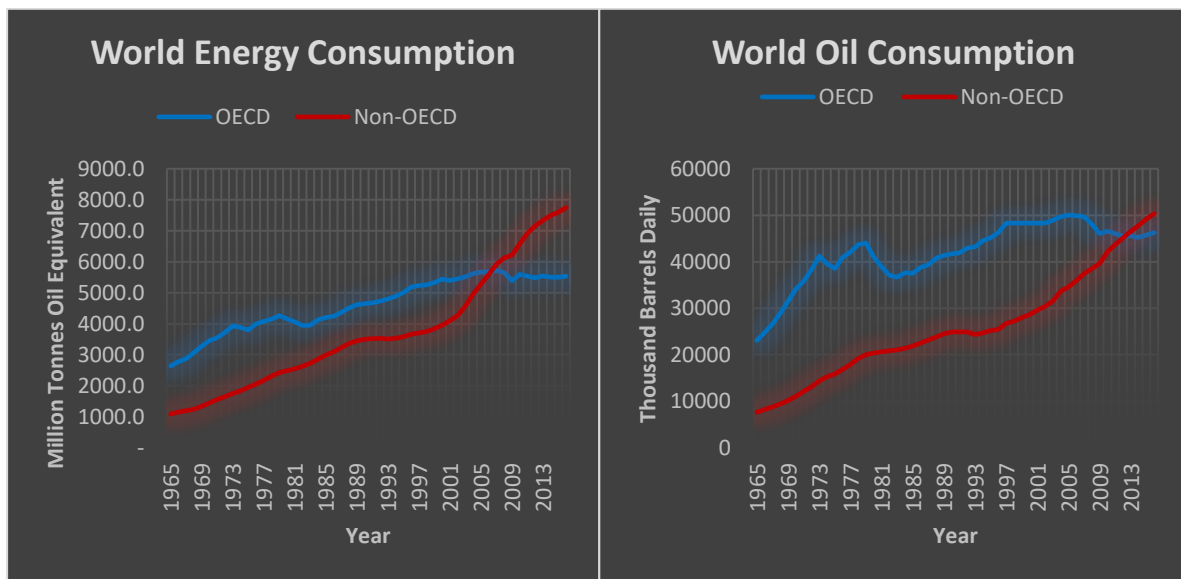
While the ERC has experienced changes that has seen it transition towards the dynamics of the functional logic, there is one important component of the strategic logic that is taking center stage in contemporary international energy relations: the emergence of a multipolar world of energy, characterized by the rise of emerging consumer states in the energy sector. Countries like the China and India are becoming the biggest energy consumers on the world stage, and thus important energy actors by extension (see Figures 6.2-6.4). Countries like the BRICs (Brazil, Russia, India, China) are at the center of a rapid transformation in global energy markets. China is not only the largest economy in the world, but also the largest consumer of energy. Indeed, in 2016, China overtook the United States as the world's top crude oil importer (Meng and Tan, 2016), with India also emerging in this regard (IEA, 2017B). Brazil and Russia control large reserves of global energy supplies, and Brazil are set to become one of the world's foremost producers of oil in a few decades. Importantly, these developments are taking place outside the most prominent international energy institutions for global governance. Indeed, IEA projections estimated that non-OECD countries will collectively account for over 80% of the increase in primary energy demand between 2006-2030, with China and India alone claiming over 50% of this growth (OECD, 2009A, p. 51). The consensus among scholars of global energy governance is that the global energy architecture has failed to keep pace with these changes (Downie, 2015, p. 811). Needless to say this is of particular concern to the IEA, which will be discussed at length in the next chapter.

Figure 6.2: World Energy Consumption by Region (Quadrillion BTU)



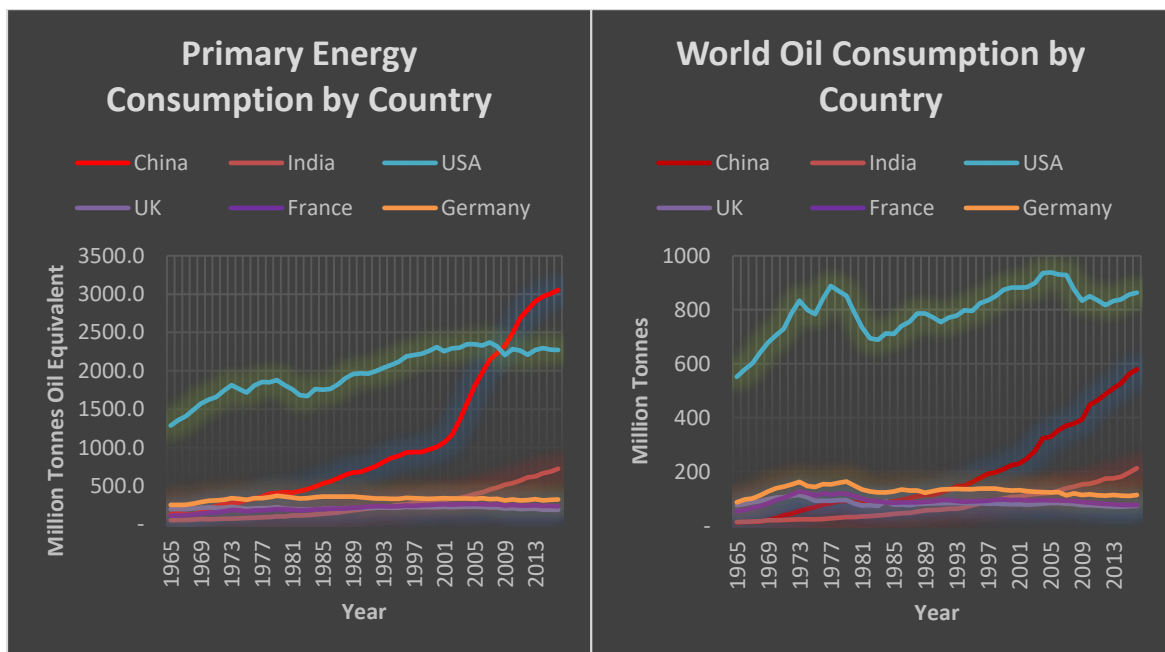
Source: EIA (2016)

Figure 6.3: World Energy and Oil Consumption



Source: BP (2017)

Figure 6.4: World Energy and Oil Consumption by Country



Source: BP (2017)

State actors are presented with different dilemmas when it comes to the various arenas of global energy governance. As identified by Bradshaw (2014); for the high-energy societies of the developed world, there are growing tensions between the different needs of environmental stability and energy security; for developing countries, economic development (with particular regard to reducing energy poverty) take precedence over the likes of environmental stability

and domestic good governance; meanwhile, for the emerging economies, the arenas of energy security and economic development take center stage, with the imperative being to secure sufficient energy to continue furthering economic growth. (Van de Graaf and Zelli, 2016, p. 55-56).

6.4 Summary of Findings: Assessing the IEA's Goodness of Fit

In broad strokes, two significant changes are identified in this chapter: (1) The demands for institutional governance in the ERC expands from oil- and energy security to cover the wide array of governance arenas, encompassing the agenda of global energy governance. (2) The emergence of a multipolar world of energy, where emerging economies such as China and India are becoming vital players on the stage of international energy politics. Importantly, their ascension has taken place outside of historically important institutions of global energy governance, the IEA in particular. In chapter two, I listed three primary reasons for the surge of interest on global energy governance: Climate change, energy security concerns in the free energy market, and the emergence of a multipolar world of energy. These are consistent with the changes identified.

At its outset, the IEA largely represented the entirety of one of two primary factions existing within the global energy architecture, and it was tasked with handling what was largely the only agenda demanded by institutional arrangements in the ERC at the time. Clearly, with the significant branching-out of issues being tackled in the ERC, with a proliferation of institutions as a result of this, and the emergence of new important energy consumers outside of the OECD-framework, the original agenda of the IEA has in many ways been left behind.

For one thing, the IEA was not created to tackle the wide scope of the governance arenas, with environmental stability - by many considered the most important aspect of the sustainable energy transition in global energy governance - standing out as a particularly sore point. Additionally, the one arena it was primarily tasked with handling, energy security, saw significant developments and changes during the ERC's transition towards the functional logic after the 90's. The IEA was created under circumstances where there was a clear adversary in OPEC, which meant constant threat of oil supply disruptions, and the agency's main ways of providing energy security was balanced against this. With the changes occurring in the global

energy market after the decline of OPEC, the IEA have been forced to adapt its approach to energy security. All of this clearly threatened the relevance of an organization created and designed to provide oil security to consumers under very particular geopolitical circumstances. Indeed, in a similar vein to post-Cold War NATO, the IEA suddenly found itself in an environment of having outlived its original purpose (Van de Graaf, 2012, p. 235-236).

I discussed in the previous chapter how the foundations for tackling issues of the functional logic, or issues broader than simply its emergency response system, were established within the IEA. The founding states did indeed foresee the agency as a potential “vehicle to enhance international collaboration generally” (MacNaughton, 2007, p. 281). Nevertheless, by far the most elaborated part of the I.E.P, and the IEA by extension, was related to its emergency sharing systems, as the I.E.P contains no substantive mechanisms for policy coordination among participating nations bar situations of oil supply shortfalls (Van de Graaf and Lesage, 2009, p. 303). This in turn led to critics labelling the IEA an “insurance regime [rather than] a control-oriented regime” (Keohane, 1982B, p. 353-354) and “a standby organization, [unable to] take direct action except in dire emergency” (Katz, 1981, p. 78).

At face value, then, it is easy to assume that the IEA’s goodness of fit given these changes in the energy regime complex is poor. Indeed, in many ways the agency’s position is arguably not as strong or central in the energy regime complex as was the case in its fledgling years. However, as is to be discussed in the next chapter, the IEA has recognized these changes, and taken steps towards adapting. Still, numerous challenge loom large for the organization, several of which – as per the organizational logic - can be traced back to the circumstances under which the agency was created.

7 The Effects of Changes in the Energy Regime Complex for the IEA

Having established the changes in the energy regime complex, this chapter addresses *effects* these changes have for the IEA. As discussed in the introductory section of the thesis, this essentially entails what implications these changes hold for the IEA, and tangible responses it has prompted from the agency.

The developments in the ERC have led to what many scholars refer to as ‘global governance gaps’. These gaps refer to energy issues that seem to demand some central point of governance, yet current governance structures in the energy regime complex fails to address these challenges insofar as to leave ‘gaps’ in global energy governance. As energy issues are often dealt with in a divided manner, with insufficient concerns of addressing energy issues cross-domains, there are serious impediments to the prospects of effective global governance of energy (Florini and Sovacool, 2011, p. 57). The interconnected challenges of the various governance arenas being insufficiently addressed and the rise of emerging consumers outside of important energy institutions represent such gaps.

The previous chapter identified two primary changes that has taken place in the ERC over the past few decades: (1) the emergence of the global energy governance agenda in the energy regime complex and (2) the emergence of a multipolar world of energy, characterized by the rise of new energy heavyweights. Thus, this chapter will be split into two main sections, where I analyze the effects of each of these developments for the IEA.

7.1 The IEA in Global Energy Governance

The first major change identified in the ERC is the institutional demands of the global energy architecture broadening to cover the wide array of governance arenas in global energy governance. The IEA’s position in global energy governance is a much-discussed topic in scholarly literature. The agency’s recognition of the changes observed in the previous chapter can in fact be traced all the way back to when the trend started in the early 90’s. As mentioned, they played an important role in the formation of the global governance organ that is the IEF. Additionally, and perhaps the clearest indication of IEA’s recognition of changing institutional environment, was their adoption of the ‘Shared Goals’ in 1993. Scholarly literature often refers

to this as the ‘Three E’s’ (energy security, economic development and environmental protection) (Colgan et.al., 2012; Van de Graaf and Lesage, 2009). Essentially, this entailed the agency adopting a function of acting as a body for the development of policy, information sharing and technology transfer, which would come to be the IEA’s primary function during extended periods of oil-market stability.

These developments were the culmination of a process of the IEA actively taking steps towards broadening its scope beyond merely short-term oil supply management. The emphasis in these shared goals differ markedly from the provisions laid out in the I.E.P, as they reflected more the shifts that were taking place in the ERC. The shared goals put particular emphasis on an energy security approach more in line with the liberal markets and global integration that had increasingly taken place in the ERC after the late 80’s, as opposed to the previous energy security approach balanced against the threat of OPEC. The shared goals also put heavy emphasis on environmental issues, with more than half of the goals laid out referring to environmental concerns (Van de Graaf and Lesage, 2009, p. 304).

Indeed, much recent scholarly literature does reflect that the IEA holds a potentially strong position in global energy governance. Different international institutions have received varying degrees of attention in scholarly literature on global energy governance, indeed, studies attempting to map the different actors partaking in it have ranged from as few as six (Kérebel and Keppler, 2009) to 50 (Sovacool and Florini, 2012). This, of course, varies with the scope and focus of each respective study. For a full overview of selected efforts to map institutions in global energy governance, see Van de Graaf and Colgan (2016, p. 5). One common ground among these studies, however, is that they all feature the IEA. Considering the IEA is widely regarded the world’s leading authority on energy economics (Harvey, 2013), and in light of its intrinsic focus on energy-related issues, its institutional strengths and its importance for its members, Colgan (2009, p. 5-6) argues that the IEA is the single most important international institution for energy importing countries. In an institutional architecture in which there are significant governance gaps to be filled, the IEA may then occupy a pivotal role (Heubaum and Biermann, 2015, p. 231).

Indeed, judging by the IEA’s own official goals (IEA, 2018B) and cross-referencing them with the aforementioned established governance arenas of global energy governance, it is quite evident that they fully recognize these developments in the ERC - as there is a significant degree of overlap between the two (see Table 7.1). In fact, in surveying the activities of different energy

institutions, Van de Graaf and Colgan (2016, p. 6) concluded that the IEA partake in more areas of global energy governance than any other institution in the energy regime complex (see Figure 7.1).

Table 7.1: Cross-Referencing Global Energy Governance Arenas and Official IEA Goals

Global Energy Governance Arenas	IEA Goals
<i>Energy Security</i>	Energy Security: <i>Promoting diversity, efficiency, flexibility and reliability for all fuels and energy sources</i>
<i>Economic Development</i>	Economic Development: <i>Supporting free markets to foster economic growth and eliminate energy poverty</i>
<i>International Security</i>	Environmental Awareness: <i>Analysing policy options to offset the impact of energy production and use on the environment, especially for tackling climate change and air pollution</i>
<i>Environmental Stability</i>	Engagement Worldwide: <i>Working closely with partner countries, especially major emerging economies, to find solutions to shared energy and environmental concerns.</i>
<i>Domestic Good Governance</i>	

Source: The Author, information based on IEA (2018B).

Figure 7.1 – Mapping the Institutional Activities in Global Energy Governance

	IEA	OPEC	IAEA	IRENA	IEF	WB	WTO	UNFCCC	EITI
Energy security	✓	✓	✓	✓	✓	✓			
Economic Development	✓	✓			✓	✓	✓		
International Security			✓						
Environment	✓		✓	✓		✓		✓	
Domestic good governance	✓								✓

Source: Van de Graaf and Colgan, 2016, p. 6.

Of course, the survey does not necessarily leverage equal amount of significance or importance upon the different governance arenas. Yet, one can make the argument that out of the five governance arenas, the one in which the IEA does not partake – international security – is by

and large the one in which energy policies have least potential for impact, or is leveraged least importance in global energy governance. This assumption is clearly supported by looking at the number of actors partaking in each respective governance arena, as the IAEA is in fact the only energy institution partaking in international security. While the survey itself says nothing regarding the importance of each institution within each given arena, or how much resources or influence each particular institution has in each arena, the mere fact that IEA are considered to partake in most aspects of global energy governance suggests that the organization recognizes the shifts in the global energy architecture, and has taken steps to adapt.

7.1.1 The IEA's Potential in Global Energy Governance

As discussed in chapter 2, institutions and regimes matter in global governance in how they affect the behavior of states, given how states often depend on institutions for things such as information and advice on policy coordination. Herein, the IEA are in a position of significant strength as far as energy-issues are concerned. This is in large part due to their energy expertise, an area in which they are arguably unrivalled by any other institution. Four decades of peer-evaluations among IEA members have given the agency a wealth of wisdom. The IEA maintains a wide range of energy databases that are among the most accurate in the world, and their flagship *World Energy Outlook* publication is widely regarded as an authoritative source of energy data and policy scenarios. This publication forecasts how future energy systems are likely to look given current energy trends, and is a huge asset in providing and formulating recommendations to governments to put them on track to more sustainable energy systems in the future. All this is particularly enticing to potential partners interested in what has and has not worked in different contexts, and strengthens IEA's agenda-setting power (Van de Graaf, 2012, p. 235-236).

The IEA has shown clear signs of recognizing its potential contributions to global energy governance through this expertise, as they transition from being primarily an insurance regime for oil consumers to being a key global institution for sustainable and good energy policies. As the demand for fossil fuels, in any realistic scenario, will continue to increase over the next decades, the challenge of maintaining energy security, promoting stable economic growth and preventing global warming and climate change is a vital challenge the global energy system faces. As governments decide on actions and set targets for the future, advice on energy policy and access to reliable and timely energy information and data is essential. This presents

opportunities for the IEA to contribute with its expertise through joint collaboration and dialogue with other actors and institutions operating in the energy regime complex.

A good example is found in the Joint Oil Data Initiative, of which the IEA is a founding member. Here the IEA meets with other important energy actors, and in tandem provide up-to-date energy statistics to a central database. Through these means, the organization has been very influential in contributing to the transparency and subsequent energy security of the global oil and gas market (OECD, 2010, p. 40-41). JODI is hosted by the IEF, however former IEA Deputy Chief Executive, William Ramsay, revealed in an interview with Van de Graaf (2012, p. 236) that the creation of JODI was heavily pushed for by the IEA. Indeed, the IEF itself has been a considerable asset in allowing the IEA to exert its expertise into practice by fronting global dialogue between important actors. Through the IEF, the IEA is regularly able to hold dialogues with non-member countries such as China, India and Russia, as well as with other global institutions with whom they have no overlapping members, such as OPEC. Global dialogue can assist the IEA in exerting its expertise and influence in global energy governance through means of addressing the various governance arenas, for instance by building closer ties with international climate change institutions to tackle issues of environmental stability, by expanding institutional connections with major actors such as the UN and the World Bank to jointly tackle issues of economic development, and by establishing close collaborative links with institutions such OPEC and the EU to tackle issues of energy security (Ibid., p. 237).

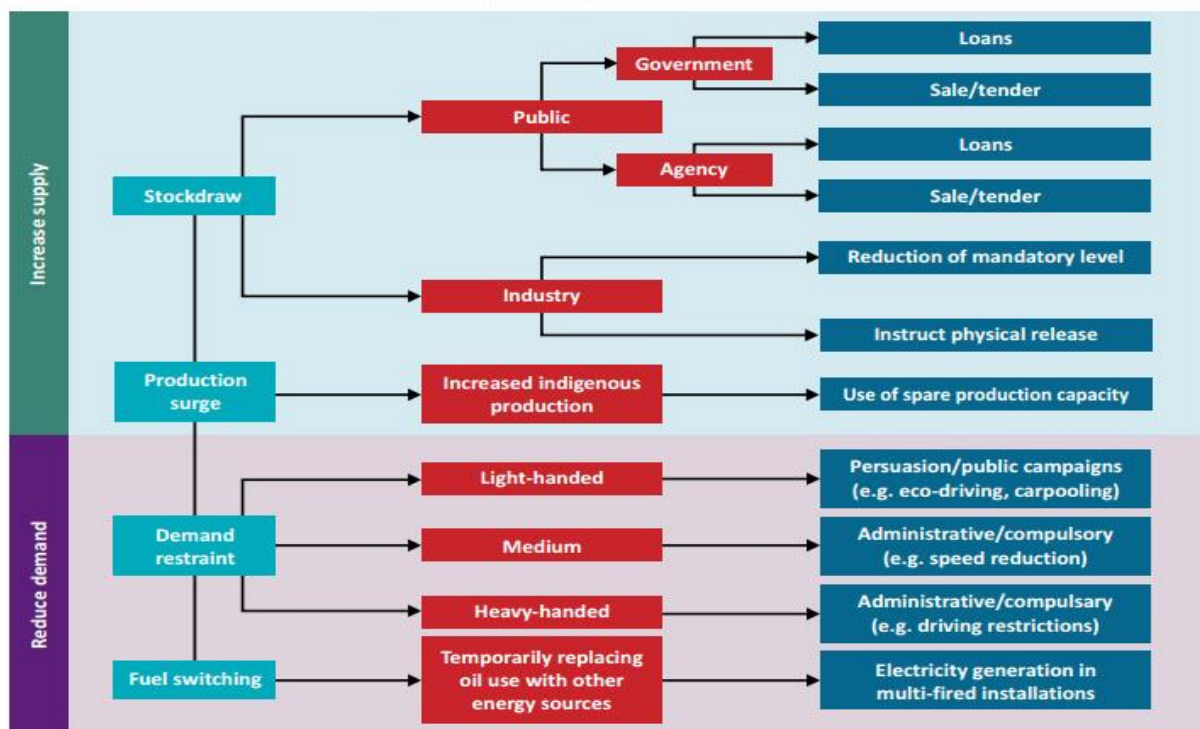
Ultimately, global energy governance can be boiled down to one simple principle: to provide and implement good and sustainable energy policies. When the IEA during the ERC of the strategic logic primarily existed as a security measure through its emergency sharing systems, the agency was quite dependent on member states, particularly the U.S., for its functions to work properly. The advisory role the IEA can take in global energy governance is unchained from such state power- and interest constellations. Thus, through its broad involvement in various issues of energy politics, backed by its unrivalled expertise, the IEA undoubtedly occupy a pivotal spot in the global energy architecture – even in light of the transition towards the functional logic.

7.1.2 The IEA's New Approach to Energy Security

Adapting to a Liberalized Global Energy Market

The developments on the global oil market towards laissez-faire principles prompted the IEA to rethink its approach to energy security. As opposed to its initially envisioned market-interventionist role, and its eventual balancing of energy security against the threat of OPEC, the IEA would later come to approach its energy security measures through a variety of both short- and long-term management, through means demand restraint programs or production-surges from certain member countries (see Figure 7.2). Short-term disruptions are still addressed through emergency stock release, while long-term management of energy security is addressed through encouraging a variety of policies on oil import reduction, energy efficiency- and diversification, and research,- development,- and investment in alternative energy technologies (IEA, 2014B, p. 21-22)

Figure 7.2: IEA Emergency Response Measures



Source: IEA, 2014B, p. 21

The IEA also adjusted its approach to its emergency sharing mechanisms. Under its original emergency sharing system provided in the I.E.P, a global supply shortfall of 7% was the official automatic trigger for a collective emergency oil-sharing response of IEA's collective strategic

oil reserves. Oil imports for IEA countries never dropped by more than 7%, however, and after the second oil shock highlighted the shortcomings of this approach, the IEA saw the need to be able to identify and respond to potential crises even in pre-crisis situations. Thus, in the late 80's, the IEA adopted a more flexible, market-based system of coping with potential disruption that would become the current iteration of IEA's emergency response system: The Coordinated Emergency Response Measures (CERM) (Kohl, 2010, p. 198). Through the CERM-initiative, a wide variety of response measures could be adopted, in whole or in part, with operational decisions being made by the Governing Board and carried out "on a flexible basis, whether the supply shortfall is less than or exceeds 7%" (Scott, 1994B, p. 39). The operational decisions would consist of a consultative process involving individual member states, so as to also address their individual national circumstances (Florini, 2011, p. 41). The following is gathered from official IEA documents:

Oil supply disruptions [...] whether or not sufficient to activate the [ESS], could result in severe economic damage to all nations[...]. They could result in exaggerated crude oil price increases not warranted by underlying oil market conditions. Member countries should therefore respond promptly and appropriately to those oil supply disruptions which appear capable of causing severe economic harm. Appropriate responses should reflect a realistic assessment of then-existing circumstances attending the disruption [...]. The aggregate of national responses designed to minimize economic damage is more likely to achieve a coherent overall result if they are co-ordinated and are as complementary as the circumstances and individual national policies permit.

(Scott, 1995A, p. 137-138)

Clearly, the CERM-initiative was founded to address the shortcomings of the ESS, which was, by its very nature, rigid in its distinct rules and structure. Through CERM, the IEA was able to utilize rapid response measures to mitigate both actual and potential oil crises through the joint release of emergency oil stocks into the market. Indeed, releasing oil stocks has come to be preferred over oil sharing, reflecting IEA members' preference for market-based regulation (Van de Graaf and Lesage, 2009, p. 302). The CERM-initiative thus reflects the IEA actively pursuing market-based solutions, in tandem with the liberalization of the global oil market, for handling crises, rather than acting purely on response as it was initially drawn in the I.E.P. The implementation of the CERM-initiative has proven to be a relative success, as has been underlined on the three occasions in which the IEA has utilized it. The first occurred in 1991, the day before the US-Iraq War, to quell fears of insufficient supplies in the market. The second was a response to the 2005 hurricanes in the Gulf of Mexico that ended up causing massive harm to several oil production-, distribution- and refining facilities. The third was in response to disruptions of oil supplies from Libya in 2011. In all these instances, CERM-measures were

utilized, and the collective action of the IEA ensured continuity of oil supply and prevented oil market disruptions (Colgan, 2009, p. 5-6; Florini, 2011, p. 41).

Energy Security through Producer-Consumer Cooperation: Rapprochement with OPEC

A clear signal of the IEA's new approach to energy security is seen in their rapprochement with OPEC in the years following the 90's, with the relationship between the previously adversarial organizations experiencing marked improvements. For the first few decades of IEA's existence, they were not on speaking terms, as it had been considered too politically delicate. This would change, however, when Robert Priddle took over as Executive Director of the IEA in 1994. Shortly after his accession, Priddle met with then-director of OPEC, Rilwani Lukman, in secrecy and on neutral territory, in Vienna. Both Priddle and Lukman had only just taken office a few months prior. The delicacy of the meeting at the time, over concerns of reservations of some member governments, was still such that neither of them made any formal reports of the meeting back to their respective organizations (Van de Graaf and Lesage, 2009, p. 300; Priddle, 2007). Indeed, during a 2002 energy lecture at the Clingendael Institute, Priddle recalled the perplexed reactions of his staff when he had asked to arrange a meeting with the Secretary General of OPEC (Willenborg et.al., 2004, p. 40)

By the early 2000's, relations between the previously adversarial organizations were even better and more open. IEA and OPEC leaders would be able to meet openly and publicly, and in 2002 even staged a joint press conference at the World Petroleum Conferences (Priddle, 2007). Another example of the strides the two organizations had taken in reconciling their relationship came during the Iraq war a year later. During this time, the global oil market was very tight, and general expectation was that the IEA would release stocks to make up for the loss of several million barrels of oil (Van de Graaf and Lesage, 2007, p. 300). However, the IEA refrained from releasing strategic stocks, issuing instead a press release that read the following:

In light of tight oil markets, the Governing Board welcomed oil producers' demonstrated commitment to increase production to offset any further disruption in supply. IEA Members remain firm in their commitment to make additional volumes of oil available to the market to reinforce producers' efforts if needed.

(IEA, 2003)

Essentially, the IEA had every opportunity to perform its main function of releasing strategic oil stock reserves into the market. Instead, it preferred to cooperate and coordinate informally with its previous rivals. In fact, in the days since, the IEA has openly called on OPEC to increase incremental output as a way to cope with tight markets, even hammering out a strategy whereby the IEA will refrain from releasing oil stocks should OPEC guarantee to make up for any supply shortfall (Van de Graaf. 2013, p. 60). Consequently, OPEC's spare production capacity would come to function as a "first line of defense" in the case of an oil supply disruption (Emerson, 2006, p. 3382), and by extension become an integral part of the IEA's own operations and approach to energy security. Indeed, in 2005, a mere two years later, the IEA ended up having to release oil stocks in the wake of hurricanes Rita and Katrina. However, the IEA only released oil stocks because there was a lack of refined oil products (after refining capacities in the Gulf of Mexico were significantly damaged by the hurricanes) which OPEC could not deliver. Thus, even though the IEA and OPEC have no overlapping members, OPEC's presence offers an opportunity to the IEA to govern the oil market in a way that was certainly unforeseen in its formal rules, as it entirely contradicts treaty provisions: making emergency oil stock releases dependent upon OPEC's prior failure to pump up more oil. This is quite a remarkable reversal considering the IEA was initially envisioned as a tool for offsetting OPEC's market power (Colgan and Van de Graaf, 2015, p. 468-470).

Goldthau and Witte (2011) underline this sentiment that OPEC holds a potentially useful role in global energy governance, more particularly in the arena of energy security, in how they can manage key oil market risks. Oil price volatility is, after all, a central energy security concern in the liberalized oil market. Excessive price fluctuations, caused by boom-and-bust periods in oil sector investments, constitutes a problem that requires effective solutions through global governance. Price volatility is detrimental to both energy security and a low-carbon future, both of which are key focus areas of the IEA today. Oil producers will only invest in finding new resources if they can anticipate a stable and sufficient return on their investment, and a shift towards low-carbon sources of energy requires planning security. A strengthened consumer-producer dialogue will go a long way in enhancing the predictability of the oil market, and help stabilize prices, and in turn cement OPEC's importance in global energy governance going forward. While the majority of the debate and discussion around OPEC historically center around the negative role they have played in global energy governance, such as engaging in cartel-arrangements, continually raising prices, extracting monopoly rents and refusing to engage in serious dialogue on climate change – the potential role OPEC inhabits in

contemporary international energy relations is often overlooked (Ibid., p. 38). As exemplified by the observed cooperative efforts with OPEC, then, the IEA are given a new dimension in their approach to energy security through producer-consumer cooperation.

7.1.3 The IEA and Environmental Stability

While a dramatic increase in fossil fuel demand is expected, primarily in emerging economies, over the coming decades, fossil fuels are unlikely to have the same role 100 years from now as they do today - owing to the need for a sustainable energy transition. This transition can happen sooner if concerns over climate- and environmental issues lead to the implementation of energy policies globally, promoting renewable energy sources at the expense of fossil fuels. What is certain is that the success of this transition hinges on the ability of important actors to find cooperative solutions, as both in the cases of climate change and the depletion of fossil fuels, all energy actors are in the same boat (Claes, 2013, p. 187). As established, this energy transition played a large part in the emergence of the agenda of global energy governance. It follows, then, that for the IEA to be a leading institution in global energy governance, it is vital that the organization heeds the issue of renewables and the governance arena of environmental stability.

In the previous chapter it was argued that, among the various types of state actors, the developed nations in global energy governance focus increasingly on the growing tensions and dynamics between the needs of environmental stability and energy security. For a long period of time, the IEA received widespread criticism for not sufficiently acknowledging this development in regard to the needs of environmental stability. Much of this criticism revolved around their perceived lack of unbiased attention given to renewables, combined with their historic image of being an institution mainly concerned with fossil fuels. Hirschl (2009, p. 4409) found the IEA “not qualified to represent the interest of renewable energy at the international level”, due to them playing a central role in the advancement and developments of fossil-fuels.

These criticisms were often levelled at the IEA due to its actions and policy-recommendations. In fact, the IEA never shied away from claiming that a sustainable energy future always was, and always has been, important, and that oil and fossil-fuel dependence is a detriment to this (see for instance OECD, 1977, p. 10; 1979, p. 40; 1984, p. 33; 1985, p. 35). Yet, despite this, the IEA did for the longest time display reluctance towards renewables, even when environmental stability had risen to become a central concern in global energy. In 2005, then-Executive Director Claude Mandil stressed the importance of oil and oil security during a time

of increasing prices on the oil-market (OECD, 2005, p. 39-40). A year later, the IEA emphasized that combating global warming by means of reducing fossil-fuel dependency was important, yet stressed that keeping oil in the mix still made sense from an economic standpoint, given oil's remarkable qualities pertaining to its energy density and general usefulness. Additionally, while labelling renewables as "promising technology", the IEA posed questions regarding their usefulness compared fossil fuels, and how "clean" these technologies were in reality (OECD, 2006, p. 13-21). Certainly, the extensive usefulness of oil and fossil-fuels is beyond question, however, frustrations were mounting against the IEA over their generally lackluster attitude towards the importance of renewables as compared to fossil fuels.

Over time, however, especially over the last decade, the IEA has devoted far more attention to the growing issue of climate change, with an increased focus on renewable energy technologies by extension. Not long after the aforementioned emphasis on fossil-fuel importance, there were signs of IEA changing towards a more positive attitude over renewables. In the years before the turn of the decade, the IEA increasingly stressed the importance of environmental concerns, and of reducing greenhouse gas emissions in order to "avoid a catastrophe" - citing the emergence of fossil-fuel dependent economies outside the IEA such as China and India, as well as the potential clean energy technologies might have if given sufficient investment (OECD, 2007B, p. 13-15; 2007A, p. 6; 2009B, p. 44-46). Focus on renewables and environmental concerns had increased furthermore for the organization in 2012, with then-Executive Director Maria van der Hoeven calling for increased political will towards renewables, emphasizing the time-aspect and that "the door is closing [on] achieving climate change goals [of limiting temperature increases]" (OECD, 2012, p. 91).

The culmination of increasing attention leveraged at the governance arena of environmental stability can clearly be seen in the IEA today. Indeed, focus on renewables and mitigating climate change has become a vital part and main focus of the organization. As described by current IEA Executive Director, Fatih Birol, in 2015, the energy sector "holds the keys on climate":

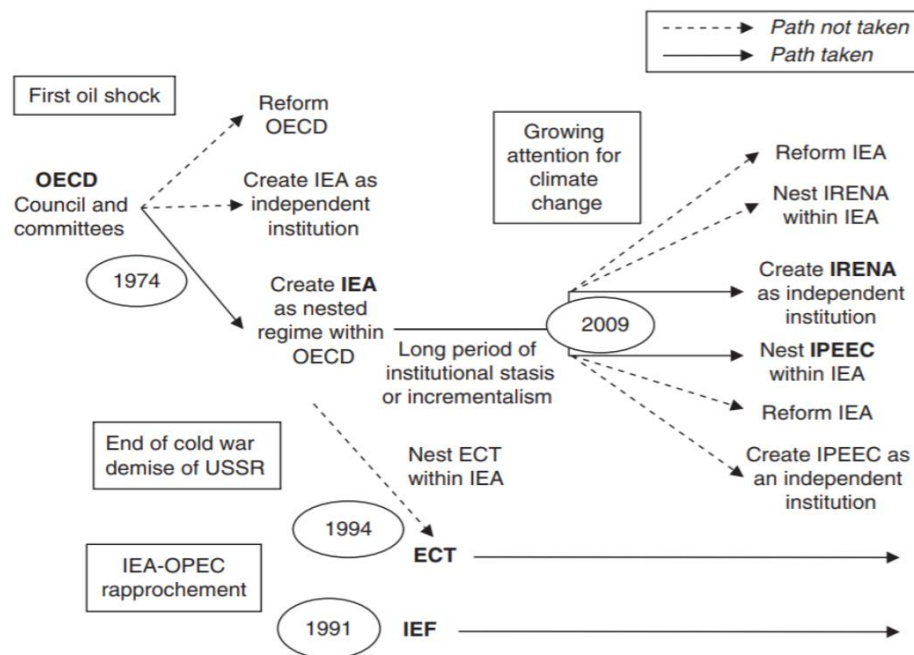
When the [IEA] was formed in 1974, concern over climate change was in its infancy. While the greenhouse effect was known, it was not widely recognized, and the debate about the long-term effect of CO₂ emissions was confined more or less to academia. However, over [the ensuing decades], the world slowly began to take notice. Climate change spilled out of the pages of scientific journals and into the realm of global politics. Now, in 2015, climate change is globally accepted to be one of the defining challenges of the 21st century. There is no escaping it, and collective efforts to overcome

this challenge must involve every region of the world, and every sector of the economy. No sector is more important to these efforts than energy – Fatih Birol, Executive Director of the IEA
(OECD, 2015, p. 8)

As established, the general change in the ERC towards the wide array of governance arenas started sometime in the early 90's. From this, it would take nearly two decades until the IEA leveraged sufficient attention to the concerns of renewables and environmental stability. Thus, its institutional path dependence as an oil-organization and subsequent late attendance to the renewables-party saw the global energy architecture react before the IEA had adjusted. A clear example is found the creation of IRENA in 2009. Its creation was by many seen as a reaction to, or result of frustration over, the IEA consistently downplaying the roles of renewables. IRENA's institutional design was modeled on the IEA, as IRENA was deliberately established as an organization focused on renewables, in such a way as to 'compete' with the IEA. Thus, the global energy architecture is left with these two institutions operating and, in a way, competing, in the same organizational ecosystem. With the IEA today having a major focus on renewables, the creation of IRENA suddenly seems like a largely inefficient move.

This is symptomatic of how, as underlined by the organizational logic, the ERC has come about not entirely by conscious design, but in a more organic fashion (see Figure 7.3) (Van de Graaf, 2013, p. 82). With the IEA having adopted a far greater focus on renewables since the days of IRENA's creation – surely, if state actors who created these institutions could start over from scratch, they would not come up with this precise institutional architecture.

Figure 7.3: Institutional Trajectories in the Energy Regime Complex.



Source: Van de Graaf, 2013, p. 83.

The IEA has always had its primary focus on fossil fuels, particularly on oil. On the surface, then, the ERC giving increased attention to renewables and environmental stability does not mesh well with the IEA. Yet, despite taking its time, the organization is there today, having taken to heart the agenda of renewables and leveraged considerable attention to environmental stability. Of course, fossil fuels remain central to many of the IEA's functions, however the agency undoubtedly has the potential to contribute in the governance arena of environmental stability in global energy governance in a similar vein to its contributions to global energy governance in general – through its advisory capabilities. Having adopted a willingness and recognition of the importance of renewables, the IEA can provide valuable policy advice and help steer state actors in good and sustainable directions in regards to their energy policies.

7.1.4 The Frozen Formal Structure of the IEA

Despite the changes that have taken place in the ERC, and despite the IEA showing clear signs of recognizing and responding to these changes, the organization's formal structures have largely remained frozen in time. The agency has never undergone what may be considered a meaningful reform, and the I.E.P has not seen any changes barring minor, relatively unsubstantial edits. Indeed, the IEA has displayed considerable resistance towards any

significant changes or reforms to its formal structures ever since its inception. Nowhere is this clearer than in its formal voting system.

When the organization was established, it intentionally abandoned the idea of ‘one country, one vote’, as they felt it “failed to reflect the different magnitude of the interests of the members in the decisions to be taken in the Agency, [as well as] the relative ability of the Agency members to shape the actions that they might take individually if the Agency had not been established” (Scott, 1994A, p. 191-192). Instead, each country was given a general voting weight (GVW), regardless of countries’ individual economy or the importance of its oil consumption, and an oil consumption voting weight (OVW), relative to each individual members’ oil consumption. Put together, they constituted the combined voting weights (CVW). The voting distribution of IEA members upon its creation is displayed in Table 7.2

Table 7.2 – IEA Voting Weights, 1974.

	General voting weights	Oil Consumption voting weights	Combined voting weights
Australia	3	1	4
Austria	3	1	4
Belgium	3	1	4
Canada	3	5	8
Denmark	3	1	4
Finland	3	1	4
France	3	6	9
Germany	3	8	11
Greece	3	0	3
Ireland	3	0	3
Italy	3	5	8
Japan	3	14	17
Luxembourg	3	0	3
The Netherlands	3	1	4
New Zealand	3	0	3
Portugal	3	0	3
Spain	3	2	5
Sweden	3	2	5
Switzerland	3	1	4
Turkey	3	1	4
United Kingdom	3	6	9
United States	3	44	47
Totals	66	100	166
With Norway	3	0	3
Totals with Norway	69	100	169

Source: Scott, 1994A, p. 191.

Note: Norway has, since the IEA was created, participated in the under “special agreement” (IEA, 2018E). Reflected in the table.

Commonly, IEA decisions are made by consensus among members. Yet, in events where quick and difficult decisions need to be made, voting can become critically important. This may constitute a problem for the IEA, as this voting system has largely remained unchanged to this day. Indeed, votes are still distributed among members based on their relative shares of oil consumption from 1973. The only updates the voting system has seen are the addition of new members who have joined the IEA since, as well as incremental changes to some members' oil consumption voting weights (see IEA, 2014A, p. 27). As is often the case with intergovernmental organizations, Florini (2011, p. 43) argues, all members are legally equal, but some are more equal than others. This outdated voting system ensures that some member countries maintain a larger share of voting power, and thus all countries know which particular combination of member countries have the voting power to ensure or block specific agenda items. Powerful states like the United States and the United Kingdom have long benefitted from this existing arrangement, and have thus had little incentive to support reforms (Colgan et.al., 2012, p. 127-128).

That being said, it is very much within the Governing Board's power to adjust this voting system, as laid out in the I.E.P (see IEA, 2014, p. 28). Changes to the voting system were actually attempted numerous times throughout the late 80's through 90's. One such attempt was a suggestion by the Secretariat to calculate each member's OVW based on most recent suitable oil consumption data rather than 1973-data, with rolling updates of calculations every 3 years to minimize year-to-year fluctuations in members' voting weight entitlements. Another method suggested by various member countries were to base OVW's on results of member countries good energy practices, such as savings achieved through energy efficiency (Bamberger, 2004, p. 29). None of these methods were applied by the Board, however. They decided against using rolling 3-year periods, and concluded that the good energy practices-suggestion was measured by insufficient indicators. They claimed that, while reliable data did exist to permit calculations based on the suggested indicators, these indicators did not give sufficiently meaningful indications of good energy practices and would thus not be suitable to base voting weights on (Ibid.).

Indeed, this issue would come to the forefront when, in 2001, the Republic of Korea joined as a full member of the IEA. Korea had experienced significant domestic development and economic growth from 1973 to 2001, and 1973 data versus (at the time) recent data stood to make a substantial difference to Koreas voting weight power in the IEA (Ibid., p. 31). Yet, the

decision to retain the use of 1973 data remained, and, as can be seen in 2014 amendment of the I.E.P, Korea is given a mere 1 OVW, as based on their 1973-statistics (IEA, 2014, p. 27). This rigidity in the IEA's voting structure, argues Colgan et.al. (2012, p. 128), is emblematic of the overall rigidity and path-dependency in the organization's formal structures since its creation.

7.2 A Multipolar World of Energy: The IEA and Emerging Consumers

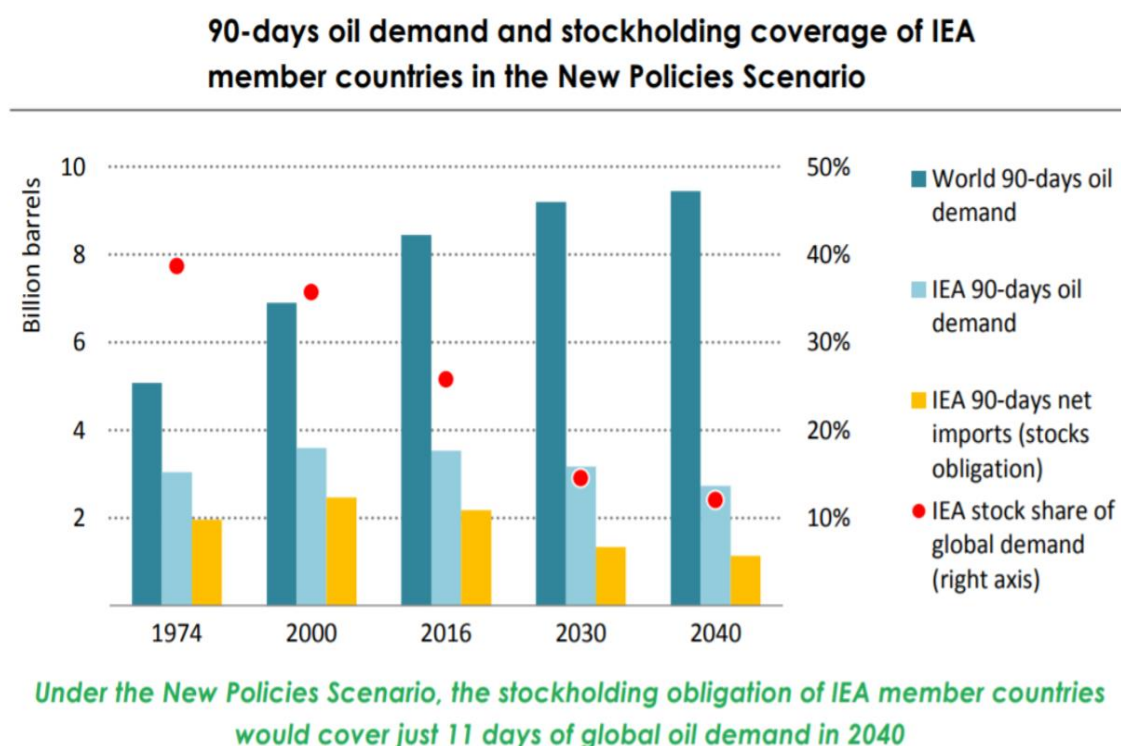
The changes the international system has experienced over the last few decades has seen the emergence of a multipolar world, and in the case of energy, this no different. Emerging economies are taking center stage in international energy relations, and their rapid ascension has happened outside of most established global energy institutions. This leaves significant gaps in global energy governance. As the world is headed towards a future where the primary energy demand and consumption increasingly stem from these emerging, non-OECD countries, it is of vital importance that the global governance institutions in the energy regime complex effectively address this. By that logic it follows that, as the IEA strive to be a central institution within this global energy architecture, recruitment of – or at the very least tightened bonds of cooperation with – these emerging consumers, is going to be essential in the future.

Van de Graaf (2015, p. 81-82; 2012, p. 238) highlights three primary threats these development pose to the IEA should the agency fail to properly accommodate these emerging powers; (1) It threatens to render the IEA's emergency sharing systems less effective, (2) it threatens the IEA's capacity to contribute to climate change mitigation and (3) it threatens the IEA's data-gathering capacities.

In terms of its emergency sharing systems, the IEA is dependent on having a sufficient share of strategic oil reserves. Ensuring oil-market security is still a central concern for the agency, in fact it regularly holds exercises to test emergency oil sharing and stock drawdown procedures. Monthly checks are performed on stock levels, while every few years there are peer reviews of the emergency preparedness of IEA member countries. Additionally, the IEA offers training on emergency preparedness to non-member countries (Kohl, 2010, p. 198). However, oil demand in IEA countries is expected to drop slightly in the coming decades, while booming demand is expected in the emerging non-OECD nations (IEA, 2017A). The net result of this is the IEA's strategic oil reserves representing an ever-shrinking share of the global oil consumption, which

will drastically reduce the impact of IEA joint stock releases on to the oil market. While the IEA's systems of coping with oil disruptions have provided a valuable safety net since 1974, their gradual reduction in stockpiling share since then may result in a significant upset. As highlighted by Figure 7.4., stockpiling shares from IEA members accounted for roughly 40% of global oil demand back in 1974, however that number had fallen to 26% in 2016, and is further expected to drop to a mere 12% by 2040. This would cover only 11 days of global oil demand, far too short to compensate for a large disruption in supply (Ibid., p. 198). The functioning of the IEA's emergency oil stock mechanisms is thus severely threatened by the absence of key oil consumers (Van de Graaf, 2015, p. 81).

Figure 7.4 – 90-days Oil Demand and Stockpiling Coverage of IEA Members under New Policies Scenario.



Notes: Stock share = IEA stockholding obligation as percentage of 90-days global oil demand. Mexico is included in data for IEA member countries for projected years.

Source: IEA (2017A, p. 198)

A similar argument can be made in regards to climate change mitigation. The impact that the adoption of clean energy technologies and increased energy efficiency measures among IEA member countries have on mitigating climate change is lessened when major non-OECD consumers do not necessarily pursue similar strategies. While the IEA does not have mandate to enforce rules and policies onto its members, recruiting the emerging consuming economies

would let the IEA assist them in implementing good policy practices in areas of environmental stability, and help make them aware of benefits that may be derived from pursuing sound energy policies geared at efficiency, conservation and clean technologies.

There is also the issue of the IEA's role in global energy governance assisted by its expertise. As the IEA is increasingly becoming a consultant on good energy policy practices, its gathering of data is crucial for the agency to develop the necessary expertise. Without the new energy consumers on board, the IEA's ability to remain a leading knowledge center on issues of global energy is significantly hampered. For the OECD-region there is reliable and extensive data available on things such as production and demand of various energy sources, in large part thanks to the IEA, as all members are obligated to report detailed energy information on things such as oil supply, demand, stocks, prices and refinery activities (Wei, 2012, p. 267). However, outside of the OECD-region, information is often missing or unreliable. Many non-OECD countries, perhaps China most of all, have displayed an unwillingness or inability to reveal information on things such as levels of energy production and consumption. If the IEA is to retain or improve upon its expertise, emerging, non-OECD countries needs to be accounted for, as the quality of advice and analysis the IEA are able to offer increasingly depends on the quality of data it is able to gather from these emerging consumers. It follows then that recruitment of these countries, and the subsequent transparency of information among them this entails, would go a long way in bolstering the IEA's capacity for expertise and knowledge-sharing in global energy governance.

7.2.1 Potential for IEA Recruitment of Emerging Consumers

These factors considered, from the perspective of the IEA, recruitment of these emerging countries is likely to be a necessity in the future. This view is commonly shared by scholars of global energy governance. From the perspective of emerging consumers, too, there are some potential benefits to be had in joining the IEA.

These benefits relate to partaking in institutional arrangements of global energy governance. Given the immense increase in fossil-fuel import expected in these economies, on the surface it does make sense to join an organization with a primary purpose of ensuring energy security and energy market stability. Additionally, their rise has largely taken place off the back of fossil-fuels, which has brought about tremendous environmental challenges. Sharing in the benefits of the IEA's wealth of expertise would be a valuable tool in steering their respective

energy economies in sustainable directions. Given actors' increasing realizations of interdependence in global energy over the past decade, it may be undesirable to operate as "lone wolves in the jungle" (Wei, 2012, p. 267). Despite this, however, there are many legal and political hurdles that realistically prevent full recruitment of emerging consumers into the IEA from happening in the foreseeable future.

Legal Hurdles

Possibly the biggest legal hurdle for the IEA to recruit these emerging consumers can be traced back to the creation of IEA itself, and the decision to nest the agency within OECD. Because of this, OECD membership is a prerequisite for becoming a member of the IEA. Becoming an OECD member is unrealistic for many emerging economies. The OECD lists several major considerations it takes when assessing the potential accession of new member (see OECD, 2004, p. 16-18). These essentially cover the values and benefits to be had and given by each acceding member. They refer to members needing to share the broad values of the OECD with regards to things such as democratic principles and market-based economies, as well as displaying good governance and respect for human rights. They also state that every member of the OECD must provide some tangible benefit to the organization as a whole, whilst also receiving tangible benefit in return. Lastly, there are concerns over maintaining an overall balance in OECD-membership, for instance in terms of geographical diversity.

As Van de Graaf (2015, p. 83) points out, some of these criteria may pose problems to emerging economies. Many of them do not share OECD values of democratic principles and having market-based economies, as they have experienced their economic booms in recent decades, parallel to the OECD-powers, and have thus developed different mindsets and values along the way. Also, while emerging economies may have the capacity to fulfil the criterion of providing tangible benefit, it is another question entirely whether they have the incentives or motivations for it.

Wei (2012, p. 266) also outlines more potential drawbacks for emerging economies related to the considerations above. His arguments regard China in particular, but are certainly applicable to the wider range of emerging economies. One drawback he mentions is the responsibility these countries will have by joining the OECD. The OECD is an organization representing the developed world, thus, potential of OECD-accession for developing countries will inevitably put them in an unaccustomed position. This would mean having to take on a wide range of

international obligations that are to be assumed by an OECD-member, which, given the difficulty of sustaining such commitments over time, may overwhelm them. Indeed, Wei argues that decades of further development may be necessary before some of the emerging economies are ready to comply with the various rules and requirements that are to be upheld by OECD-members.

Another legal hurdle is related to the IEA being created primarily as an oil-security measure. As mentioned, this ensures that IEA members are obliged to hold oil stock equivalents to at least 90 days of net oil imports. IEA's collective stock levels among members have always comfortably exceeded this mark. It is worth noting that IEA members who are net-exporters, such as Norway, Denmark and Canada, are de-facto exempt from this requirement. Thus, emerging consumers who are net oil exporters, such as Russia and Brazil, should have no problem meeting this requirement. Others, such as China and India, however, fall short of this requirement. As Van de Graaf (2015, p. 81) points out, several of the emerging economies have only recently begun to build strategic petroleum reserves. China does aim facilitate this requirement and by 2020, by holding strategic oil reserves equivalent to roughly 60 days of import, and provide additional 30 days by taking into account mandated commercial stocks (Ibid. p. 83). However, as Sheppard et.al. (2017) argue, China's strategic reserves have always been shrouded in relative secrecy, and accurately assessing China's future imports is a nigh on impossible task.

This leads into another legal hurdle, namely the IEA requiring members to share precise data on the oil market activities, such as on production, stocks and prices. China in particular has displayed considerable reluctance to this. In fact, China arguably does not have the domestic governance capability to actually gather these data in a timely and accurate manner and supply them to the IEA in the first place (Van de Graaf, 2015, p. 84).

That said, all these legal hurdles should, in theory, be easy enough to circumvent provided there is enough political will to do so. In fact, it can even be accomplished without amendment to the I.E.P. For instance, the IEA's institutional ties to the OECD could be loosened to the point of allowing non-OECD members to join the IEA, or the IEA's stockholding requirements could be relaxed for interim periods to allow for the accession of countries not yet ready to comply. However, while finding ways to circumvent the legal hurdles is one thing, there exists currently a variety of political hurdles that pose what is arguably a far bigger hindrance towards recruitment than its legal-hurdle counterpart (Ibid., p. 85)

Political Hurdles

Various political hurdles represent arguably a bigger hindrance than the legal hurdles. Indeed, there is much doubt, both from the perspectives of IEA members and from the perspectives of emerging consumers, whether the accession of these countries into the IEA is beneficial for their respective interests.

Developing countries may very well consider the OECD, and the IEA by extension, a “club of the rich, Western countries”, whose rules and structures they took no part in shaping, and in which they may then not want to partake. (Van de Graaf, 2012, p. 237). We have already seen countries like China adamantly guard its sovereign prerogatives through means such as limiting their sharing of energy data. Furthermore, these emerging economies favor a stronger role for the state in the energy sector, as opposed to the support for market forces that has been strongly advocated by the IEA. Rising powers like China and Russia have been seen adopting policies geared towards national autonomy and control, challenging the market-oriented policies the U.S had implemented whilst backed by the IEA. Despite differences in the energy sectors in-between the various emerging economies, they have usually leant towards state-favored approaches to energy security, decidedly based on bilateral relations, establishing state-owned or semi-state controlled energy companies in their respective pursuits of energy security. Instead of leaning towards deeper integration into the oil market, these countries regularly attempt to maximize their energy independence by seeking to take direct control over energy sources and supply routes (Van de Graaf, 2015, p. 87-88).

Another example can be found in the previously discussed voting structure of the IEA, which is inherently a zero-sum game where any sort of increase to one members’ voting power will inevitably negatively affect the voting power of others. This is a serious concern when it comes to recruiting emerging economies. Based on 1973-statistics, the system is naturally skewed against countries who have experienced their rise in the years after this. Thus, should nations such as China or India join as full members, their current importance as major energy consumers will not at all be reflected in the voting powers they would receive in the IEA based on their 1973-levels of oil consumption. Conversely, should the IEA update the voting system to reflect current consumption numbers, the new members would come in and immediately see a major balance shift in the organization in their favor. This is likely to upset many, if not all, of the currently existing members. This puts the IEA in a very awkward position, forcing a choice of favoring either currently existing, largely Western members, or non-member emerging

economies who the IEA, for many reasons, need to recruit. There currently exists no obvious middle passage that may properly appease both parties.

Additionally, there is the problem of free-riding dynamics. It is not uncommon for multilateral regimes to suffer from such collective action problems, and the IEA is no different in this regard. With its aim of stabilizing oil markets against supply shocks, IEA members have built up considerable strategic reserves that can be released onto the market in case of emergency. However, this has the unfortunate side effect of enabling and incentivizing emerging consumer heavyweights to free-ride, or to reap the benefits of existing institutional arrangements without having to contribute or risk anything themselves. The IEA's strategic reserves provides a safety net for everyone - emerging, non-OECD consumers included - however all the costs of maintaining these reserves are left to the IEA members alone. IEA stock release will ensure higher supplies, lower prices and a more stable oil market, thus constituting a global public good. Benefitting from this without any of the downsides related to maintaining the system, China and others are given an incentive to free-ride rather than to share the burden (Van de Graaf, 2015, p. 88). Encouraging non-members to join would mean having to overcome this collective action problem, which would in turn demand complete global agreement between oil consuming nations. Considering the governing frameworks for energy among emerging powers are, unlike the IEA, not pro-market, they may be unlikely to want to sign up for the IEA's good governance related transparency requirements (Kuzemko et.al., 2016, p. 89).

7.2.2 IEA's Response to the Rise of Emerging Consumers

The I.E.P established clearly the authority of the IEA to pursue outreach-activities geared towards non-member countries, with complete formal autonomy from the OECD (Scott, 1994A, p. 146). However, despite this mandate, IEA's outreach progress is generally regarded to be disappointing, having only gained traction in the recent decade (Van de Graaf and Lesage, 2009, p 299; MacNaughton, 2007, p. 290). The IEA requested during the 1997 Ministerial Meeting that "relations with countries of major importance for energy markets, especially China, India and Russia, be strengthened within the limits of the available resources", while in 1999 supported "widening and deepening the Agency's relations with major non-Member countries [...], in some cases by bringing them into IEA Membership" (Bamberger, 2004, p. 25). While none of these emerging consumers have become members to this day, the IEA has considerably stepped up efforts of pursuit. Indeed a 2010 interview, then-Director of the IEA,

Nobuo Tanaka, openly questioned the IEA's continued relevance, citing a significant increase in oil consumption among non-OECD countries.

“Our relevance is under question because half of the energy consumption already is in [non-OECD] countries. [...] In many ways, [the Chinese] are already working closely with us. But eventually we wish they would join us” – Nobuo Tanaka, former Executive Director of the IEA
(Hoyos, 2010)

In fact, according to Al Fathi (2011), due to rising oil prices and environmental concerns, the IEA extended a full membership invite to China in 2008. Due to certain circumstances however, the membership invite was modified to a “special partnership” focusing on expertise- and information exchange, and more importantly, “wider policy cooperation on oil stock management”.

Even if recruitment of these emerging consumers is beyond reach in the immediate future, this does not prohibit the IEA from coordinating more systematically with them. Colgan (2009, p. 12) argues the IEA needs to establish more high-profile and systematic dialogue with these nations even in the absence of full membership. Indeed, since the IEA's current executive director, Fatih Birol, assumed office in 2015, the organization has significantly stepped up in this regard. Birol established this focus early on in his tenure, as seen in an official interview published by the IEA shortly after his appointment. While the interview is more of an official public introduction of Birol, he takes the opportunity to stress the importance of building relations with emerging, non-OECD consumers. Being asked what he considered the key energy challenges for the IEA, and how he would seek to address them, he responded the following:

“Our 29 member countries,¹⁵ their share in the global energy use is declining. On the other hand, emerging countries such as China, India and Mexico - their share in the global energy markets are increasing. As a result of that there is an urgent need for the IEA to work closer and closer with these countries, and build organic ties, institutional ties with the emerging powers. This will be in the interest of those countries, but also in the interest of IEA and IEA member countries” – Fatih Birol, Executive Director of the IEA
(IEA, 2015A)

¹⁵ Mexico has since joined to make it 30.

There are many recent examples of the IEA displaying its focus on increasing collaborative efforts outside of full membership status towards emerging economies. In 2011, the IEA announced formally deepened ties with the Association of Southeast Asian Nations (ASEAN), whom the IEA predicted would see an increase in primary energy demand jump by 84% from 2008 to 2032 (IEA, 2011). More recently, in 2016, the IEA announced an agreement with China on establishing a new energy center in Beijing, the purpose of which lay in “accommodating collaboration in key areas such as energy efficiency, energy security, energy data and statistics as well as an improved focus on clean energy technologies and renewables” (IEA, 2016). In fact, the 2017 edition of the IEA’s *World Energy Outlook* came with a special focus on China and Chinese energy development, in which research and analysis the IEA conducted benefitted greatly from this IEA-China liaison office (IEA, 2017A, p. 473). A few months later, Reuters reported that the IEA had hired a Chinese official as a special advisor to the IEA head, the very first time a Chinese official has held such a role within the organization (Aizhu et.al., 2016). Additionally, in 2017, the IEA announced deepening ties to China, with an extensive three-year work program focused on supporting China’s energy transition and efforts to address environmental issues (IEA, 2017C).

Perhaps IEA’s most significant push for tightening collaborative efforts with emerging economies outside of granting membership access came at the IEA Ministerial meeting in 2015, where the IEA launched the *Association-program*. Here the IEA announced that China, as well as Indonesia and Thailand, would be joining as Association-countries. The Association-program was designed to “serve as a bridge and platform for wider-ranging and deeper co-operation and collaboration between IEA member and Association countries in the future” (IEA, 2015B). In practice, this has meant an increased focus on collaboration on energy security, energy data- and statistics, energy policy analysis and strengthening of institutional ties between Association countries and the IEA. Association countries are also granted participation in several IEA meetings.

Since its announcement in 2015, several other non-OECD countries have joined as Association countries, including most notably India who become an Association country of the IEA in March 2017. Current Association countries of the IEA are Brazil, China, India, Indonesia, Morocco, Singapore and Thailand. With Mexico joining as IEA’s 30th member in February of 2018 (IEA, 2018D), the extended IEA family (counting the inclusion of Association countries) accounts for roughly 70% of the world’s energy use, which is higher than when IEA was created

in 1974 and double the share of pre-Association launch in 2015. Based on IEA's predictions, this extended IEA family's share in energy use will remain well above 60% through 2040 (IEA, 2017B; 2018C). It follows then that there is great potential in these collaborative programs, even if they exist outside the framework of full membership statuses to several important countries.

Admittedly, this less formalized relationship does have its drawbacks, as the IEA will not have the same authority over countries who are not full members. Knowing, for instance, how the various non-member countries will react to a crisis will probably only be possible to know in the event of a crisis actually occurring. Of course, the IEA never did have legal authority over its own members either. As discussed in chapter 5 it did, however, have informal ways of asserting its power over its members, such as through denying 'renegade' governments the benefit of the allocation systems during crises or using the negative reinforcement tactic of 'shaming' governments failing to live up to policy-standards recommended by the IEA. It is difficult to see how this could be directly applied to non-member, Association countries. At best, the IEA would be able to deny Association countries access to expert policy advice, yet, the IEA arguably provides this advice not simply for the benefit of the individual countries themselves, but for the good of the entire global energy system.

The strength the IEA possesses over its non-member cooperators, then, lies not in its formal authorities or negative reinforcement, but rather through positive reinforcement, utilizing its policy-sharing and advisory capabilities. With all the energy-expertise the modern IEA possess, they can help build shared expectations about appropriate ways to handle crises and help establish procedures for rapid consultation and coordination. Such mechanisms can be put in place in countries like China and India, even if they remain non-members (Colgan, 2009, p. 12). Indeed, many of the strengths of the modern IEA, geared toward assisting countries in tackling issues of the various governance arenas, can be applied to non-members and members alike; the example above for instance offers important non-member states the same benefits as full member states, all while circumventing all the various obstacles and hurdles full membership requirements entail.

7.2.3 Conclusive Discussion on the IEA and Emerging Consumers

When the IEA was created in the aftermath of the 1973 oil shock, its founding fathers were faced a range of important institutional decisions. Two main choices were considered: (1) Create institutional arrangements consisting of a series of ad hoc conferences among the OECD nations, or (2) create a permanent organization with the purpose of handling the crisis, whether it be an independent agency entirely free from any existing arrangements or established within the OECD. Despite garnering some interest, the ad hoc alternative was ultimately abandoned in favor of a permanent organization, as the advantages of a continuing organization with a dedicated secretariat was considered far more effective in carrying out complex operational management of an oil emergency sharing system (Scott, 1994, p. 41).

Upon its creation, the IEA was then nested within the OECD-framework, so that only OECD-members could be members of the IEA. This made sense at the time, as it did present a variety of attractive advantages. Since the OECD offered an already existing institutional machinery, it ensured that the IEA could become operational almost immediately (Van de Graaf, 2012, p. 87). Additionally, the OECD already had some experience in dealing with oil questions, enjoyed highly developed expertise in economic analysis and statistics, and offered established staff, physical facilities and various other legal privileges (Scott, 1977, p. 18). In other words - in the face of the particular crisis the OECD-countries were experiencing at the time - the IEA was nested within the OECD for the sake of efficiency and convenience.

The IEA's institutional trajectory in the decades since its creation is clearly influenced by the choices of its architects back in 1974. All the important shifts that have occurred within the IEA since its inception – adopting the role of a consultant in global energy governance, adapting its ways of dealing with energy security to market-based and producer-consumer cooperative ways, increasing attention to issues of environmental stability to consult on good and sustainable energy policies, expanding its outreach towards emerging consumers – they have all occurred without a single change in the IEA's treaty, and without any considerable change to the formal, internal structure of the IEA (Colgan et.al, 2012, p. 137).

Herein lies many of the IEA's contemporary challenges. Looking at the legal and political hurdles discussed in this chapter, one commonality they share is that they stem from the IEA's path dependence and resistance to formal change. This again stems from the circumstances surrounding its creation. As Van de Graaf (2015, p. 93) argues, there is no discussion that, in

order to maintain or develop its position as a leading institution in global energy governance, the IEA absolutely need to find ways to accommodate the new class of rising energy heavyweights, especially large importing countries such as China and India. Yet its founding fathers' decision to nest the IEA within the OECD for the sake of convenience is the very source of many barriers to this today. OECD-membership requirement of IEA-members effectively shuts the door for direct recruitment of these emerging countries for the foreseeable future, while other legal hurdles can be traced to the IEA's time-frozen organizational structure as well. The same thing can be said of political hurdles, such the IEA developing a pro-market, laissez-faire mentality (as opposed to many emerging economies) as part of being mainly a Western organization, its voting structure, which directly put at odds its most powerful members and the emerging consumers, and its current strategic reserve-arrangements that allow emerging consumers to free-ride without partaking as members.

The IEA's path dependency is clearly illustrated through an interesting thought experiment, or even a compelling argument for an IEA reform, by way of counterfactual reasoning: what if the IEA had been created today? What would it look like? Had the oil shock of 1973 not evoked the creation of the IEA, and had it instead been created from scratch in the last decade, chances are it would look completely different. After all, the contemporary landscape of international energy politics is a vastly different one compared to the one in which the IEA was created. Oil security is no longer the only name of the game, and one would think both the IEA's mandates and membership structure would reflect the contemporary issues of the day, were it created today. Indeed, just as was the case with the IEA's actual creation in 1974, consideration would have to be given to the political and economic realities of the time. This all comes back to the idea discussed in chapter 3 that institutions are products of their specific contexts. Today, emerging consumer countries are of considerable importance in global energy, and thus, were the IEA to be created today, its organizers would most certainly solicit their membership. Although the IEA has amplified its outreach-policies in later decades, many of its internal structures remain practically identical to what they were in the 70's. The IEA's current membership base and continued institutional links to the OECD offer significant evidence of the path-dependent nature of the IEA (Van de Graaf, 2012, p. 240; Colgan et.al., 2012, p. 137).

8 Conclusion

8.1 Conclusive Discussion

In this thesis, I have analyzed changes in the energy regime complex and their effects on the IEA. These changes constitute a transition whereby the strategic logic predominantly characterized the energy regime complex during the IEA's early decades, however the dynamics of the functional have increasingly taken center stage in the days since. Broadly, two main changes are identified: the emergent agenda of global energy governance, entailing a broadening of issues tackled through institutional arrangements in the ERC, and the rise of a multipolar world of energy, with the advancement of emerging consumers outside the IEA/OECD-framework. Both of these changes, at face value, have threatened the relevance of the IEA and its original purpose. However, the organization has recognized and taken steps towards addressing both of these developments. The findings do indicate, however, that the IEA has the capacity to adapt to the former development more so than to the latter.

Despite little to no changes in the formal structure of the IEA, they have done much to accommodate their approach to energy security given the developments on the global energy market, and to address the environmental concerns central to the sustainable energy transition. As the 'state-led' system has increasingly retreated in favor of institutional governance of energy through cooperative efforts, the IEA has every opportunity to build closer ties and coordinate with other actors in the ERC towards pursuing the goals of global energy governance. Their unrivalled expertise on energy is a tremendous benefit for the organization in this regard. Through these means, the IEA can be an invaluable tool for state actors, and a significant contributor towards filling the 'gaps' in global energy governance, by working with other important actors and provide advice on implementing good and sustainable energy policies and practices. Certainly, this leaves the organization in a good position, as they are well equipped to handle many of the institutional demands of the contemporary energy regime complex of the functional logic: that of addressing the various challenges related to the different governance arenas of global energy governance – from energy security and economic development to environmental stability and domestic good governance.

However, as the IEA evolve from being primarily an oil security regime to a central actor in global energy governance, the organization faces numerous issues related to the rise emerging

consumers. Their rapid ascent outside of important global energy institutions have left considerable gaps in global energy governance. Consequently, it is vital for the IEA to accommodate them. However, while there are some benefits to be had for emerging consumers from potential accession into the IEA, full membership is unrealistic in the foreseeable future. The IEA's institutional path dependence presents many legal and political hurdles, with no clear or obvious solutions, speaking against full accession of these countries. The IEA has clearly recognized the significance of working with these countries, however, and are taking considerable steps to accommodate them and adapt to their emergence as important energy actors. Through their policy-sharing and advisory capabilities, the IEA is able to provide various benefits to state actors regardless of membership status. Arrangements such as the Association-program also signals the IEA's willingness to pursue efforts of addressing the governance gaps left by the emerging consumers, even in the absence of their full membership statuses.

Clearly, the IEA was founded with a very specific purpose in mind, during a time when its institutional environment was defined by vastly different characteristics than today. The agency's name undoubtedly implies the embodiment of a central role in international energy politics, and the agency has arguably always strived to live up to this. Indeed, when in its early years the ERC predominantly demanded institutional governance of oil security, the IEA existed to provide consumers with a solid institutional framework for exactly this. Additionally, the IEA had a large 'share' in this global energy architecture - it was by far the most prominent energy organization representing oil consumers, and the oil consumers it represented stood for the vast majority of energy being consumed globally. This allowed the IEA to fill the role the ERC demanded of it in a solid way.

The changes that have since taken place in the ERC saw the emerging agenda of global energy governance, with a focus on the 'energy system', its need for a sustainable transition, and the addressing of the wide array of governance arenas that this entailed. The IEA's relative share in the global energy architecture also diminished significantly, with a proliferation of new institutions addressing new energy issues, and emerging consumers ascending outside of the OECD-framework altering the balance in the global energy system. Despite these changes leaving behind what was, in essence, an organization with the sole purpose of ensuring oil security for consumers under very particular geopolitical circumstances, the IEA has more than clearly recognized the developments and taken efforts to adapt. Similarly to how their primary

goal of ensuring oil security for consumers aligned with the general agenda and institutional demands of the ERC under the strategic logic, their widely expanded goals now align with what is generally considered to be the goals and activities associated with global energy governance, or issues pertaining to the functional logic.

I conclude with a somewhat paradoxical assessment: The IEA, an organization created for a very specific purpose under very specific circumstances, existing now in an environment where both this specific purpose and specific circumstance has been left behind - whilst having undergone no formal structural- or organizational change to accommodate these changes - is ultimately left in a position of potential. Despite issues presented by its path-dependent nature, considering its standing in global energy governance and its increased focus on outreach-policies geared at accommodating emerging consumers, it is not hard to conclude that the effects of changes in the energy regime complex ultimately elicits some potential for the IEA.

8.2 The Way Ahead and Areas for Further Research

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

(Florini, 2012, p. 307)

As emphasized by Florini, the global energy system is currently facing a momentous challenge - or rather, many interconnected momentous challenges simultaneously. Ultimately, the purpose of global energy governance is to solve these challenges – a seemingly impossible task indeed - but at least the IEA have adopted quite well to this global governance agenda overtaking the energy regime complex. Yet, if it is to achieve meaningful success in addressing these challenges, the gravity of its reach and functions needs to be of global implications. This means including all the biggest energy players in the global energy architecture, which of course leads into the issue of emerging consumers.

Despite advantages the IEA are able to offer, and despite the organization's efforts to accommodate emerging consumers in the face of many impediments to granting them full membership, the ball is ultimately in the emerging consumer's court. Deciding to what degree

they wish to engage in institutions of global energy governance and pursue tightened bonds of collaboration with the IEA is ultimately their own prerogative. Over the past few decades, significant path-dependence has seen institutional arrangements for global energy governance progress down one lane, while emerging consumers have progressed down another altogether separate lane. That said, global energy actors' increasing realizations of interdependence has been a general trend during this same period. We have seen, in tandem with the IEA's focused shift towards accommodating the emerging consumers, a notable increase in collaborative efforts, such as the IEA's Association-program and the various collaborative efforts between the IEA and China taking place only the last few years.

Scholarly literature on global energy governance is still in its infancy, with many areas yet unexplored. As Van de Graaf (2013, p. 165) notes, further studies may explore deeper the linkages between the various decoupled domains of energy, such as energy security, economic development and environmental stability. Additionally, studies on emerging consumer's perspectives on or possibilities of accession into institutions of global energy governance such as the IEA, or more intimate study of the IEA's potential for reform to accommodate them, would also make for interesting further research.

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