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### Institutional complexity and sustainable development in the EU electricity sector

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## **CHAPTER 4**

# **MULTIPLE EMBEDDEDNESS AND ISOMORPHISM: MULTINATIONALS' RESPONSES TO DEINSTITUTIONALIZATION AFTER A DISRUPTIVE EVENT<sup>2</sup>**

### **4.1. INTRODUCTION**

Pronounced only seven months after the Fukushima nuclear disaster by the then French President Nicolas Sarkozy, the following statement epitomizes the critical role played by national institutional arrangements in politically-salient sectors like the electricity sector (cf. chapter 3):

“Nuclear power is the result of a program conceived under the orders of General de Gaulle, prepared by President Pompidou, decided by President Giscard d'Estaing and almost all built under the two terms of François Mitterrand.”

Sarkozy (2011)

Multinational enterprises (MNE), operating in these sectors across multiple countries, have to tackle such country-specific institutional configurations. Responding to them can become challenging for MNEs in particular when global disruptive events occur, as they engender heterogeneous processes across the national institutional environments in which the MNEs are embedded.

The importance of the institutional environment to MNEs is now widely accepted in the international business (IB) literature (Henisz and Swaminathan, 2008; Kostova et al., 2008; Westney, 2011). In light of the adoption of several definitions and conceptualizations of the concept of ‘institution(s)’ in IB, including more economic (North, 1990) or sociological (Scott, 2001) approaches, some authors have argued this constitutes an ‘institution-based view’ of IB strategy (Peng et al., 2008). Neo-institutional theory’s applicability to MNEs has however also increasingly been questioned given its focus on institutional stability and firms’ conformity to taken-for-granted institutions (Kostova et al., 2008). This chapter explores whether and how the key neo-institutionalism concept of isomorphism (DiMaggio and Powell, 1983) is relevant to the study of MNEs, arguing against the abandonment of this institutional theory concept and for building new theory by developing this established concept for studying MNEs. We focus on MNEs’ multiple institutional embeddedness and

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<sup>2</sup> This chapter includes co-authored work with Ans Kolk and Johan Lindeque

(de)institutionalization processes to illuminate how the pattern(s) of multiply-embedded MNEs' responses to deinstitutionalization after a disruptive event challenges the key institutional theory concept of isomorphism and identify potential theoretical extensions to existing understandings of the concept in light of the MNE's unique nature.

Neo-institutional theory draws attention to the embeddedness of organizational activity and to the need to recognize, as argued by Granovetter (1985), "the contextualization of economic activity in ongoing patterns of social relations" (Dacin et al., 1999: 319). The MNE, by operating in at least two national contexts, is potentially embedded "in multiple, fragmented, ill-defined and constantly evolving institutional systems" (Kostova et al., 2008: 1001). This poses a critical challenge to the applicability of the isomorphism concept to MNEs, as they may be subject to potentially diverse and competing institutional processes and pressures for legitimacy in different locations. MNEs furthermore are not viewed as passive organizations simply adapting to stable institutional pressures; their active engagement in influencing institutions through, for example, negotiations with national governments (Cantwell et al., 2010; Henisz, 2003) has been accepted early in IB scholarship (Ramamurti, 2001; Reich, 1973). Kostova et al. (2008: 1001) argue that MNEs play a significant 'agency role', "manipulate[ing] and partially construct[ing] their institutional environment". This is consistent with the more comprehensive view of the institutional environment as having a double nature (Holm, 1995), which implies that institutions drive organizational practices and change, but are also subject to change and to the action(s) of organizations that seek to maintain, transform or disrupt them (Lawrence et al., 2001). Different from neoinstitutionalism, this view emphasizes the active role of firms and the concept of change in the struggle between different 'institutional logics' (Dacin et al., 2002; Thornton, 2002) among actors operating in an organizational field (Scott, 2001).

The empirical setting is a comparative study of a specific type of European electric utilities, i.e. those involved in nuclear energy, which are in this study named 'nuclear energy firms'. Specifically, the focus is on nuclear energy firms' responses to institutional change in the French, German and the United Kingdom organizational fields for nuclear energy before and after the 2011 Fukushima nuclear disaster. The Fukushima nuclear accident is a disruptive event that has had a different impact on the national nuclear energy organizational fields in the three focal European countries, each having a unique constellation of MNEs and national institutional idiosyncrasies.

The results of the literature review conducted in chapter 2 and 3 support the selection of electric utilities, and specifically of nuclear energy firms, as units of analysis for this study. Indeed, extant research on electric MNEs (e.g. Bergara et al., 1998; Griffiths et al., 2001)

al., 2007; Holburn and Zelner, 2010) shows that country-specific institutional arrangements play a critical role in their market entry decisions and suggests that they also influence their behaviour after the entry. In addition, the literature reviewed shows that electric utilities and especially nuclear energy companies (Beelitz and Merkl-Davies, 2012; Patriotta et al., 2011), given the importance of institutions for their survival, tend to not only conform to them but to actively engage in influencing them (see section 3.4.1). Finally, the studies focusing on nuclear energy companies in France (Banerjee and Bonnefous, 2011) or Germany (Beelitz and Merkl-Davies, 2012; Patriotta et al., 2011) signal that the dominant view of nuclear energy's sustainability may differ significantly across countries (see section 2.5). The dynamics enacted in Germany by a nuclear accident that occurred to Vattenfall, and described by Beelitz and Merkl-Davies (2012) and Patriotta et al. (2011), support the selection of this type of phenomenon as a disruptive event.

A deductive bottom-up theorizing (Shepherd and Sutcliffe, 2011) qualitative multiple-case study research design (Eisenhardt, 1989; Yin, 2003) is adopted to examine MNEs' and governments' responses to the disruptive event, both within and across the three contexts, drawing on multi-country newspaper reporting and on documents released by the firms and governments. In keeping with this deductive bottom-up theorizing research design, we reviewed the literature to develop key prior constructs for this study, strengthening construct and internal validity (Eisenhardt, 1989; Yin, 2003). Theoretical sampling (Eisenhardt, 1989; Yin, 2003) was used for selecting the case organizational fields and embedded units of analysis with the intent of establishing theoretically useful cases, constraining variation and sharpening external validity, while retaining theoretical flexibility and allowing openness to letting the data 'speak' and allow for development of the concept and theory of isomorphism with respect to multiply embedded MNEs in response to deinstitutionalization after a disruptive event. These issues are further elaborated in the subsequent methodology section, which is followed by a presentation and discussion of the findings, and the conclusions.

The study aims to contribute to the literature in three main ways. First, it provides insights on the application of institutional theory to IB, by exploring whether and how isomorphism, a core construct in institutional theory, matters to MNEs. More specifically, the study highlights the limits of its current conceptualization and suggests new categories of isomorphism. These categories aim to integrate the institutional complexity MNEs experience, due to their presence in multiple countries, and MNEs' active agency emphasized by extant literature. Second, we respond to Doh's (2015: 609) call for 'phenomenon-driven research' in IB, by focusing on the impact of 'a contemporary, real-world phenomenon', like the Fukushima disaster, and exploring whether and to what extent institutional theory 'inform[s] that reality'. Third, our

study contributes to the literature on institutions and the electricity sector. It addresses the limited attention given by extant literature to the impact of national institutional configurations' heterogeneity on the behaviour of electric MNEs. More specifically, it contributes to understanding electric utilities' strategies in the multiple countries where they already have a substantial presence. This complements extant research on the impact of national institutions on electric utilities' international activities (e.g. Bergara et al., 1998; Holburn and Zelner, 2010) as it has been limited to studying their market entry decisions (see section 3.5.1). Finally, by focusing on countries with different dominant views of nuclear energy's legitimacy as sustainable energy source, we shed light on how electric firms tackle the misalignment of sustainability-related institutional demands across countries, thus addressing the research gap identified in section 2.5.

## **4.2. MULTIPLE EMBEDDEDNESS AND ISOMORPHISM**

Institutional embeddedness has been defined as "the nesting of firm and market behaviour in a social and normative context" (Oliver, 1996: 167). As a result of their operations in more than one country, MNEs are argued to experience multiple embeddedness in diverse institutional contexts, including the home country, host countries and the supranational environment (Pinkse and Kolk, 2012; Westney, 2005), which creates numerous opportunities and challenges through the (potential) institutional divergence between these contexts (Jackson and Deeg, 2008; Pinkse and Kolk, 2012). Embedded firms are often protected from "environmental uncertainty and competitive threats to survival" (Baum and Oliver, 1992: 541), however being institutionally embedded also has the potential to create inertia and rigidity in firms' strategy keeping them tied to past environmental conditions (Lewin and Volberda, 1999; Rodrigues and Child, 2003). Multiply-embedded MNEs could also be subject to harmful institutional changes triggered by other forces (Pinkse and Kolk, 2012), without being able to influence them, resulting in the loss of critical resources on which they previously relied. Being simultaneously embedded in various national institutional environments exposes MNEs to (concurrent) institutional forces that might be alike, different, diverging or converging.

Institutional theory argues that institutionally embedded firms experience isomorphism, defined as "the constraining process that forces one unit in a population to resemble other units that face the same set of environmental conditions" (DiMaggio and Powell, 1983: 149). Beside institutional isomorphism, competitive (economic) isomorphism has been identified as explaining the observed tendency of organizations to increasingly resemble others (Beckert, 2010; DiMaggio and Powell, 1983). Competitive isomorphism is the homogeneity of firms as a result of 'competitive

processes' (Scott, 2014): firms imitate certain practices or organizational forms that allow them to "improve their economic performance and maintain competitive parity" (Garcia-Pont and Nohria, 2002: 309). This occurs particularly among firms operating in "fields in which free and open competition exists" (DiMaggio and Powell, 1983: 150). Institutional isomorphism emerges from three mechanisms: coercive, mimetic and normative (DiMaggio and Powell, 1983). Coercive isomorphism arises from the formal and informal pressures exerted on a firm by "a more powerful authority" (Kostova and Roth, 2002: 216), often governments. Mimetic isomorphism results "from standard responses to uncertainty" (DiMaggio and Powell, 1983: 150), where ambiguous and unclear situations lead firms to mirror the behaviour of other (successful) firms operating in the same organizational field. Normative isomorphism occurs when firms adopt behaviours deemed appropriate in the organizational field (Kostova and Roth, 2002). While disentangling institutional from competitive isomorphism is crucial, extant institutional studies on isomorphism often do not distinguish between them (Heugens and Lander, 2009). MNEs' argued ability to select from a portfolio of economically attractive host countries (Mudambi, 1995) and exit unfavourable host locations and relocate to more attractive locations (Benito, 2005; Mudambi, 1995) give this distinction increased relevance.

MNEs' "embedded[ness] in multiple, fragmented, ill-defined and constantly evolving institutional systems" (Kostova et al., 2008: 1001), which can pose divergent opportunities and challenges, has led to a contestation of the degree to which institutional isomorphism can be applicable to MNEs. However, an in-depth investigation of isomorphism among MNEs across countries is absent in the extant literature, which has mainly focused on 'within-field variability in isomorphism' (Heugens and Lander, 2009). The 'between-field variability in isomorphism' and the role played by organizational field-level drivers on isomorphic behaviour have therefore hardly received attention (Heugens and Lander, 2009), despite Westney (2005) arguing that the investigation of 'the nature and strength of isomorphic pulls within and across fields' is particularly promising for advancing research in institutional theory. The way MNEs respond to divergent institutional isomorphic pulls within and across the countries in which they operate is, therefore, a crucial question in institutional theory requiring further investigation.

### **4.3. DISRUPTIVE EVENTS, DEINSTITUTIONALIZATION AND ISOMORPHISM**

The challenge posed by MNEs' multiple embeddedness to the concept of isomorphism is particularly critical if the organizational fields in which multinationals are embedded are subject to processes of institutional change (Hoffman, 1999), which are often

triggered by disruptive events. Disruptive events have been defined as shocks (Fligstein, 1991) or jolts (Meyer, 1982) that include societal or political milestones or disasters (Hannigan, 1995). Studies have shown that disruptive events can trigger changes in the institutional environment and prompt organizational responses (e.g. Hoffman, 1999; Maguire and Hardy, 2009; Munir, 2005; Sine and David, 2003). A disruptive event's impact relies not on its "objective characteristics", but on "its enactment in the environment" (Hoffman and Ocasio, 2001: 415), as events are often not unanimously acknowledged, but interpreted and 'socially constructed' (Munir, 2005). If the event is perceived as salient by actors in other countries outside the country in which it occurred, it has unique characteristics given that it is, what we call, a 'global disruptive event'. Importantly for the MNE embedded in multiple idiosyncratic contexts, institutional change following global disruptive events can be uneven across countries as the 'meaning' of the event is differently interpreted.

Institutional change, therefore, does not directly result from a disruptive event; while a disruptive event might initiate the change process, the prevailing new order results from several institutional change processes occurring as part of the struggle over different institutional logics among actors operating in an organizational field (Dacin et al., 2002; Thornton, 2002). Hence, the disruptive event leads to a situation of institutional uncertainty and various actors in the organizational field may intervene through their institutional work, 'the purposive action' (Lawrence and Suddaby, 2006: 215) directed to defend or disrupt existing institutions (e.g. Hoffman, 1999; Lawrence and Suddaby, 2006; Maguire and Hardy, 2009; Munir, 2005; Sine and David, 2003), and this process can "end up in quite unexpected places" (Holm, 1995: 401).

In the institutional change literature, significant attention has been assigned to practices' institutionalization, while deinstitutionalization, "the process by which the legitimacy of an established institutionalized organizational practice erodes or continues" (Oliver, 1992: 564), has mostly been overlooked (Dacin et al., 2002), considered merely a secondary outcome of the creation of new institutions (Maguire and Hardy, 2009; Oliver, 1992; Scott, 2001). Nevertheless, exploring deinstitutionalization is particularly relevant because the complex dynamics triggered in the organizational field by disruptive events often lead to changes in institutional rules and values which, as argued by Oliver (1992), are antecedents of the delegitimation of existing institutionalized practices. Thus deinstitutionalization has a crucial role "in explaining organizational behavior and change" (Oliver, 1992: 564).

Previous studies in management and organization have mainly examined the dynamics engendered by a disruptive event as seen in processes of institutional change and/or in firms' actions in a specific country (Hoffman, 1999; Maguire and Hardy, 2009; Sine and David, 2003); IB scholars have not integrated an in-depth comparative analysis of a

disruptive event's effects across countries (Li and Tallman, 2011; Oh and Oetzel, 2011). To the best of our knowledge, researchers have not investigated how multiple embeddedness affects MNEs' responses to this complexity. This is particularly relevant because, while neo-institutional theory illustrates a stable and persistent institutional environment, where firms passively conform to existing institutional rules and values (DiMaggio and Powell, 1983), research on institutional change has emphasized that often institutions undergo transformation processes and firms are not only affected by institutional changes but they also actively influence them (Dacin et al., 2002). In particular, MNEs embedded in home and/or host countries are integrated within the institutional systems and therefore are able to actively affect institutional change in their favour (Pinkse and Kolk, 2012; Rodrigues and Child, 2003).

Our comparative multi-country study thus allows isomorphism to be investigated across and within diverse organizational fields under (de)institutionalization processes triggered by a disruptive event. By enabling insights on isomorphic outcomes across countries between MNEs and within fields, this study creates opportunities for evaluating the applicability of isomorphism to multiply-embedded MNEs.

#### **4.4. DEINSTITUTIONALIZATION AND MNE-GOVERNMENT RELATIONS**

The deinstitutionalization of an institutionalized practice due to a loss of legitimacy takes place between actors that operate in the same organizational field, composed by "those organizations that, in the aggregate, constitute a recognized area of institutional life" (DiMaggio and Powell, 1983: 148). As indicated, a field's members can seek to create, maintain or displace institutions through their institutional work (Lawrence and Suddaby, 2006). This means that deinstitutionalization is expected to be "supported or opposed by a variety of agents who draw on a wide array of resources or strategies" (Lawrence et al, 2001: 629). Among a field's constituents, the government and firms have been identified as crucial actors for institutional change (DiMaggio and Powell, 1983; Oliver, 1992). The interaction between governments and MNEs is particularly relevant for deinstitutionalization considering the former's authority and the latter's economic power.

##### **4.4.1. Deinstitutionalization and the role of the government**

National governments are crucial in deinstitutionalization processes as they have the most power, through their 'regulatory endorsement' (Deephouse, 1996) and their "pressures on organizations to conform to public demands and expectations" (Oliver, 1992: 576), to create, maintain or disrupt institutions. Despite globalization, institutional dissimilarities still persist between countries (Hall and Soskice, 2001; Meyer et al., 2011; Whitley, 1999), presenting diverse arrays of opportunities and

challenges to firms (Henisz, 2003). Each country has a set of “national values and legal orders that tend to persist in time” and governments’ actions depend on the idiosyncratic “state organizational structures, national political institutions and societ[al] expectations regarding the appropriate economic role of the public sector” (Murtha and Lenway, 1994: 114). These national institutional idiosyncrasies are likely to affect MNEs’ legitimacy as they face diverse institutions in and across the countries where they operate (Jackson and Deeg, 2008; Murtha and Lenway, 1994).

Institutional divergences are particularly important for MNEs operating in ‘politically salient’ industries, like the electricity sector, featured by “political, historical or cultural attributes that create a widespread public interest in [their] operation or outcome” (Henisz and Zelner, 2005: 362). As illustrated in chapter 3, until the 1980s the electricity sector was dominated globally by heavy regulatory control and state ownership, justified by a “conventional market failure” reason (Boscheck, 1994: 112). Yet, in the last decades, among European countries, a privatisation and deregulation trend has brought changes to the industry and to the degree of government intervention in its activities (Boscheck, 1994; Domanico, 2007). Although governments’ involvement in the electric utilities’ operations has often continued even after privatization, mainly to balance private and public objectives, the degree and kind of intervention has differed across countries, often depending on the persistent national institutional idiosyncrasies (Bohne, 2011; Domanico, 2007).

These persistent national institutional idiosyncrasies are also expected to affect how governments intervene in deinstitutionalization processes arising in a field, since they can adopt various actions to defend existing institutions or accelerate their elimination. Among the mechanisms of institutional work adopted by governments, coercive pressures are generally considered the most effective, although they can have different levels of ‘immediacy’ on institutional change processes (Lawrence et al., 2001). A more rapid influence may come from changes in formal and informal coercive pressures, implying legal enforcement and sanctions (Oliver, 1992), a slower influence from “symbolic and hortatory tools” (Schneider and Ingram, 1990: 519), “public relation campaigns” (Henisz and Zelner, 2005: 366) or “attempts to delegitimize some activity through public service advertising” (Lawrence et al., 2001: 628). Due to the institutional idiosyncrasies of the countries where they are active, MNEs can be expected to face different degrees and kinds of intervention by national governments, which can engender divergent institutional pressures. Thus, the analysis of MNEs’ responses to these diverse institutional forces is crucial to illuminate how multiple institutional embeddedness challenges the presence of isomorphism among MNEs.

#### **4.4.2. Deinstitutionalization and the role of the MNE**

MNEs embedded in multiple institutional environments are argued to face complexities in the development of their response to deinstitutionalization after a disruptive event. Since institutional change starts when multiple institutional logics confront each other (Dacin et al., 2002), an MNE not only faces different institutional logics in one country, but potentially also divergent institutional logics across countries. MNEs' actions in response to triggering events are likely to reflect the complexity of the dynamics taking place in their home and/or host environments, which are therefore relevant to investigate for understanding pattern(s) of multiply-embedded MNEs' responses to a common disruptive event.

DiMaggio (1988) stressed the relevance of firms in institutional change, considering their interest(s) and power. Firms are expected, after a disruptive event they deem salient (Hoffman and Ocasio, 2001), to intervene through their institutional work to defend the status quo or to support change (Lawrence and Suddaby, 2006) in light of uncertainty that arises over the legitimacy of existing institutions. However, while firms have been investigated as agents for institution creation and transformation, this is much less the case for their role in the maintenance of existing institutions (Lawrence and Suddaby, 2006). This is consistent with the limited research on deinstitutionalization, argued previously, since it is particularly when the existing institutions are at risk of disappearing that defensive institutional work is likely to emerge among incumbents.

MNEs, through their interaction with other actors, have the potential to contribute to institutions' creation, change or disruption (Cantwell et al., 2010; Jackson and Deeg, 2008). MNEs' size and scope makes their institutional work particularly important. Scholars analysing institutional isomorphism have tended to focus on the similarity of firms' market responses to extant stable institutions, highlighting passive conformity to them. Yet, extant MNE literature has contested institutional isomorphism based, among others, on the argument that MNEs are active institutional agents and not (only) passive adaptors. However, since MNEs operate in complex institutional environments, the degree of (in)compatibility between isomorphic responses and institutional work, which have been largely opposed to one another, has not been investigated. Also, as the basis of the isomorphism concept is the idea of similarity between organizations' behaviour to gain legitimacy, limited attention has been given to the likely divergent context and drivers of an MNE's institutional work.

## 4.5. METHODOLOGY

We adopted a deductive bottom-up theorizing (Shepherd and Sutcliffe, 2011) qualitative multiple-case study research design (Eisenhardt, 1989; Yin, 2003). While the preceding section established the key institutional theory constructs for this study, we now explain the theoretical sampling logic for the three focal case organizational fields and embedded units of analysis, with a research design that allows credible incremental theory refinement, aiming to extend the institutional theory of isomorphism through its inspection with new MNE-specific case material (Ridder et al., 2012). The national organizational fields for nuclear energy in France, Germany and the UK are purposively sampled as part of a replication logic that seeks to fill theoretical categories and providing 'ideal types' (Eisenhardt, 1989) of macro institutional contexts. Nuclear energy firms, i.e. electric utilities involved in nuclear energy, and the three respective national governments are identified as the primary actors in the field(s) and are the embedded units of analysis within the national organizational field cases.

The focus on electric utilities, and in particular on nuclear energy firms, has been considered appropriate for this study for three main reasons, which draw on the results of the literature review conducted in chapters 2 and 3. First, extant literature on electric MNEs (e.g. Bergara et al., 1998; Griffiths et al., 2007; Holburn and Zelner, 2010) signals that country-specific institutional arrangements play a critical role in their market entry decisions, also suggesting a strong influence on their post-entry behaviour. Second, electric utilities and especially nuclear energy companies (Beelitz and Merkl-Davies, 2012; Patriotta et al., 2011), given the importance of institutions for their survival, tend to not only conform to them but also to actively engage in influencing them (see section 3.4.1). Furthermore, the literature focusing on nuclear energy firms in France (Banerjee and Bonnefous, 2011) and Germany (Beelitz and Merkl-Davies, 2012; Patriotta et al., 2011), highlights that the dominant view of nuclear energy's sustainability may diverge across countries (see section 2.5). This indicates the likelihood of heterogeneous deinstitutionalization processes across countries, following a global disruptive event like the Fukushima nuclear accident.

The selection of the French, German and UK fields as national nuclear energy fields is justified for a number of reasons. In particular, the focal French, German and UK fields are major national energy markets, within the European Internal Energy Market, each with nuclear power generation in the national energy mix, different government stances on nuclear energy in each country before and after the external event and with national institutional idiosyncrasies. Given the relevance of national institutional arrangements for electric firms, institutional idiosyncrasies consisting in country-

specific state-market relationships were considered potentially important dimensions in explaining differences in firm and government responses to nuclear energy's (de)institutionalization. . The three countries also represent broadly accepted institutional variation in terms of state-market relationship. The UK was included as an institutional system that tends towards emphasizing the market mechanism (Hall and Soskice, 2001) and is featured by centralization of political power (Schmidt, 2009), Germany as a system designed to engender consensus-based decision-making (Hendricks, 2010) and divided political power across federal and federal state levels (Schmidt, 2009), while France is featured by a dirigiste approach to industrial policy and centralised political power (Schmidt, 2003; Schmidt, 2009). It is important to note however that the exact manner in which these institutional idiosyncrasies would matter was left open to allow the unique character of each setting to be reflected in the analysis, in keeping with the research design that uses theoretical sampling to establishing theoretically useful cases, constraining variation and sharpening external validity, while retaining flexibility and openness to allowing the data to 'speak'. The firms analysed were E.ON, RWE, EnBW, Vattenfall, EDF, Areva, Centrica, Iberdrola, GDF Suez and SSE, which had a diverse presence across the nuclear energy sectors of Germany, France and the UK in the period studied and represented the largest actors in each market (Kolk et al., 2014; Schülke, 2010) (Figure 4.1). It has to be noted that, although Areva is not an electric utility, Areva has been selected because it "is present throughout the entire nuclear cycle" (Areva, n.d.), it is considered a major firm in the French nuclear energy sector by the French government, together with EDF, and its collaboration with EDF has been crucial for EDF's nuclear activities.

The disruptive event is the Fukushima nuclear plant disaster that occurred during March 2011 and was ranked by the International Atomic Energy Agency at the highest level, Major Accident, of the International Nuclear Event Scale. The Fukushima disaster did not occur in a stable or even global institutional environment for nuclear energy. Particularly in the EU, divergent business and government interests and perceptions coexisted across countries.

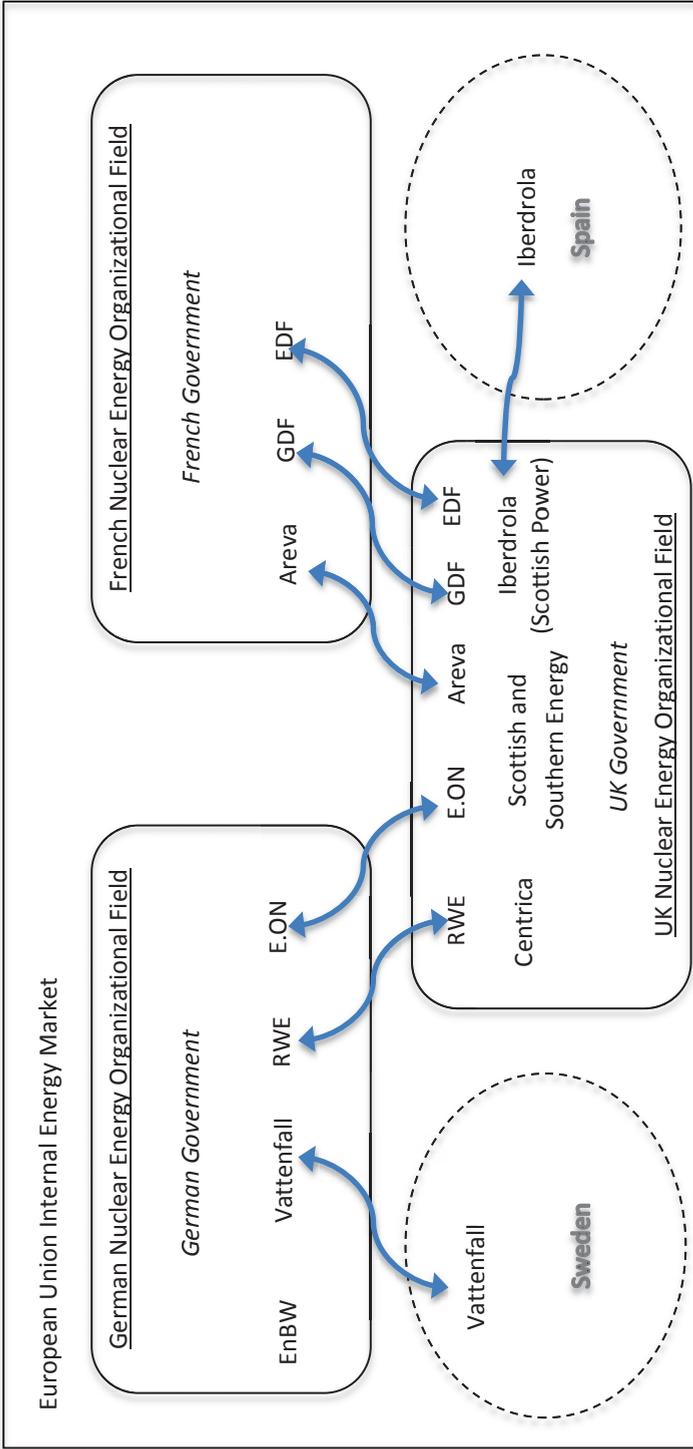


Figure 4.1: Focal National Nuclear Energy Organizational Fields and Embedded Units of Analysis

In the three focal countries, the situation was uneven regarding the nature of the firms involved, government stances and public opinion about the desirability of and support for nuclear energy. Contestation of nuclear energy's legitimacy increased after the Fukushima disaster, and deinstitutionalization was at play. Firms operating in the three countries faced various types of regulatory pressures and the situation was highly complex for those multinationals (in our study particularly EDF, Areva, E.ON and RWE) actively involved in the nuclear sector within more than one country and therefore confronted with multiple, often divergent, institutional processes.

The research draws on publicly available data, systematically collected from several newspapers and communications of the firms and governments (Table 4.1). The press sources include highly regarded national newspapers from France, the UK and Germany and an international financial newspaper, the Financial Times; the latter provides an observation of the interaction between firms and governments from an 'external' perspective relevant to all three countries.

It is important to note that all four newspapers covered events in each of the focal national fields, with different degrees of emphasis, therefore information for all three fields was collected from every newspaper. Communications and documents released by the governments and firms were also used, in order to provide an additional source data triangulation (Denzin, 1978).

The documents collected covered two periods, the first from 11 March 2010 to 10 March 2011, and the second from 11 March 2011, the day on which the Japanese Government declared the nuclear emergency, to 31 December 2012. The first period allowed a 'business as usual' base-line of the institutional nature of the organizational fields to be established, the second time period a wide appraisal of the impact of Fukushima within and across the three national cases.

In keeping with the deductive bottom-up theorizing qualitative multiple-case study research design, the analytical strategy adopts a within and across case approach to recognizing patterns of relationships (Eisenhardt, 1989, Eisenhardt and Graebner, 2007; Yin, 2003). The within-case analysis independently analysed developments within each of the national organizational fields in terms of the key constructs from the literature to focus attention of the researchers. These constructs were again used in the cross-case analysis to draw out the subtle differences and similarities across the cases for these specific features. Prior specification of key constructs for analysis is an accepted strategy for strengthening the focus of the analysis, strengthening construct and internal validity (Eisenhardt, 1989), while remaining open to emergent themes during the analysis.

Source	Country of Publication	Publication Language	Search Terms Used	Number of Articles*			
				Pre-Fukushima		Post-Fukushima	
				11/03/2010 – 10/03/2011	Collected*	11/03/2011 – 31/12/2012	Collected*
Die Zeit	Germany	German	Atom; Kernkraft; AKW; Atomkraft; Atomkraftwerke	321	99	780	235
Le Monde	France	French	Nucléaire	1571	83	3518	247
The Guardian	UK	English	Nuclear	2026	60	3706	108
Financial Times**	UK (including European edition)	English	Nuclear and geography index terms	412	10	831	29
				367	19	1061	71
				938	42	1752	86
Nuclear firms' press releases	UK, France, Germany	English, French, German	The press releases were sampled by searching government and firm websites, thus all documents collected were coded. As these documents are not accessible from a common database this was the only viable option for including them in the analysis.	47	47	92	92
				36	36	154	154
Governments' press releases	UK, France, Germany	English, French, German		36		154	154

**Table 4.1:** Overview of data collection

\* All the articles collected were read and those relevant for the subject of this paper were subsequently coded

\*\* According to the Financial Times Average Daily Global Audience (ADGA), the Financial Times readers outside the UK accounted for 77.4% of the total readers on an average day in the period January to December 2012 ([http://www.fttoolkit.co.uk/2011mediakit/ft\\_adga.html](http://www.fttoolkit.co.uk/2011mediakit/ft_adga.html)). Thus while the Financial Times is published out of London the newspaper addresses a readership that is international, not a domestic UK audience.

Thematic coding was used to analyse the information in terms of the dimensions of institutional change: actors and institutional work. Data was collected on the governments in each country and on the ten firms operating in one or more of the national nuclear energy organizational fields. Although a few of the firms were present in some countries with other activities (e.g. wind, hydro, solar energy), this study focused only on the location(s) of their nuclear business (for some basic information on the firms, see Table 4.2).

The data collected concerned the governments' institutional work and the nuclear firms' organizational responses. Regarding the governments, different categories of institutional work were identified, because their pressures may have different levels of strength or immediacy (Lawrence et al., 2001) and may aim to create, defend or disrupt institutions (Lawrence and Suddaby, 2006). Concerning nuclear firms' organizational responses, we identified both market responses, in terms of geographic scope and nuclear energy inclusion/exclusion in the energy portfolio, and institutional work, in terms of helping create, defend or disrupt institutions (Lawrence and Suddaby, 2006), while acknowledging that MNEs might adopt multiple responses simultaneously.

Once the relevant sources were coded, a 'chronological list of events' was developed (Garud and Rappa, 1994). Van de Ven and Poole (1990) and Garud and Rappa (1994) define events as crucial incidents that occur in the development of a technology, and following Maguire and Hardy (2009), we think that the same term is also suitable to indicate the occurrences that unfold in a (de)institutionalization process. We therefore developed a qualitative database where each event included the date, the actor and the actions listed in a chronological order. This allowed an assessment of the interplay of the governments and firms in the national organizational field and to examine the process of (de)institutionalization in all its stages. This analysis was used to develop a narrative account of the key strategic decisions/events for each firm and government in each national case. The analysis presented in this chapter draws on this narrative account and does not reference all the individual sources due to the large number of sources and constraints of length, but Tables 4.4-4.6 provide a sample of post-Fukushima citations for each country for illustrative purposes. Full referencing is available from the authors upon request.

Dimensions	EDF**	GDF-Suez	Areva **2	RWE	E.ON	EnBW	Vattenfall	Centrica	SSE	Iberdrola
Total Revenues (US\$bn)* <sup>1</sup>	90.81	126.08	€ 9.34	68.35	157.06	26.13	27.89	36.86	50.61	44.01
Total Employees * <sup>1</sup>	156,168	240,303	46,513	72,068	78,889	20,959	34,685	39,432	19,489	31,855
Fortune Global 500 Rank (2012)* <sup>1</sup>	73	33	-	124	16	420	398	288	189	230
Degree of State Ownership** <sup>3</sup>	84.4%	36%	87%	16% <sup>3</sup>	0%	93.5% <sup>3</sup>	100%	0%	0%	0%
Strategic (Regional) Focus** <sup>3</sup>	Home Country	Home Region	Home Region	Home Country	Home Region	Home Country	Home Region	Home Country	Home Country	Home Region

#### Electricity Generation Business Overview

Firm	Home Country	Nuclear Generation Capacity (MW) in Focal Locations 2012 (2010)** <sup>4</sup>							Electricity Generation Fuel Mix (%) 2012**		
		Sweden / Spain	Germany	France	UK	Nuclear	Fossil	Renewable	Other		
EDF	France	-	-	65,702 (65,702)	10,525 (10,252)	75.5	15.4	9.1	-		
GDF-Suez	France	-	-	Supply Agreement with EDF capacity <sup>4</sup>	-	5.0 <sup>5</sup>	72.0 <sup>5</sup>	17.0 <sup>5</sup>	6.0 <sup>5</sup>		
Areva	France	Areva does not operate nuclear generating capacity, the firm is specialized in building and maintaining nuclear operations.									
RWE	Germany	-	4,088 (6,613)	-	-	13.5	79.8	5.5	1.2		
E.ON	Germany	-	9,838 (12,160)	-	-	23.0	67.0	9.0	1.0		
EnBW	Germany	-	2,858 (4,034)	-	-	43.7	41.4	12.2	2.7		
Centrica	UK	-	-	-	20% equity stake in EDF capacity <sup>5</sup>	55.9	41.7	2.4	-		
SSE	UK	-	-	-	-	-	75.0 <sup>5</sup>	25.0 <sup>5</sup>	-		
Vattenfall	Sweden	7103 (7088) <sup>6</sup>	1,500 (1,500) <sup>4</sup>	-	-	27.3	45.7	25.6	1.4		
Iberdrola	Spain	6240 (6706) <sup>6</sup>	-	-	-	19.4	48.1	32.5	-		

**Table 4.2:** Focal firm characteristics and nuclear power capacity and generation fuel mix

Source: \* Fortune Global 500; \*\* Annual Reports and Accounts; \*\*\* Platts Power Vision Database

#### Notes:

- 1) The employee and revenue data was collected from the Fortune Global 500 list published in 2012, as this provided US\$ revenue figures converted at the time of publishing, which allows a more direct comparison of MNE size. See note 2 for details on Areva, which was not included in the list.
- 2) The data for Areva is taken from the firm's 2012 Reference Document and revenue figures are for the year ended 31 December 2012.
- 3) Adapted from Kolk et al. (2013) using data from 2012 annual accounts for Areva, EnBW, Centrica and SSE. State ownership for RWE and EnBW includes federal and local communes' stakes, at EnBW the federal state of Baden-Württemberg (46.75%) and local communes (46.75%) dominate the ownership of the firm.
- 4) The data is from the 'Changes in and Total Installed Nameplate Capacity by holding company in MW' table from the Platts Power Vision Database. The data reflects a mixture of ownership related operating responsibility of and minority stakes in nuclear power plants, as nuclear power plants are typically joint-ventures. In the case of GDF-Suez and Centrica the data for their home countries was revealed in the annual accounts to be rights to access and a minority stake in another firm's generating capacity respectively.
- 5) Percentage of generating capacity, as generation energy mix not available, the values for GDF-Suez are for 2011 and for SSE for 2012.
- 6) The nuclear capacity for Vattenfall and Iberdrola are included to provide an indication and allow comparison of home country importance to these firms.

## 4.6. FINDINGS

The three focal countries presented large differences in the approach towards nuclear energy and deinstitutionalization processes following the Fukushima disaster. The Fukushima nuclear disaster was understood differently across the three national settings and among constituencies within each organizational field, with dissimilar debates emerging regarding nuclear energy's environmental, social and/or economic sustainability in France, Germany and the UK. In France, the renewed strength of support by the government of Nicolas Sarkozy gave way to reduced legitimation of nuclear energy, based on safety concerns, by the new president, François Hollande, but with no clear political direction as yet emerging (Schneider, 2013). The German government responded to the disaster with a significant institutional change, from the legitimation of nuclear power as a bridging technology and the consequent extension of the existing phasing out deadline, to the delegitimation of nuclear energy as unsafe technology and its accelerated abandonment (Davies, 2011; Schreurs, 2012). The UK government continued to support planned new nuclear projects (Schreurs, 2012; Ramana, 2013), but with a highly ambiguous position regarding the appropriate degree of government intervention. Table 4.3 shows the firms' strategic decisions taken after the Fukushima disaster, but while these data are relevant, they do not provide any insights into whether the decisions were driven by isomorphic pressures and if these were institutional or competitive. An analysis of the process that led to these decisions is therefore needed in order to interpret MNEs' strategic decisions and investigate whether and how isomorphism applied to MNEs. The following sections analyse the (de)institutionalization processes and the firm-government interactions in each of the three national nuclear organizational fields.

	France	Germany	UK
<b>Areva</b>	Confirms commitment	-	Confirms commitment
<b>EDF</b>	Confirms commitment	-	Confirms commitment but postpones investment decision (end 2012)
<b>RWE</b>	-	Exits (by 2022)	Exits (March 2012)
<b>EON</b>	-	Exits (by 2022)	Exits (March 2012)
<b>Vattenfall</b>	-	Exits (by 2022)	-
<b>EnBW</b>	-	Exits (by 2022)	-
<b>Centrica</b>	-	-	Confirms commitment but postpones investment decision (end 2012)
<b>SSE</b>	-	-	Exits (Sept 2011)
<b>GDF Suez</b>	-	-	Investment decision in 2015
<b>Iberdrola</b>	-	-	Investment decision in 2015

**Table 4.3:** Nuclear energy – related strategic decisions taken between the Fukushima disaster and 31 December 2012

#### **4.6.1. The French Nuclear Energy Organizational Field**

##### *Nuclear Energy Before the Fukushima Disaster*

The state-controlled multinationals engaged in nuclear energy in France were EDF and Areva (Mecklin, 2013). GDF Suez, the third French firm, was in a different position, as its nuclear generation activities in the home country consisted only of agreements to use power from two of EDF's reactors. Therefore, the government had a very different relationship with EDF and Areva than with GDF Suez. The government and firms had reached an agreement on nuclear energy production, viewed as an institutionalized practice, fully supported by the French government. Through the strong interactions with Areva and EDF, the government aimed to primarily maintain the institutionalization of nuclear energy by affirming its role as a crucial contributor to the country's economic development. Areva and EDF's nuclear safety was emphasized as part of this institutionalization, particularly regarding the competitiveness of the French nuclear industry's key project, the European Pressurized Reactor. The French government's strong role in promoting the sector's competitiveness was visible in numerous actions affecting the firms' strategic management. Key strategic decisions undertaken by the government included the imposition of a strategic partnership between EDF and Areva, the assignment of the leading role in the nuclear industry to EDF, the decision that EDF would take a stake in Areva's capital and the opening of Areva's ownership to new investors with the government directing the negotiations.

Before Fukushima, the risk of deinstitutionalization of nuclear energy in France mainly came from events signalling the loss of competitiveness of the national industry and the consequent risks of EDF and Areva's lack of contribution to the country's economic development. The government's institutional work and the relative secrecy surrounding the findings of the 'Roussely Report', commissioned to the honorary president of EDF and focused on the future of the French nuclear industry, and the difficulties in Areva's recapitalization, with a final government subscription to the capital, signalled that the primary perceived threat of deinstitutionalization was related to economic failure. The analysis of the interactions between the government and the nuclear firms reveals EDF and Areva's substantial conformity to the government's decisions; the two firms agreed to create working groups aiming to solve conflicts between each other and implement the strategic partnership prescribed by the government. Both EDF's and Areva's institutional work consisted of positively emphasizing the competitiveness of the national nuclear industry to protect nuclear energy as an institutionalized practice.

### *Nuclear Energy After the Fukushima Disaster*

The post-Fukushima period was shaped by the change of the Presidency from Nicolas Sarkozy to François Hollande and, consistent with the emergence of different deinstitutionalization trends, can be divided into a pre-election period, an election contest and a post-election phase.

Pre-election, and directly after the disaster, the Sarkozy government first responded reassuringly and then acknowledged an ongoing catastrophe. This was followed by the mandate of a safety audit for all national nuclear installations, of a financial audit on the costs of the nuclear supply chain, of reports on nuclear firms' outsourcing practices and the development of future energy scenarios. These measures were complemented by the government's defence of the institutionalization of nuclear energy as important for France's economic, social and environmental development, while also fervently defending nuclear energy's safety, supporting French technology against foreign low-cost competitors. This was in keeping with the state promoted national champion status of Areva and EDF, reinforced by the government's renewed formal support for their partnership. EDF and Areva's institutional work was consistent with the French government, against nuclear energy's deinstitutionalization, by associating safety with the higher quality of the French technology and emphasizing nuclear energy's contribution to France's economic and social development. Conforming to the government's renewed support for the industry's competitiveness, the two firms strengthened their cooperation with three commercial agreements and welcomed the safety reviews (see Table 4.4 for illustrative quotes from this period).

In the election period, nuclear energy became a campaign issue. The incumbent government defended the institutionalization of nuclear energy, emphasizing its contribution to national development. The opposition prompted partial deinstitutionalization by stressing the country's excessive dependency on nuclear energy and its safety risks, while also supporting the sector through a proposed transition to specialization in dismantling nuclear installations. EDF and Areva contested the opposition's views and actively intervened to defend nuclear energy's legitimacy by stressing the economic, social and environmental loss that the abandonment of this energy source would represent for France.

Hollande won the election and its government confirmed nuclear energy's partial deinstitutionalization. While stressing that the national dependence on nuclear energy had to be decreased, it defended nuclear energy's institutionalization in terms of the industry's international competitiveness as a driver for economic development, expressing the ambition to develop a nuclear industry for export purposes, based on high safety levels.

Actor	Response	Relevance
Sarkozy Presidency	<p>"In application with the decisions of the nuclear policy council of 27 July 2010, concerning the creation of a strategic partnership between EDF and Areva, the two firms will finalize before the summer a technical and commercial agreement"<sup>1</sup> (Présidence de la République, 2011)</p>	Coercive pressures on Areva and EDF
EDF and Areva	<p>"Areva and EDF will sign three technical and commercial agreements, prior to a more ambitious partnership in September, confirmed the Minister of Industry, Eric Besson. A fourth agreement for the construction of a medium-power reactor Atmea should occur later, which will allow to complete the strategic partnership requested by President Nicolas Sarkozy in July 2010."<sup>1</sup> (Le Monde, 2011a)</p>	Coercive isomorphism to home country institutional pressures
Candidates to the French Presidency	<p>[Sarkozy ] "If France has a cleaner and cheaper electricity, it is thanks to its nuclear fleet. I do not make a commitment, I describe a situation and that nuclear power is the result of a program conceived under the orders of General de Gaulle, prepared by President Pompidou, decided by President Giscard d'Estaing and almost all built under the two terms of François Mitterrand. ... I want to pay tribute to my predecessors and especially to Mr. Mitterrand, and salute their steadfast in defending the French energy independence. [...] The question of French energy independence, France, which has no oil and no gas, is not a matter of political party, it is still not a matter of left or right or center. But since the tragic accident in Fukushima, some want to make our compatriots believe that we should choose between nuclear and security. [...] I understand that is against nuclear power. But I think that since it is a clean energy, inexpensive and guarantees our independence, we need to be in favour of it."<sup>1</sup> (Sarkozy, 2011)</p> <p>[Hollande] "I am for energy diversification to produce electricity, that is to say, with nuclear, since I fixed the outlook for fifteen or twenty years to reduce the share of nuclear in electricity from 75 to 50%, but at the same time to raise renewable energy. ... There is the need to "invest because there are old plants that are expiring. Fessenheim will be 40 years during the next five years. I do not want that old plants still operate at the risk of the safety of our citizens."<sup>1</sup> (Le Monde, 2011b)</p>	[Sarkozy ] Institutional work to defend the institutionalization of nuclear energy
EDF	<p>"[Abandoning the atom] would threaten 400,000 direct and indirect jobs in the nuclear industry, 500,000 jobs in companies currently located in France and very energy-intensive, such as aluminum, which would risk to go abroad. We have to add 100,000 jobs from the future development of the global nuclear energy from France [...] In total, one million jobs would be in jeopardy and would cost between 0.5 and 1 percentage point of GDP"</p> <p>"In case of premature termination of the [nuclear] plants in France, there will be a doubling of electricity prices and it will be crucial for employment in the nuclear."</p> <p>"[Abandonment of the atom would lead to] an increase in fossil fuel, an increase of 25% of greenhouse gas greenhouse France, being DSM [demand management of electricity] and REC [non-renewable] not sufficient to replace nuclear energy installed"<sup>1</sup> (Le Monde, 2011c)</p>	[Hollande] Institutional work for partial deinstitutionalization of nuclear energy

Areva	<p>“The stop by 2025 of 24 out of 58 French nuclear reactors, if it occurs, it would have disastrous economic, social and environmental consequences. [...] More than 70 billions of additional investments would be needed to replace the scuttled nuclear reactors with an equivalent production capacity through more expensive renewables and gas power plants. It goes without saying that the inevitable rise in the price of electricity would be a blow to the purchasing power of households and to business competitiveness”</p> <p>“The necessarily significant reintroduction of significant fossil fuels like gas in electricity production would create a gap in France’s energy independence wanted by General de Gaulle. [...] [it would also lead to] soaring CO<sub>2</sub> emissions, which France currently limits a lot better than other industrialized countries. [...] Opposing nuclear and renewables is more than an error, it is a deception. These two energy sources must occupy all the place they are allowed to within an energy mix that can satisfy the economic, social and environmental challenges we face. The leadership of France in the civil nuclear is an asset that we must keep.”<sup>3</sup> (Oursel, 2011)</p>	Institutional work to defend nuclear energy’s institutionalization
Hollande Presidency	<p>“The Nuclear Policy Council confirms the commitment to reduce the nuclear share from 75% to 50% in 2025 in the French electricity production. In this framework, the two reactors of the Fessenheim nuclear power plant will be stopped permanently no later than 31 December 2016. [...] The Nuclear Policy Council confirms that the Flamanville EPR reactor will be the only power generation commissioned during the presidency’s five years. [...] The Nuclear Policy Council reaffirms the confidence of France in its technology and nuclear as well as its ambition to develop nuclear energy for export, based on the highest level of security industry.” (Elysee, 2012b)</p>	Institutional work for partial nuclear deinstitutionalization

**Table 4.4:** Firms and government’s key responses to (de)institutionalization in the French organizational field after Fukushima: Illustrative quotes

<sup>3</sup>Note: The quotes have been translated from French to English by the authors. The original texts are available on request

During its first nuclear policy council, Hollande decided the shutdown of one nuclear plant by 2016 and the reduction of nuclear energy from 75% to 50% of the national energy mix by 2025, while confirming the will to develop a nuclear industry with an export focus and the commitment to pursue ongoing international nuclear projects.

Thus, the post-Fukushima period saw a replacement of the unequivocal support of the Sarkozy government by the conditional support of the Hollande government. Nuclear energy remained an institutionalized practice considering the sector's international competitiveness, but its legitimacy was reshaped regarding its importance in the national energy mix, with a 75% dependency on nuclear energy seen as risky.

The responses of Areva and EDF were essentially isomorphic. During the Sarkozy presidency, they mainly conformed their strategies to the government's decisions. Concurrently, they supported its efforts against the deinstitutionalization of nuclear energy, adopting defensive institutional work to maintain nuclear energy's legitimacy. During the election contest, Areva and EDF increased their defensive institutional work by actively intervening in the political debate to influence Hollande's position. Under the new government, both firms officially aligned to its policies but also showed signs of disagreement, for example when EDF's CEO stated that the shutdown of the Fessenheim nuclear plant was a political decision. In contrast to the active role played by EDF and Areva, GDF Suez<sup>3</sup> did not intervene in the debate with the government, consistent with its lack of nuclear generation capacity in France.

#### **4.6.2. The German Nuclear Energy Organizational Field**

##### *Nuclear Energy Before the Fukushima Disaster*

Before the Fukushima disaster, the nuclear firms operating in Germany included Sweden's Vattenfall and three German firms, EnBW, a publicly-owned domestic firm, E.ON and RWE, two privately-owned MNEs. Nuclear energy's (de)institutionalization in Germany was marked by a constant debate concerning the timing and approach to its agreed phasing-out, its complementarity with renewables and the problem of nuclear waste. In a sense, nuclear energy had always been on the 'way out' in the preceding decades, with the phasing-out of all nuclear plants by 2020 established by a law passed in 2002 by the centre-left Schröder government. However, directly before Fukushima, the newly-elected centre-right coalition, led by Angela Merkel, was moderately in favour of nuclear power, but only as a bridging technology to allow a transition to a renewables-focused energy mix, and did not support new nuclear installations.

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<sup>3</sup> Since 2015 the company adopted the name 'Engie'. However, in this study we use the name 'GDF Suez' as it is the name of the company at the time of the study.

The pre-Fukushima period was dominated by the German government's institutional work to defend the legitimacy of nuclear energy as necessary for safeguarding the country's power supply and meeting its CO<sub>2</sub> emission reduction obligations. Through these arguments the government aimed to secure the extension of the operating lifetimes of the existing nuclear plants, whose conditions had to be negotiated with the major four operators. However, the length of extension became an open conflict within the coalition, where heterogeneous beliefs regarding nuclear energy were present. A related debate, concerning the significant windfall profits that EnBW, E.ON, RWE and Vattenfall would enjoy from the plants' lifetime extension, was finally resolved by the government's decision to set a fuel tax on nuclear operations. All four firms intervened similarly through a defensive institutional work supporting the institutionalization of nuclear energy. A clear sign of their united institutional work was the 'energy policy appeal' they signed, together with several firms listed on the DAX 30, stating that a premature nuclear exit would be detrimental to the environment and the national economy and that the fuel tax would block necessary investments. Concurrently the nuclear firms negotiated with the government to attain a more favourable policy change.

In September 2010, after months of heated debate within the coalition and with the nuclear firms related to the degree of legitimacy to assign to nuclear energy, the Chancellor announced a 'nuclear compromise' that made relevant changes to the law approved by the previous government and that completed a process of institutionalization of nuclear energy initiated by the new government. In particular, Merkel's government, stressing the belief that nuclear energy was a necessary bridge technology for a renewable energy era, ruled in favour of an average extension of the operating lifetime of nuclear plants by 12 years, a fuel tax on nuclear operations, and nuclear firms' contribution to a fund for promoting renewables. The nuclear operators' response to the government's decisions was consistent with their institutional work to defend nuclear energy's institutionalization and reach the nuclear compromise. Indeed, E.ON, RWE EnBW and Vattenfall welcomed it, and E.ON and RWE expressed their commitment to both nuclear energy, as a bridging technology, and to renewables. Yet, at the same time, all firms stressed their need for conforming to the measures even though they were not fully advantageous.

#### *Nuclear Energy After the Fukushima Disaster*

The government's response to the Fukushima disaster consisted of radically changing its institutional work on nuclear energy, which, moving from defensive to disruptive, accelerated nuclear energy's deinstitutionalization. This process was featured by the government's public statements questioning nuclear safety, the creation of an ethics

commission with a key role in the (re)evaluation of nuclear energy, and a negotiated consensus between the national government and the federal states hosting nuclear power plants on the reversal of the previous policy of operating lifetime extension. In contrast to the close relationship with the government in the pre-Fukushima period, the four firms were largely left to react to the government's disruptive institutional work. In particular, E.ON and RWE strengthened their defensive institutional work through public statements supporting nuclear energy's legitimacy and, later, similarly to Vattenfall, used the legal system to denounce the illegitimacy of the government's policy, which they argued violated their property rights. Yet, signals of conformity to the government's accelerated move to renewables also increasingly emerged among the nuclear firms (see Table 4.5 for illustrative quotes from this period).

Chancellor Merkel's first response to the Fukushima disaster was to argue that taking a 'business as usual' stance was no longer possible as Fukushima had demonstrated the reality of safety risks previously considered improbable and changed her beliefs towards nuclear energy. Consistent with this change in the legitimacy assigned to nuclear energy, the government announced a three-month moratorium on the pre-Fukushima policy of nuclear plants' lifetime extension, before agreeing a safety review of all nuclear plants with federal state governors, the shutdown of those built before 1980 for the period of the moratorium, and the use of the moratorium to attain a broad consensus on the acceleration of the transition towards the renewable-energy age.

The Chancellor also established two independent commissions to assess nuclear energy's future. The technical safety commission was charged to examine nuclear plants' safety, including also potential impacts of events considered highly unlikely before Fukushima. The ad-hoc 'ethics commission on a safe energy supply', composed of politicians, professors, philosophers, representatives of the church and research institutions, and only one business representative, was instructed to provide an ethical assessment of nuclear energy risks, of the possibility of a nuclear phase-out and the transition to renewable energy. Consistent with the view expressed by the government that safety and risk are not mathematical values but social values, the (de)institutionalization of nuclear energy relied not only on safety evaluations, but, importantly, also on analyses of risk perceptions and societal acceptability. Nuclear firms' absence in the ethics commission was justified with the fact that they were not considered a 'partner' in the evaluation of societal risks.

Actor	Statement	Relevance
German Government	<p>"The events in Japan mean an incomprehensible catastrophe not only for Japan. They are a turning point for the whole world, for Europe, for Germany. In the past five days I said it over and over again, and I repeat it today: we can and we must not simply go straight back to doing business as usual. [...] In Germany there is a consensus of all parties that we do not build new nuclear power plants and that nuclear power is a bridge technology, that nuclear energy comes to an end. What we need is an exit with a sense of proportion. [...] The incredible events in Japan teach us that something that was considered impossible by all scientific standards, instead can be possible. [...] The situation after the moratorium will be another one from the situation before the moratorium, because everything is under scrutiny."<sup>1</sup> Bundesregierung (2011a)</p> <p>"One thing is clear: The social assessment of what is a safe nuclear power plant has been changed by the disaster in Japan. Security is not a mathematical, not a statistical value, but safety and risk are social values that may change. [...] We must do everything to get out of nuclear energy faster."<sup>1</sup> (Bundesregierung, 2011b)</p> <p>"The technical values and results are certainly important, but they do not lead to a social consensus, to a social approach of dealing with risks and with certain circumstances. Therefore, we have decided to use besides the classical Nuclear Safety Commission, a second Commission, namely, an ethics commission for secure energy supply. [...] Security is indeed not a mathematical, statistical value but security is also based on assumption. [...] The energy industry is involved in the collaboration with the safety commission but for the evaluation of societal risks the energy industry is not the partner."<sup>1</sup> (Bundesregierung, 2011c)</p> <p>"We need to get out as quickly as possible from the nuclear policy on the one side and that we must enter into the renewable energy as powerful as possible on the other side."<sup>1</sup> (Bundesregierung, 2011d)</p> <p>"Today we held the Conference of the Federal Government and the state governors to reach a basic agreement regarding the things that are associated with the development of the energy policy. We have agreed to establish a working group of government and the heads of state offices and talk about it extensively. We have as the Federal Government made it clear again that we do not seek to act against the opinion of the states assembly but want to find a reasonable solution. [...] We also talked about the Atomic Energy Act and made clear once again in this context: First. The seven oldest plants that were affected by the moratorium are permanently shut down. [...] This is done consistently with the Atomic Energy Act. Second. The same applies for Krümmel nuclear plant. Third. The absolute end point of the use of nuclear energy will be the end of the year 2022."<sup>1</sup> (Bundesregierung, 2011e)</p> <p>"We are more than ever before at the beginning of this challenging path. The task is large - and it is rich in opportunity: Germany, one of the major industrial countries, moves with the utmost determination to reach the age of renewable energy. For this we need the support of all citizens and have to promote again this purpose and to convince them of the advantages of this path."<sup>1</sup> (Bundesregierung, 2011f)</p>	Disruptive institutional work for deinstitutionalization of nuclear energy
RWE	<p>"Germany is also considering measures with little regard for an affordable energy supply. This will not bring about the end of the German industry overnight. But it could lead to a long-term depletion process with considerable negative impact on jobs and prosperity. [...] Yet first and foremost, we are the ones having to effect the changeover to nuclear-free generation. The major utilities are the ones having to build huge wind farms on the high seas. The major utilities are the ones expanding the grids and keeping the system in balance via control energy and flexible power plants. The major utilities will be the ones having to invest and invest in new storage systems. In a nutshell: private industry are the ones investing enormous sums of money in the switch to renewables. We are not talking about peanuts here, but hundreds of billions of Euros. So far, at least part of this money has come from nuclear energy and fossil-fuelled</p>	Institutional work to defend nuclear energy's institutionalization also through deterrence

E.ON	<p>generation. The government knows this. If this money is no longer available, the changeover to renewable energy sources will be harder, not easier. That too is a matter of credibility and reliability." (RWE, 2011a)</p> <p>"Like a number of Germany's leading jurists, we believe the moratorium stands on weak foundations" [...] Damages would be an issue "when we finally have a court ruling on the legality of the moratorium". (Wiesmann, 2011a)</p> <p>"Germany's energy strategy called for transforming the country's energy system – within just a single generation – from conventional (nuclear, coal, gas) to almost entirely renewable. It was also designed to achieve rapid progress in climate protection by avoiding the large scale construction of new fossil-fueled power plants. Finally it sought the creation of a large pan-European system of wind and solar farms [...]. The only way Germany can get from a conventional energy world to a renewable energy world is by making use of a bridge. We believe that the roughly 12-year lifetime extension for nuclear power stations provides such a bridge. [...] Policymakers, the Ethics Commission, the media and the general public are now discussing other energy strategies. I want to state clearly that it would be a mistake to shorten or narrow the bridge represented by nuclear power. The essence of bridge is not that it's short or long, narrow or wide. Rather, its essence is that it spans a gap and links two sides. The transformation of the energy world can't be accelerated or shortened at will. Even people who support other energy strategies concede that substantially curtailing the operating lifetimes of nuclear power stations would make it necessary for Germany to build more fossil-fueled capacity, import a lot of power (and non-renewable power at that), and accelerate the construction of smart power networks. They also concede that an integrated European system of wind power in northern European countries and solar power in southern European countries and North Africa can't be established within a decade. I know that many people in Germany have concerns about nuclear technology. But it's a simple fact that each alternative strategy has its own ethical, economic and social disadvantages compared with the German federal government's bridge plan from last fall. [...] For a considerable time to come, our nuclear power stations [...] will be part of any solution for Germany to have a secure, environmentally friendly and affordable energy supply." (E.ON, 2011a)</p> <p>"Keeping the tax while clearly lowering plant lives through up more legal problems" (Wiesemann, 2011b)</p> <p>Eon, Germany's largest utility by sales, is to seek EUR8bn in damages from the German government for the accelerated phase-out of nuclear energy, should the country's constitutional court deem the policy shift an illegal act of expropriation. Eon's announcement came as the highest court asked dozens of institutions - including the BDI industry association - to give their views on constitutional challenges submitted by Eon and rival RWE. (Wiesmann, 2012)</p>	Institutional work to defend nuclear energy's institutionalization also through deterrence
E.ON	<p>"The switch to renewables is a fact [...]. This is a huge opportunity to develop new technologies and business models," (Wiesemann, 2011c)</p> <p>"If it's a successful policy and the company has learnt nothing, then I will have failed. If the policy fails and the company still gets something from it, the better for Eon [...] revolutions get labelled revolutions after they've happened." (Wiesemann, 2011d)</p> <p>"Sven Utermöhlen, head of climate and renewables central Europe [...] called Ms Merkel's goal for renewable energy capacity 'a bit too ambitious'." (Wiesemann, 2011e)</p>	Coercive/mimetic isomorphism
RWE	<p>The government's "energy concept" also present[...]" opportunities which we would like to make use of". (RWE, 2011b)</p> <p>"The government [is] confronting Germany with a 'Herculean task'." (Wiesemann, 2011e)</p>	Coercive/mimetic isomorphism

**Table 4.5:** Firms and government's key responses to (de)institutionalization in the German organizational field after Fukushima: Illustrative quotes

<sup>1</sup>Note: The quotes have been translated from German to English by the authors. The original texts are available on request.

In April 2011, to reach a broader consensus, meetings with the wider society and with the federal state governors were organized. Consequently, the government strengthened its disruptive institutional work against nuclear energy, by announcing the common political will and bipartisan consensus for a more rapid transition away from nuclear energy towards the renewable age. Yet, the technical commission's report was perceived as nuanced and providing no clear support for nuclear energy's (de-)institutionalization. Instead, the ethics commission emerged as central to the final policy compromise, featured by cooperation in decision-making across parties and levels of government and without the involvement of nuclear firms.

The revised policy, announced on 30 May 2011, imposed the immediate shutdown of the seven idled plants and of a further one that had been subject to technical failures, while the remaining nuclear plants would be gradually phased out by 2022. The nuclear fuel tax was retained. The revised policy received bipartisan federal state support in the Bundesrat and parliamentary support in the Bundestag in votes during July 2011.

E.ON, RWE and Vattenfall did not respond immediately to the government's decisions in the aftermath of the Fukushima disaster. Instead, federal state-owned EnBW expressed its availability to participate in a dialogue on the future of nuclear energy, a stance later followed by E.ON, which declared its collaboration in the safety review. Contrastingly, RWE made clear that it did not exclude legal action if any of its nuclear plants would be permanently shut down. By the end of March 2011, E.ON, RWE and Vattenfall aligned their positions, arguing that a lawsuit would be almost compulsory given obligations towards their shareholders.

The firms considered the government's intervention illegitimate and sought a revision of its decision to suspend the older plants, a verification of the legitimacy of the fuel tax, given the moratorium of the extension of duration, and compensation for damages in case the idled plants were shut down. RWE was first in raising the level of resistance by filing a lawsuit against the government's decision to suspend the oldest nuclear plants, while both RWE and E.ON stressed the considerable financial burden they would suffer due to the nuclear plants' shutdown. E.ON, later joined by RWE, raised the need for compensation for the phase-out and filed a lawsuit against the fuel tax, while Vattenfall demanded compensation of damage at the International Center for Settlement of Investment Disputes. Concurrent with their legal initiatives, E.ON and RWE adopted a defensive institutional work aimed to support nuclear energy's legitimacy by stressing the safety of German nuclear plants and nuclear energy's crucial contribution to the German economy and CO<sub>2</sub> emission reductions.

Baden-Württemberg's state-owned EnBW was the only firm not to oppose, also due to its restricted legal capacity caused by significant state ownership, and adapted to the government's decisions. Interestingly, by emphasizing the potential opportunities entailed in the move to a renewable energy future, E.ON and RWE also communicated signals of conformity to the new energy-related institutional pressures by the German government.

#### **4.6.3. The United Kingdom Nuclear Energy Organizational Field**

##### *Nuclear Energy Before the Fukushima Disaster*

In the UK, before Fukushima, the firms active in the nuclear organizational field were French (Areva, EDF and GDF Suez), German (E.ON and RWE), British (Centrica and SSE) and Spanish (Iberdrola), clustered in three consortia. One was composed by EDF and Centrica, the second, Horizon Nuclear Power, was created by E.ON and RWE, while NuGeneration brought together Iberdrola, GDF Suez and SSE. All the consortia had been created in 2009 after the decision of the UK Labour government to foster nuclear energy as part of the national low-carbon energy mix. If, on one side, the government was favourable to nuclear energy and to the construction of new nuclear plants, on the other side it denied the granting of subsidies for this energy source. The pre-Fukushima period was marked by the electoral victory of the conservative Tories and their coalition agreement with the Liberal Democrats, which confirmed the agreement to develop nuclear energy as low-carbon energy, but reiterated the 'no subsidies' condition. Thus, the institutionalization of nuclear energy relied on both its environmental and economic sustainability. While all the actors seemed to share the belief that nuclear energy was a legitimate practice from an environmental point of view, the degree of its economic sustainability and possibility to win the market competition with other low-carbon energy sources was the subject of the most intense interactions between the government and nuclear firms.

Before the Fukushima disaster, the government initiated a process of energy market reforms, introducing proposals for measures to support investments in low-carbon energies, but at least officially, not providing subsidies to nuclear power. Yet, the fact that the proposals were not turned into law and key details of the incentives for nuclear-energy investments were not clarified signalled the uncertainty over the degree of appropriate government intervention. During the process of designing nuclear support measures, the more active firms were EDF, Centrica, E.ON and RWE. Their responses combined an official conformity to the absence of subsidies with institutional work to defend the appropriateness of a market mechanism to support new nuclear energy as low-carbon energy. EDF was the most active in welcoming the

new government's energy strategy and agreeing that nuclear plants could be built without subsidies. Concurrently, however, EDF, stressing its UK nuclear project's considerable costs and long duration, urged the UK government for a clear economic framework for nuclear investments. Centrica, E.ON and RWE had similar responses, commending the proposed energy reforms, but also soliciting the government to secure clear economic measures for new nuclear plants. Thus, these firms, at least officially, accepted the absence of subsidies to some extent, but at the same time tried to influence the legitimacy of the government's intervention in the sector, by calling actively for the development of support mechanisms to ensure not only the firms' profitability of investing in new nuclear plants, but also the country's environmental and economic development. The fact that EDF, E.ON, Centrica and RWE referred to the high probability that, without an adequate economic framework, their investments would not materialize, signals that before the Fukushima disaster the risk of nuclear energy deinstitutionalization in the UK was related to the nuclear firms' belief of economic (un)sustainability.

An opposite commitment was expressed by the domestic firm SSE which considered its investment in nuclear energy marginal, since renewable energy was its main business interest. Coherently, SSE's institutional work aimed to ensure the legitimation of support to all low-carbon energy sources, not just one, nuclear energy, at the expense of the others. The two other nuclear firms, GDF Suez and Iberdrola, planning to make a final nuclear investment decision in 2015, were not active in the government-firms interactions on nuclear energy.

### *Nuclear Energy After the Fukushima Disaster*

In the aftermath of the Fukushima disaster, the UK government announced a safety review for the national plants and the nuclear firms were urged to conform to this decision. The government did not take any further safety-related measures, deciding only to delay the nuclear construction plan until the release of the review's outcome. In the following months, as before the Fukushima disaster, the focus of the government-nuclear firms interaction was on the economic framework, where the highest risks of deinstitutionalization still seemed to be perceived, not on safety. The government reasserted that no subsidies would be assigned to nuclear energy, but that the support mechanisms proposed in the White Paper and the Energy Bill aimed to encourage investments in all low-carbon technologies.

Concurrently, the government's defensive institutional work in favour of nuclear energy consisted of stressing its importance in the national energy portfolio for security of supply, CO<sub>2</sub> emission reductions and economic growth. However, contradictions and uncertainty emerged concerning the economic sustainability and

the appropriate degree of support of nuclear investments. On the one hand nuclear energy was seen as the cheapest low-carbon energy source, for example compared to the more expensive offshore wind. On the other hand, doubts emerged as to whether new plants could be developed without subsidies, and the considerable costs of managing nuclear waste were argued to justify the exclusion of nuclear subsidies. A sign of this uncertainty was the fact that the Energy Bill, unveiled by the government at the end of 2012, set incentives for low-carbon energy but did not quantify the support, in particular to investors in new nuclear plants, with details planned to be communicated only in the following year.

The nuclear firms' response, immediately after the disaster, featured simultaneously patterns of differentiation and conformity (see Table 4.6 for illustrative quotes from this period by various actors). SSE was the first firm that abandoned nuclear projects, stressing, *inter alia*, its concerns regarding their economic sustainability. GDF Suez and Iberdrola expressed uncertainty concerning the adoption of a positive nuclear investment decision, warning of the need for a clear and sustainable economic framework. Within the Horizon consortium, RWE initially confirmed its engagement in building new nuclear plants in the UK, praising the political and economic supportive environment present in the country. Concurrently, RWE, referring to low-carbon technologies in general, criticized the electricity market reform proposals as too complex and called for more clarity regarding the government's support mechanisms needed to provide low carbon and affordable energy for the country. E.ON also called for clearer support mechanisms to ensure an increase in low-carbon generation in the UK.

At the beginning of 2012, E.ON and RWE simultaneously decided to abandon investments in new nuclear plants in the UK. Both firms ascribed the cause of the withdrawal largely to the decision of the German government to accelerate the nuclear phase out in the MNEs' home country, which had left the firms with financial uncertainty, and to the substantial investments required by nuclear projects and their long payback periods. Both firms renewed their commitment to the UK energy market but with a focus on other low-carbon energy sources such as offshore wind. Interestingly, both firms praised the national nuclear investment framework, although the Conservative chairman of the influential Energy and Climate Change Committee saw their nuclear withdrawal as a sign of distrust in the UK.

Actor	Statement	Relevance
Committee on Climate Change	"The appropriate mix of low-carbon generation technologies for the 2020s and 2030s is uncertain. Key factors are: the ability to build nuclear to time and cost [...] Nuclear power currently appears to be the most cost-effective of the low carbon technologies, and should form part of the mix assuming safety concerns can be addressed. Offshore wind is in the early stages of deployment and is currently significantly more expensive than either onshore wind or nuclear." (Committee on Climate Change, 2011)	Institutional work institutionalizing nuclear energy
UK Government	"The UK has everything to gain from becoming the number one destination to invest in new nuclear. Nuclear is the cheapest low-carbon source of electricity around, so it can keep bills down and the lights on" (Blair, 2011) "There is continued commitment from energy companies to making real progress in bringing forward their plans to develop new nuclear power stations in the UK and from government to make the UK the number one destination to invest in new nuclear." (Gov.uk, 2012)	Institutional work institutionalizing nuclear energy
UK Government	"Nuclear policy is a runner to be the most expensive failure of post-war British policy-making, and I am aware that this is a crowded and highly-contested field. [...] Half of my department's budget goes in cleaning up this mess, and it will rise to two thirds next year. That is £2 billion a year, year in and year out, that we are continuing to pay for electricity that was consumed in the fifties, sixties and seventies on a false prospectus. Yet the total nuclear liabilities that the Nuclear Decommissioning Authority now deal with are estimated to be £49 billion, and I cannot be confident that the figure will not rise again as we discover yet more problems." George Osborne, the Minister of Finance "questioned the 'affordability' of the low-carbon agenda at a time of financial hardship". (Gov.uk, 2011)	Institutional work deinstitutionalizing nuclear energy
EDF and Areva	AREVA has signed with EDF a Memorandum of Understanding relating to the delivery of the nuclear steam supply system and all central instrumentation and control systems for the Hinkley Point C project. (Areva, 2012a)	Inter-country isomorphism
EDF	"None of this [carbon price floor and Contracts for Difference] represents a subsidy for nuclear. Indeed no subsidy is required to fund EDF Energy's new nuclear plans, nor have we asked for any. New nuclear power represents the most affordable way of decarbonising UK electricity generation as part of a balanced mix and gives the best long term deal for UK consumers." (EDF, 2011) "The Government's framework for Electricity Market Reform must ensure we have a project which is good for consumers, policy makers, jobs and investors." (EDF, 2012a)	Institutional work to government's intervention and nuclear energy
RWE	"The over-riding priority for the EMR must be to deliver a stable frame-work which is attractive to new and existing investors; as well as providing a level playing field where all low-carbon technologies can contribute to the Government's aim of delivering a low-carbon economy at least cost to the consumer. [...]The Carbon Price Support will undoubtedly have cost implications for consumers, and this has been recognised in the report. However I see it as a short term measure that will not drive investment in low-carbon generation. It will also have a serious impact for British industry adding costs which will reduce their competitiveness in global markets." (Npower, 2011a)	Institutional work to institutionalize government's intervention in the energy sector
E.ON	"We welcome today's publication of the Electricity Market Reform White Paper and believe that it makes a good start in stimulating the growth in low carbon generation that we desperately need in the UK. But we cannot be complacent, it's important that this is driven forward to ensure a cleaner energy future for everyone." (E.ON, 2011b)	Institutional work to institutionalize government's intervention in the energy sector

Centrica	<p>“Events in Japan have caused some countries to re-evaluate their nuclear programmes. It is imperative to learn the lessons of Fukushima. But knee-jerk reactions, like those seen in Germany, simply lack commercial and economic credibility. It’s important not to sacrifice an important element of our future energy security on the altar of political expediency and I’m pleased to see that the Government here has taken a much more level-headed approach. [...] But the transition to the low carbon future, in a way that keeps the lights on, depends on a number of conditions being met, principally that emission reduction targets are adhered to and that the necessary structures are put in place for encouraging investment in wind and new nuclear. That has to happen soon. We can’t afford to postpone these choices [...] Next, new nuclear must be part of the energy mix. The carbon floor price is helpful, but it is not sufficient to deliver the massive investment needed.. We must make timely progress on Electricity Market Reform and it’s worrying to see that the parliamentary timetable on that may already be slipping. [...] All the building blocks are there to create the low carbon energy market of the future – the carbon floor price, Electricity Market Reform, new nuclear build, emission reduction targets, incentives for revolutionising energy efficiency in the home. What’s needed now is the Government, industry and the regulator to work more closely together to make it happen. The clock is ticking. In my view, we as a nation have got little time in which to take action, or our carbon reduction targets may have to be sacrificed in the interests of safeguarding the security of our energy supplies. These challenges do not lie in the future. They are already here.” (Centrica, 2011)</p>	Institutional work to institutionalize government’s intervention and nuclear energy
Areva	<p>“The risk of a change in energy policy by certain States cannot be excluded and could have a significant negative impact on the group’s financial position. The debates that have begun or will come in various countries on the future of nuclear power could evolve in a manner that is unfavorable to the group’s operations, particularly as influenced by pressure groups or following events that give the public a negative image of nuclear power (e.g. accidents or incidents, violations of nonproliferation rules, diplomatic crises).” (Areva, 2012b)</p> <p>“This agreement confirms the United Kingdom’s commitment to promote nuclear power, a sustainable, economically-viable and low-carbon energy source. It represents a milestone for AREVA’s new build projects in the country.” (Areva, 2011)</p>	Acknowledgement of uncertainty over nuclear energy institutionalization
EDF	<p>“Our final decision still depends on our ability to build a business case which gives clarity for investors as well as consumers.” (EDF, 2012b)</p>	Intra-country mimetic isomorphism
RWE	<p>“the White Paper is encouraging but does not yet provide enough clarity for customers or investors” (Npower, 2011b)</p> <p>“...nuclear power projects are particularly large scale, with very long lead times and payback periods” (Npower, 2012)</p>	Intra-country mimetic isomorphism
E.ON	<p>“E.ON has decided to focus its investment in the UK on other strategic projects that will allow us to deliver earlier benefit for customers and our company, rather than the very long term and large investment new nuclear power calls for.” (E.ON, 2012a)</p>	Intra-country mimetic isomorphism
SSE	<p>“In its six-month financial statement in November 2010, SSE said that: ‘the cost, development issues, timetable and operational efficacy of nuclear power stations all require the greatest possible scrutiny before a commitment to invest [in new nuclear power stations] can be made’. This point was repeated in its full-year financial statement in May 2011. It is against the background of these considerations that SSE has decided to end its involvement in the NuGeneration Ltd joint venture.” (SSE, 2011)</p>	Intra-country mimetic isomorphism
GDF Suez	<p>“[GDF Suez and Iberdrola] [...] reiterate the need for a clear, stable and sustainable policy framework which will enable any final investment decision” (Iberdrola, 2011)</p> <p>“We are, with our partners, going to take a decision in 2015 [on building a new plant at Sellafield]. Today it is very difficult to invest in a nuclear power plant without clear visibility. [...] what [is] on offer [is] not enough and something is missing.” (Macalister, 2012)</p>	Intra-country mimetic isomorphism

Iberdrola	<p>"[GDF Suez and Iberdrola] [...] reiterate the need for a clear, stable and sustainable policy framework which will enable any final investment decision" (Iberdrola, 2011)</p> <p>"The decision was based on strategic grounds as well as the financial constraints of the two companies," said Tony Cocker, chief executive of Eon UK. The recession, relatively high gas prices in Europe and the nuclear phase-out in Germany were key reasons, he said. "We therefore have less financial power than we had," he said. (Pfeifer, 2012)</p> <p>"E.ON continues to invest in projects across the UK and the company's wider UK plans will be unaffected by the decision not to advance Horizon Nuclear Power. In the last year alone E.ON invested over £1bn in projects including; a new super-efficient gas-fired power station at Grain in Kent that can power up to one million homes, development of the UK's most flexible underground gas storage facility at Holford in Cheshire, the continued development of the world's largest offshore wind farm, London Array and its ongoing programme to install over one million smart meters by 2014. In 2012, in addition to many other projects, E.ON will continue to develop its £736 million Humber Gateway offshore wind farm project with an expected completion date of 2015. Work will also continue on its new biomass plant, Blackburn Meadows, in Sheffield. The £120 million development will generate power for around 40,000 homes." (E.ON, 2012a)</p>	Intra-country mimetic isomorphism
E.ON		Inter-country isomorphism
RWE	<p>"The effect of the accelerated nuclear phase out in Germany, which has led to RWE adopting a number of measures, including divestments. [...] RWE npower has more than 12,000 employees and has invested more than three times its profits in the UK over recent years. We remain committed to the need for significant investment in low carbon energy technologies" (Npower, 2012)</p> <p>"Irrespective of that decision [withdrawal from nuclear projects], the UK market remains attractive to us, as our investments show. In the past four years, we have invested around €4.5 billion there – in such things as the construction of three off-shore wind farms, two state-of-the-art, gas-fired power plants and increased gas and oil production." (RWE, 2012)</p>	Inter-country isomorphism

**Table 4.6:** Firms and government's key responses to (de)institutionalization in the UK organizational field after Fukushima: illustrative quotes

EDF, in the aftermath of the disaster, reiterated its commitment to nuclear investments in the UK, confirming that no subsidies were required, with nuclear power as the cheapest low-carbon energy source, whose development boosted local economic growth. Later, EDF welcomed the government's support mechanisms proposals and confirmed its engagement in nuclear projects, but, at the same time, urged the government to make progress on defining an economic framework that would be appropriate for consumers, policy makers, investors and job seekers. Importantly, the French firm subordinated its final investment decision to the establishment of a convincing business case and, finally, postponed its decision to 2013. Similar to EDF, Centrica postponed its investment decision, stressing the need for a more certain nuclear economic framework to also ensure the country's CO<sub>2</sub> reductions and energy security.

Areva, finally, did not intervene actively in firm-government interactions on nuclear energy. This contrasts with EDF's intense institutional work and is consistent with the leading role in the French nuclear industry given to EDF under the Sarkozy presidency. Areva's commitment to the British nuclear sector was confirmed by the deals, signed with EDF, Rolls Royce and other British firms, for nuclear projects in the UK. These agreements, signed during a summit between the British Prime Minister and the French President, strengthened the industrial partnership on nuclear energy. While praising the institutional environment in the UK as favourable to nuclear energy, Areva expressed its strong concerns over the ongoing nuclear deinstitutionalization in other countries after Fukushima. Areva also announced its willingness to bid for the Horizon consortium but finally did not submit its offer, without providing an explanation for this decision.

#### **4.7. DISCUSSION**

Westney (2005: 52) argued that "the study of the MNC should be particularly fertile ground for developing institutional theory". Isomorphism is a key concept in institutional theory (DiMaggio and Powell, 1983), but its application to MNEs has been debated among scholars (Kostova et al., 2008), many arguing that operating in multiple and inconsistent fields makes being isomorphic in each environment particularly challenging and that MNEs are often active agents influencing the environment they operate in and not only, as the isomorphism concept implies, passively adapting to it. MNEs which are institutionally embedded in multiple national fields, where institutional change occurs, thus pose key challenges to the applicability of isomorphism. By presenting evidence on how multiple institutional embeddedness affects MNEs' response to deinstitutionalization following a disruptive event, this study provides insights regarding the presence of isomorphic behaviour among MNEs. In

particular the findings suggest three types of isomorphism specific to MNEs: inter-country isomorphism, intra-country isomorphism and isomorphic agency, which will be discussed somewhat further below.

#### **4.7.1. Inter-country isomorphism**

In the shared host country, isomorphic behaviour has been observed among MNEs. While isomorphism did not apply evenly to all the MNEs operating in the UK, it was projected beyond national boundaries for MNEs sharing the same home country. Examining nuclear MNEs' responses in their home and host country therefore has enabled to outline the features of inter-country isomorphism, a type of isomorphism not addressed in extant literature. Inter-country isomorphism can be understood as the constraining process(es) that forces MNEs to transfer their isomorphic behaviour from their shared home country to a shared host country. Inter-country isomorphism seems to be an MNE-specific response and answers the calls by Westney (2005) and Heugens and Lander (2009) for the development of institutional theory with respect to 'isomorphic pulls across fields' and 'between-field variability in isomorphism' respectively.

German MNEs' institutional embeddedness in the home country and the coercive isomorphic pulls exerted by the German government, through its post-Fukushima institutional work, drove their response in the host country. By simultaneously abandoning nuclear projects in the UK, RWE and E.ON adopted mimetic isomorphic behaviour, which both firms ascribed to the accelerated deinstitutionalization of nuclear power in their home country and to the consequent increased perception of uncertainty regarding nuclear investments. Inter-country isomorphism emerges also from the correspondence between E.ON and RWE's signals of conformity to the German government's energy transition and both firms' renewed commitment to renewables' investments in the UK, after abandoning nuclear projects. For the German MNEs, therefore, the coercive isomorphism in the home country was translated in the host country into mimetic isomorphism, fostered by the increased perceived uncertainty regarding the energy technologies in which to invest.

A similar correspondence between home country and host country isomorphism has also been observed among the French MNEs. In their home country both EDF and Areva adapted to the French government's institutional work, aiming to defend the institutionalization of nuclear energy, in particular regarding the international competitiveness of the national nuclear industry. In compliance with the government's decisions, EDF and Areva strengthened their strategic partnership in the home country. Symmetrically, in the UK, the findings show isomorphic behaviour between the French MNEs, which, different from German firms, responded to the risks of

deinstitutionalization by confirming their commitment to British nuclear projects and by reinforcing their alliance in the host country. Thus French MNEs' strategic response across countries provides evidence of inter-country isomorphism. The institutional pressures in the home country, consisting of the focus on nuclear energy, were translated in the UK into a mimetic response to uncertainty that was opposite to the one given by the German MNEs. The main uncertainty for the French firms after Fukushima was represented by locations where a political, economic and social framework favourable to nuclear energy no longer persisted, unlike in the UK.

Hence, German and French MNEs' responses to deinstitutionalization show that, following a disruptive event, institutional embeddedness in the home country can play a critical role for MNEs operating in a politically salient industry, because it can project firms' isomorphic response beyond national boundaries. Consequently, inter-country isomorphism implies an indirect influence of deinstitutionalization in the home country on deinstitutionalization processes in a host country. For example, the limited deinstitutionalization in France contributed, through EDF and Areva's responses in the host country, to reducing nuclear energy's deinstitutionalization in the UK. The accelerated deinstitutionalization in Germany, through the German MNEs' inter-country isomorphism, also affected nuclear power's deinstitutionalization in the UK, but this was limited by French MNEs' response. The analysis also points to the potential for inter-country isomorphism to feature changes in the nature of the isomorphic pressures in their projection across the international boundary. The nature of the combinations of isomorphic pressures in this transformation process offers opportunities for further investigation.

#### **4.7.2. Intra-country isomorphism**

The complexity of the environment in which MNEs act is evident from their simultaneous institutional embeddedness in the home and host countries. The risks of deinstitutionalization of nuclear energy emerging in the UK engendered mimetic isomorphic pressures related to the perception of uncertainty regarding nuclear investments' economic (un)sustainability, reinforced by the government's difficulties in defining the appropriate degree of its intervention in the nuclear sector. These host-country pressures, affecting both local nuclear firms and multinationals, posed additional pressures for German and French MNEs to the inter-country isomorphic pulls illustrated previously. Although the impact of the inter-country pressures prevailed over host-country pressures and seemed to shape the difference in response between French and German MNEs in the UK, some similarities across the nuclear firms operating in the UK signal the presence of a (marginal) mimetic isomorphism, which reinforced or reshaped the inter-country pulls experienced by the MNEs. The findings of the paper thus also suggest the presence of what might be called 'intra-

country isomorphism', referring to the constraining process that forces MNEs to resemble local firms in their host country. Intra-country isomorphism could be seen as an MNE-specific response and its conceptualization speaks to the calls by Westney (2005) and Heugens and Lander (2009) for development of institutional theory with respect to two other notions they distinguish, i.e. 'isomorphic pulls within fields' and 'within-field variability in isomorphism' respectively.

In particular, intra-country mimetic isomorphism is seen in firms' withdrawal, or in a threat of withdrawal from British nuclear projects, related to the belief of uncertainty concerning the (un)sustainability of nuclear investments in the country. This emerges, in particular, from RWE's statements on the uncertainty of the British nuclear support mechanisms preceding its withdrawal from nuclear investments in the UK; from the emphasis placed by E.ON and RWE on the high investments and long paybacks required for nuclear projects when justifying their withdrawal from UK's nuclear projects; from the postponement of EDF's final investment decision on the UK nuclear plant; from Areva's withdrawal from participating in the bidding for the Horizon project; and from the uncertainty regarding their investment decision expressed by Iberdrola and GDF Suez. The highly contradictory statements within the government and among firms on British nuclear projects' economic (un)sustainability signal that investment decisions were largely based on beliefs about the successfulness of an investment which is by nature highly uncertain and contested. MNEs' responses thus signal an added effect of institutional embeddedness in the host country, which seems to have led to marginal isomorphism between the MNEs. The presence of intra-country mimetic isomorphic pressures in the UK is supported by the response of the two domestic UK nuclear firms: Centrica which, being in the consortium with EDF, also postponed its investment decision, and SSE, which abandoned the nuclear consortium mentioning the significant financial investments needed for nuclear projects. However, these are early and relatively tentative findings that deserve further investigation in follow-up studies.

#### **4.7.3. Isomorphic agency**

The chapter's findings suggest that, beside conforming to extant institutions, MNEs have actively attempted to influence them. Indeed, it has emerged that MNEs, under risk of nuclear energy's deinstitutionalization in the countries in which they operated, adopted similar institutional work to influence the institutional process and retain legitimacy. In France and in Germany the MNEs resisted "changing institutional values and routines" through their institutional work, while in the UK they worked against the deinstitutionalization caused by "changing economic utility" (Oliver, 1992: 567). In their home country, EDF and Areva faced the nuclear deinstitutionalization initiated by Hollande, threatening that their core business would lose legitimacy. The French MNEs

adopted similar institutional work in the home country to defend nuclear energy's institutionalization and therefore their own legitimacy, by stressing nuclear energy's importance for the country's economic, social and environmental development. German MNEs, in response to the German government's disruptive institutional work, beside conforming to the coercive pressures, also adopted isomorphic institutional work by firstly defending nuclear energy's role for a national balanced and low-carbon energy mix and then by defending their property rights and denouncing as illegitimate the government's decision to phase out the national nuclear plants. In the UK, EDF, Centrica, E.ON and RWE adopted a similar institutional work consisting in advocating the legitimacy of government's intervention in the electricity sector, to support the necessary nuclear projects not only in their own interest but also for the country's economic and environmental development.

In the different fields, MNEs adopted isomorphic actions which were not a sign of passive conformity to extant institutions, but consisted of institutional work to maintain the firms' legitimacy by defending nuclear energy's institutionalization or denouncing the inappropriateness of the government's actions. The presence of similar active agency among MNEs in home and host countries shows that being institutionally embedded makes MNEs highly threatened by institutional change and that, in keeping with Kostova et al. (2008), MNEs do not only conform with their institutional environments but proactively act to influence it. We consider that in institutional theory isomorphic behaviour should not only refer to passive conformity to extant institutions, but, keeping as purpose of isomorphism the search for legitimacy, the identification of active isomorphism by MNEs who concurrently intervene in the institutional change process in order to create or defend their legitimacy should be integrated.

The identification of three MNE-specific categories of isomorphism, through the examination of MNEs' responses to deinstitutionalization, implies that the relatively 'monolithic' view of isomorphism currently held in institutional theory does not sufficiently capture the complexity of the institutional environment in which MNEs are embedded and of their responses to it. By highlighting the presence of inter- and intra-country isomorphism, our study suggests the existence of simultaneous, multiple institutional isomorphic pressures affecting the MNEs across organizational fields, which can be aligned or conflicting, and can therefore reinforce or reshape each other's effects. By identifying the presence of isomorphic agency our research proposes the integration of agency and isomorphic behaviour, having both as objective the attainment of legitimacy in an organizational field. Therefore, in order to be applied to IB, the 'black box' of isomorphism may need to be opened to incorporate this complexity. To identify and assess the role of the isomorphic forces to which MNEs

are exposed, it is not sufficient to examine a firm's last response, which, as shown in table 4.3 might be similar or different across firms, but it is crucial to investigate the process that led to it and MNE's responses across time and countries. Our study contributes to institutional theory and its application to IB, by analysing the application of the concept of isomorphism to MNEs, focusing on their responses to deinstitutionalization processes in more than one country over defined periods, and suggesting a new conceptualization of isomorphism, in three MNE-specific subtypes.

#### **4.8. CONCLUSION**

This multi-country study used a comparative approach to explore how the pattern(s) of multiply-embedded MNEs' responses to deinstitutionalization after a disruptive event challenge(s) the institutional theory concept of isomorphism. Our exploratory analysis, based on newspaper reporting and communications of governments and nuclear firms in the year directly preceding and almost two years following the Fukushima disaster, explored MNEs' organizational responses to different deinstitutionalization processes in France, the UK and Germany. Nuclear energy MNEs, embedded in different countries, faced institutional complexity driven by national governments' heterogeneous institutional work on nuclear energy, which affected their responses. In particular, we observed nuclear MNEs' responses featuring inter-country and intra-country isomorphism and isomorphic agency. MNEs sharing both the home and the host country presented isomorphic behaviour across the international boundaries: isomorphism in the home country was projected and transferred into the host country, with evidence of transformation of the nature of the isomorphic mechanism across the international boundary. However, French and German MNEs were also exposed to isomorphic pulls in the shared host country, which for the latter strengthened and for the former weakened the effects of inter-country isomorphic pressures. Finally, by identifying the isomorphic agency concept, our study proposes that MNEs, in order to gain legitimacy, can show similarity not only in passive conformity to institutional pressures but also in their institutional work to influence institutions.

Our study has contributed to a dialogue on MNEs and institutional theory arguing that the challenge MNEs pose to the isomorphism concept consists not of the fact, argued by Kostova et al. (2008), that isomorphism is not applicable to MNEs, but in the fact that the concept, in order to be applicable to MNEs, has to overcome its current 'monolithic nature' and integrate the complexity that characterizes MNEs' institutional environment. Consistently, we have identified two categories of isomorphic behaviour, which encompass the concurrent isomorphic pressures affecting MNEs in the home and host countries. Future research might explore, through both qualitative and quantitative studies, the relative impact on MNEs of different institutional isomorphic

pressures across home and host countries. Moreover, by proposing the tentative concept of 'isomorphic agency' our study suggests further research avenues that reconcile the view of MNEs' agency with the isomorphism-related view of similarity in firms' actions aiming to gain legitimacy. It should be noted, however, that these conclusions are based on an exploratory study of a relatively limited set of firms and countries, for a specific event. This type of study, in keeping with the features of phenomenon-based research, allowed us to examine whether and to what extent institutional theory 'informs' the reality explored. Yet, further research is needed to test the findings of this study and their generalizability to other contexts.

Beside suggesting avenues for future research strongly related to the research question, this study highlights dynamics that we consider deserve further investigation and will thus be addressed in chapters 5 and 6. In particular, although the study's focus was on the deinstitutionalization of a specific energy source, nuclear energy, the findings signal that this is strongly intertwined with multiple institutional processes that have involved other energy sources, i.e. fossil fuels and renewables, in the last years. In addition, the results indicate that these (de)institutionalization processes were based on the framing of the energy sources as economically, socially and/or environmentally sustainable. The presence of sustainability-related institutional dynamics involving conventional and renewable energies that emerged from this study has inspired the research conducted in the next chapter. In chapter 5 the focus will be on one of the companies examined in the current chapter, E.ON, and on its whole energy portfolio, which comprised also renewables and fossil fuels beside nuclear energy (see table 4.2). Investigating how E.ON associated specific sustainable development principles and energy sources and how this changed over time, due to transformations in the business environment, will shed light on the institutional change electric utilities have been facing, which includes but is not limited to the (de)institutionalization of nuclear energy explored in this chapter.

The results of our study have also indicated the complexity related to state intervention in the European electricity sector. While the emergence and expansion of nuclear energy MNEs leads to an argument that the path to privatization and deregulation is irrevocable, the variety in the state-market relationship across the EU focal countries, the debates around nuclear subsidies and the regulatory imposition of nuclear plants' shutdown signal a higher degree of complexity. In this study, this complexity entailed the support for state- vs. market-based coordination of nuclear energy-related practices, based on multiple sustainable development motives/justifications. Given the relevance of the dynamics involving the state, the market and sustainable development in the electricity sector, suggested by this study, chapter 6 will further explore this topic.