A BOOLEAN ANALYSIS OF MOVEMENT IMPACT ON NUCLEAR ENERGY POLICY

Sakura Yamasaki*

The impacts of social movements on public policies have been studied extensively yet yield mixed results. Some results point to a strong impact of social movements, while others conclude that they do not possess any observable leverage on public policies. These mixed results may be linked to utilization of different methodological approaches. However, few studies have considered the possibility that movements may in fact prevent policy change. In this study, we argue that for high-profile policies such as nuclear energy, a low-key social mobilization is in some instances necessary for the occurrence of major policy changes. We further hypothesize that highly mobilized social movements may dampen the chance of major policy changes instead of promoting them. We briefly present the general model and the data before proceeding to the bounded exploratory analysis. This analysis raises questions about the role played by antinuclear movements in their quest for a major policy change. A theoretical explanation is then presented in an attempt to contribute to the clarification of the movement-policy debate.

Major nuclear energy policy differences exist among almost all Western European countries. They range from a proactive nuclear energy development to decreasing commitment to nuclear energy generation. Likewise, antinuclear mobilization occurred in varying degrees throughout Western Europe. When we look at changes in nuclear energy policy together with antinuclear mobilization, we observe a counterintuitive relationship. It seems that policy change stalls more when antinuclear movements are most active, and, conversely, significant change seems to occur when antinuclear mobilization is low. In Germany, for example, the end of the 1970s through the beginning of the 1980s is commonly recognized as a period with high antinuclear mobilization (Hackel 1980; Wagner 1994). Although German antinuclear efforts sailed on favorable seas—with Three Mile Island in 1979 and with the mounting concern over Entsorgung (nuclear fuel waste disposal)—they did not bring about major changes in nuclear energy policy. In Sweden, however, antinuclear mobilization never rose above the local level (Rubart 1980; Rudig 1990), but party politics and the Three Mile Island nuclear accident helped bring about the 1980 decision to phase out nuclear energy.

This article aims to answer the following questions: What role did the antinuclear power movements play in nuclear energy policy change in Western Europe? How can we explain the counterintuitive dampening effect movements seem to have on policy change? Whereas some scholars point to a strong impact of social movements on public policies, others conclude that movements do not possess any observable leverage (Giugni 1998). However, the possibility that movements may in fact prevent policy change is a possibility that few have examined. In this study, we argue that, for high-profile policies such as nuclear energy, low-key protest mobilization may be necessary to bring about policy change. Conversely, highly mobilized social protest seems to dampen the chances of major policy change. The empirical data are analyzed through a systematic comparison of nuclear energy policy change in all ten countries that commercially produced nuclear energy in West Europe between 1973 and 2007.1 Studies in

* Sakura Yamasaki is an Associate Researcher at the Université Catholique de Louvain. Please direct all correspondence to the author at sakurayamasaki777@gmail.com.

We use qualitative comparative analysis (QCA) to identify patterns leading to a major
to changes in nuclear energy policies, which is operationalized as either a decision of nuclear
phase-out or a moratorium. This type of formalized comparative analysis has both strengths and
weaknesses (Ragin 1987; King, Keohane, and Verba 1994; Brady and Collier 2004), but
accounting for complex relationships in more than four cases becomes impracticable without
some sort of formalization. QCA enables researchers to perform formalized comparative
analyses on a medium number of cases while preserving holistic complexity. We begin by
presenting the general analytical framework and the data. Then we proceed to the bounded
exploratory analysis using QCA (Rihoux and Ragin 2009). Our results show a highly consistent
pattern linked to antinuclear movements and policy change—a pattern of interest to scholars of
both policy change and movement mobilization alike.

A SYNTHETIC MODEL

The literature taking nuclear energy policy change as the dependent variable remains very thin
to this date (but see Tomain 1987 or Jasper 1990). We have therefore reviewed a larger
literature related to nuclear energy politics and to policy change in general, extracting five
theoretically relevant factors that might explain nuclear energy policy change.

There are three actor-oriented factors that appeared essential throughout the literature
review: antinuclear social movements (Kitschelt 1986; Flam 1994; Kriesi et al. 1995; Giugni
2004), antinuclear political parties (Lindstrom 2002; Nohrstedt 2005; Flam 1994), and the
state-nuclear industry (Rüdig 1987; Nelkin and Pollak 1980; Delmas and Heinman 2001).
These actors are consistently involved in the nuclear energy policy process across countries,
and can mobilize or demobilize quickly. As such, they are part of the macrostructure of
nuclear energy policy, but they are also related to more specific, time-bound mechanisms of
policy change.3

Two other contextual factors are worth noting. A shift in the venue of the policy debate
represents an opportunity for a policy change. It provokes, even if only briefly, a re-
organization of roles and power in decision making. Its importance in explaining nuclear energy
policy change is found in a number of different studies to nuclear energy (Flam 1994; Jasper
1990; Baumgartner and Jones 1991; Lindstrom 2002). The second contextual factor, the
occurrence of a focusing event, is taken from the wider literature on policy change (Kingdon
1997; Birkland 1997; Sabatier and Jenkins-Smith 1993) but has, quite surprisingly, received
relatively little attention from scholars of nuclear energy policy change.

THE CODING OF THE CONDITIONS

To perform QCA, a researcher must code each variable (independent as well as dependent)
into dichotomous qualitative states—for example, “high and low” or “present and absent”—
expressed through “1”s and “0”s. We briefly present the coding rationale for each variable
included in our analysis.

Antinuclear Mobilization

There are many ways in which social movements can be measured when assessing
movements as a factor influencing public policy. This study gauges the strength of a social
movement according to its level of mobilization (in terms of the number of protest events
during a given period of time and the number of participants in the protest events). The level
of movement mobilization remains the preferred measure for movement scholars (Rucht 1995; Kriesi et al. 1995; Giugni 2004) who focus on their impact for its intuitive aspect (the idea that “the more people are against a project, the higher the chance that this project will abort” makes sense) and for its comparability across countries and movements. Whereas data on organizational resources and framing practices used by movement organizations could quickly become impossible to collect across several countries, information on the level of mobilization has the advantage of being more available. In other words, the cross-country comparative dimension of the present study seriously limits the feasibility of collecting data on organizational and discursive aspects of social movement organizations (SMOs).

Data on movement mobilization level are collected through various sources: quantitative measures when available (mostly in France, Germany, the Netherlands, Italy, and Switzerland) and qualitative accounts found in case studies for most countries. When quantitative data are available, cases will be coded “1” whenever they correspond to periods of a high social movement mobilization level across cases and not just within the same case across time. When qualitative case studies represent the source of our coding, this condition gets a “1” value in obvious cases where the authors describe a peak in movement activities. For example, quantitative data (Giugni 2004; Kriesi et al. 1995) show that there was a social mobilization peak between 1985 and 1990 in Switzerland. Qualitatively, the Chernobyl accident of 1986 triggered a revival of the *raison d’être* of antinuclear movements (Favez and Mysyrowicz 1987) and a reunification of a then fragmented movement (Giugni 1995). Based on these quantitative and qualitative indicators of antinuclear mobilization preceding the 1990 major policy change (a ten year moratorium), the Swiss case (1985-1990) gets a value of “1” on the condition “antinuclear mobilization.”

**Antinuclear Allies Among the Established Political Parties**

The antinuclear political parties condition is coded “1” when there is a *stable* presence of *explicitly* antinuclear political parties in parliament. In other cases, the condition is coded “0”. For example, at the end of the 1970s, the French political parties were divided over the nuclear issue, within and across parties (Nelkin and Pollak 1980). The majority league (UDF, Union pour la Democratie Francaise) was comprised of a pronuclear Radical Party, a pronuclear Rally for the Republic (RPR, Rassemblement pour la Republique), and of the centrist Social Democrats (CDS, Centre des Democrates Sociaux), which was critical of nuclear energy. The opposition main parties consisted of the Communist Party (PCF, Parti Communiste Francais) which was in favor of nuclear technology but critical of its implementation, and of the Socialist Party (PS, Parti Socialiste) whose members were divided. There were also minor opposition parties such as the Unified Socialist Party (PSU, Parti Socialiste Unifie) which was definitely against nuclear energy (Rucht 1994; Nelkin and Pollak 1980) and the Radical Movement of the Left (MRG, Mouvement des Radicaux de Gauche) which was in favor of a moratorium. Overall, except for “wavering party lines” (Nelkin and Pollak 1980), we did not find evidence of a stable and explicit support for the antinuclear movement from any of the established political parties. Consequently, the 1976-1981 French case is coded “0” on the condition “presence of allies in political parties.”

**State and Nuclear Industry Relationship**

Many factors indicate the more or less strong implication of the state of the nuclear energy sector. For example, we have measured the share of the national energy research and development (R&D) budget spent on nuclear fission research as an indicator. The public ownership of nuclear-related industry is another facet that indicates the close implication and the interest of the state in the sector. However, more than formal and explicit signs of state involvement, the informal and noninstitutionalized ties are often more revealing of the state-
industry relationship at that time. As such, qualitative accounts found in the literature on the politics of nuclear energy are equally, if not more, useful in assessing the strength of relationship between the nuclear industry and individual country administrations.

In Germany, for example, the close tie between government and the nuclear industry weakened from the mid-1980s when the issue moved from the local-level to the federal party-politics level. Kitschelt (1986: 70) argues that in Germany, "an arm’s length relationship between government and the nuclear industry prevails." Rudig (1987: 411-12) also depicts a similar relationship between nuclear industry and the German state, and no study points to a return of closeness after the 1990s. In parallel, the share of the national energy R&D budget spent on nuclear fission was comparatively high until the end of the 1980s, but has decreased since then and has become particularly low compared to the other nine countries since the mid-1990s. As a result, the strength of industry gets a “0” value in the case of Germany, whose period of observation ranges from 1997 to 2002.

Policy Arena Shift

This condition is coded “1” when the nuclear energy issue has expanded to either a higher level of decision making (for example, from the local level to the federal parliament) or to a locus of a different nature (such as from “street” mobilization to party politics). For example, several years before the referendum on nuclear energy in 1980 in Sweden, the government considerably enlarged the arena of debate. This action, combined with the oil shock crisis and the 1979 Three Mile Island accident, caused nuclear energy to skyrocket to the forefront of Swedish politics. Originally, the main arena of debate around nuclear energy in Sweden was the mass media and the parliament (Flam 1994: 163, 175). In the mid-1970s, however, the Social Democrat government, which was concerned with the Centre Party’s monopoly over the issue of nuclear energy, shifted the arena to several “study circles” in the form of adult education associations (Flam 1994: 176). In 1977, a Royal Energy Commission was established to supervise the debate, and this effectively ended any agenda-setting power held by the antinuclear Centre Party. Although this arena shift could be seen as a negative outcome for the antinuclear Centre Party, it also triggered a “conflict expansion” (Schattschneider 1967), which can be hypothesized to have led to the 1980 referendum. As a result, the 1975-1980 Swedish case is coded “1” on the condition “arena shift.

Focusing Events

Within the history of nuclear energy policy in Europe, there are two obvious “focusing events:” the 1973 oil shock and the 1986 Chernobyl accident in the Ukraine. We also consider several other events linked to nuclear energy policy as focusing events. Some of them are not harmful as such, and others are not sudden, but they all draw the attention of both policy makers and the general public toward nuclear energy policy. This second type of focusing event renders the daily policy-making ground shaky and thus open and vulnerable to challenging views. This study identifies three other events, apart from the 1973 oil shock and Chernobyl, to be considered as focusing events: (1) the liberalization of the electricity market; (2) the 1979 accident at Three Mile Island in the United States; and (3) a nuclear-related incident. This condition is given a value of “1” whenever one of the five events identified above as “focusing events” is observed during the five years preceding the major nuclear energy policy change/near-miss change. When none of these events are observed, the condition is given a value of “0”.
CASE CONSTRUCTION

Our cases are constructed around the dependent variable (major nuclear energy policy change) in ten West European countries. These ten countries represent the whole population, as opposed to a sample, of nations having produced nuclear generated electricity. This study undertakes a causal process observation of these ten countries. Collier, Mahoney, and Seawright (2004: 252) define a causal process observation as “an insight or piece of data that provides information about context or mechanism.” This study therefore observes relevant events during a significant period of time before the major policy change in order to articulate causal processes. On the other hand, it sets a time-bounded frame of analysis beyond which we can reasonably argue that the sources of causal mechanisms become too distant to be connected. The five years preceding each major nuclear energy policy change (positive case) and each “near-miss” major nuclear policy change (negative case) represent our cases. In other words, if a major nuclear energy policy decision is observed at $t_0$, then our unit of observation spans the period from roughly $t_0-5$ years to $t_0$.

Eight instances of major nuclear energy policy change have been identified among the ten countries under study between 1973 and 2007 (corresponding to the first oil shock and to the most recent date for which data has been collected). Not all countries have experienced a major nuclear energy policy change. The following list enumerates the eight cases of major policy change, operationalized as decisions to phase-out nuclear energy or to implement a moratorium (see Appendix for a list of references on each case/country).

- The 2003 Belgian law on the phase-out of nuclear energy.
- The 1990 Swiss national referendum outcome that introduced a ten year moratorium on the construction of new nuclear power plants.
- The 2002 German law on the phase-out of nuclear energy.
- The 1984 Spanish governmental decision to establish a moratorium on the construction of new nuclear power plants.
- The 1987 Italian national referendum outcome to phase-out nuclear energy production.
- The 1994 Dutch governmental decision to shut down its last existing nuclear power plant (de facto phase-out).
- The 1980 Swedish national referendum outcome imposing a phase-out of nuclear energy production.
- The 1989 British governmental decision to proceed with a five-year moratorium on the construction of nuclear power plants.

Similarly, we have identified three negative cases where major nuclear energy policy change almost happened. Here, the events observed before the “near-miss” policy change were leading to a major policy change, but eventually failed to do so for various reasons. Note that major nonchange decisions do not cover all decisions in which major changes did not occur. In other words, negative cases are the substantial opposite of positive cases, and not their logical opposite. This more stringent criterion for defining our negative cases aims at amplifying the validation function for our negative cases (factors found to impact major nuclear energy policy changes should not be found to explain instances of near-miss policy changes as well). Thus, the “closer” our negative cases are to the positive cases, the stronger our claim of robustness for the positive cases (see Appendix for a list of references for each case/country). The following is a list of the three negative cases identified in our study:
Mobilization

• The 1984 Swiss decision by national referendum not to phase-out nuclear energy.

• The 1998 Finnish parliamentary approval to extend the operating life of all four Finnish nuclear power plants. These plants were to reach the end of their operation license the same year.

• The 1981 elected French Socialist government’s refusal to end or significantly slow down the production of nuclear energy.

Having constructed our cases, the synthesized data is then expressed in a "Truth Table" comprised of Boolean or dichotomized values (table 1). Each row represents a case. A case can in turn represent more than one country. For example, in the third row, Switzerland (1985-1990) and Germany (1997-2002) have an identical configuration of values for all variables. Hence they are considered as a single case. The first two columns refer to the cases (country and period of observation), while the last column refers to the outcome condition (the occurrence or near-miss of a major nuclear energy policy change). When the value of the outcome condition is “1,” the corresponding case is an instance of major nuclear energy policy change. When the value of the outcome condition is “0,” the corresponding case is an instance of near-miss major nuclear energy policy change.

The other five columns contain the five explanatory factors or conditions: social movement mobilization (SOC); political allies (POL); state-industry relationship (IND); arena shift (ARE); and focusing event (FOC). A “1” value for these conditions signifies, respectively, a comparatively high level of antinuclear social mobilization, the presence of allies among the established political parties, a comparatively weak tie between the government and the nuclear industry, a shift in the policy debate arena, and, the occurrence of a focusing event. A “0” value has been attributed to these conditions in the event of other qualitative states than those qualifying for a “1” value. While it is impossible to justify the coding of all cases for all variables due to space limitation, the Appendix lists some of the scholarly literature which underlies the coding process. Most often, gray literature and expert interviews have also accompanied this process. We proceed with the data analysis with QCA using the TOSMANA software (Cronqvist 2009) and present the Boolean formulae which result from the analysis. The bounded exploratory research question, “In which configuration(s) of the five factors do we observe a major nuclear energy policy change?” yields a rather surprising answer. The absence of highly mobilized antinuclear protests seems to be a nearly necessary condition for major nuclear energy policy change.

Table 1. Truth table of factors contributing to major policy change by country and year

<table>
<thead>
<tr>
<th>Country</th>
<th>Period</th>
<th>SOC</th>
<th>POL</th>
<th>IND</th>
<th>ARE</th>
<th>FOC</th>
<th>Major Policy Change</th>
</tr>
</thead>
<tbody>
<tr>
<td>Belgium</td>
<td>1998-2003</td>
<td>0</td>
<td>1</td>
<td>1</td>
<td>1</td>
<td>0</td>
<td>1</td>
</tr>
<tr>
<td>Switzerland</td>
<td>1979-1984</td>
<td>1</td>
<td>1</td>
<td>1</td>
<td>1</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>Switzerland</td>
<td>1985-1990</td>
<td>1</td>
<td>1</td>
<td>1</td>
<td>1</td>
<td>1</td>
<td>1</td>
</tr>
<tr>
<td>Germany</td>
<td>1997-2002</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Spain</td>
<td>1979-1984</td>
<td>0</td>
<td>1</td>
<td>0</td>
<td>1</td>
<td>1</td>
<td>1</td>
</tr>
<tr>
<td>Sweden</td>
<td>1975-1980</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Finland</td>
<td>1993-1998</td>
<td>0</td>
<td>0</td>
<td>1</td>
<td>0</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>France</td>
<td>1976-1981</td>
<td>1</td>
<td>0</td>
<td>0</td>
<td>1</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>Italy</td>
<td>1982-1987</td>
<td>0</td>
<td>0</td>
<td>1</td>
<td>1</td>
<td>1</td>
<td>1</td>
</tr>
<tr>
<td>Netherlands</td>
<td>1989-1994</td>
<td>0</td>
<td>1</td>
<td>1</td>
<td>0</td>
<td>0</td>
<td>1</td>
</tr>
<tr>
<td>United Kingdom</td>
<td>1984-1989</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>1</td>
<td>1</td>
</tr>
</tbody>
</table>
THE BOUNDED EXPLORATORY ANALYSIS

Our model is designed to answer the question: In which configuration(s) of the five factors do we observe a major nuclear energy policy change? This primary research question therefore contains an exploratory interrogation within a defined and therefore bounded universe of five factors. The Boolean minimization of the positive cases of major nuclear energy policy change yields a rather long formula with five terms (combinations of conditions) of which one, representing the case of the Netherlands and Belgium, contains four conditions (there was a process of minimization with another configuration) (Table 2). There was thus no one common pattern leading to a major nuclear energy policy change, but several “paths” converging to explain these major changes. In a sense, this is not surprising in light of the relatively ample diversity we identified among the analyzed cases.

Table 2. Major Nuclear Energy Policy Change

<table>
<thead>
<tr>
<th>POLICY CHANGE</th>
<th>Country</th>
</tr>
</thead>
<tbody>
<tr>
<td>soc.pol.IND.ARE.FOC +</td>
<td>Italy</td>
</tr>
<tr>
<td>soc.POL.ind.ARE.FOC +</td>
<td>Sweden; Spain</td>
</tr>
<tr>
<td>soc.POL.IND.ARE.FOC +</td>
<td>Germany; Switzerland 90</td>
</tr>
<tr>
<td>soc.POL.IND. foc +</td>
<td>Netherlands; Belgium</td>
</tr>
<tr>
<td>soc.pol.ind.are.FOC</td>
<td>United Kingdom</td>
</tr>
</tbody>
</table>

Note: The dot “.” between two conditions refers to the intersection of the two conditions—in other words, to a Boolean “and.” The plus sign “+” between two terms (combinations of conditions) refers to the union of the two terms—in other words, to a Boolean “or.” For a more technical look at QCA, see Ragin (1987); Bihoux and Ragin (2009); among others. The “90” after Switzerland has been added so as to differentiate the two Swiss cases. This one therefore refers to the case of Switzerland between 1985 and 1990.

There are five explanatory paths for the occurrence of major nuclear energy policy change. Upper cases denote a “1” value to the condition, whereas a lower case denotes a “0” value to the condition. We can see that each path displays the combination of most of the five conditions. For example, the first path, explaining the case of Italy, combines all five conditions and reads as follows:

*A major nuclear energy policy change is observed in the context of an absence of strong antinuclear movements, combined with the absence of political support from established political parties, a weak state-nuclear industry relationship, and the presence of both an arena shift and a focusing event.*

Hence, it was only in the case of the Netherlands and Belgium that a condition (presence/absence of arena shift) was found to be insignificant and thus dropped out during the process of Boolean minimization. Overall, the level of minimization among the conditions leading to a major policy change is low. This underscores the high level of complexity of the phenomenon to be explained: only in light of multiple paths, themselves composed of many factors or conditions, can we understand major nuclear energy policy changes.

The raw explanation remains complex but we can, however, reduce the level of complexity by factorizing the formula. Indeed, several conditions appear similarly in several paths. In four out of the five causal paths of major nuclear energy policy change the absence of strong antinuclear movements (soc) is observed. Table 3 shows the factorization of this condition.

Thus factorized, we can see that the absence of a highly mobilized antinuclear movement covers six out of eight cases and is therefore very close to a necessary condition for explaining major policy changes. Hence, except for the German and Swiss cases, all instances of major nuclear energy policy change occurred with the absence of a strong antinuclear mobilization.
Table 3. Factorized Version of Equation in Table 2

<table>
<thead>
<tr>
<th>POLICY CHANGE</th>
<th>soc.</th>
<th>pol.IND.ARE.FOC</th>
<th>pol.IND. ARE. FOC</th>
<th>POL. ind. ARE. FOC</th>
<th>POL. IND. foc</th>
<th>pol. ind. are. FOC</th>
<th>SOC.</th>
<th>POL. IND. ARE. FOC</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>soc.</td>
<td>Italy</td>
<td>Sweden; Spain</td>
<td>Netherlands; Belgium</td>
<td>United Kingdom</td>
<td>Germany; Switzerland</td>
<td>soc.</td>
<td>90</td>
</tr>
</tbody>
</table>

One of the major strengths of QCA, as pointed out earlier, is its ability to return to the cases after having “processed” the data. Although it is not possible in this setting to include a full narrative for the five paths, we nonetheless go back to the cases by focusing on the antinuclear mobilization factor in view of contextualizing each path.

soc.pol.IND.ARE.FOC

The first path covers the case of Italy with its absence of highly mobilized social movements (soc) and allies in established political parties (pol) but presence of an arms-length state-nuclear industry relationship (IND), a shift in the policy arena (ARE) and a focusing event (FOC). Italy phased-out its nuclear energy industry in 1987 in the context of a weak and disparate antinuclear social mobilization. In the early 1980s, nuclear energy was not a stable salient issue in Italy in comparison to other countries such as Sweden or Germany. Rather, protests occurred mainly at the local level and most of the time against powerful political parties which were all pronuclear (or at least were so in their national and central branches). At the national level, the issue did not mobilize as much as it used to do in the 1970s, and the protest agenda was mainly occupied by peace movements and general environmental issues. All the major political parties—mainly the Partito Comunista Italiano (PCI), the Partito Socialista Italiano (PSI), and the Democrazia Cristiana (DC)—were officially pronuclear in the early- and mid-1980s (and had always been so), even if there were latent signs of a change in their position induced from “within” the parties, especially from the differences between the positions of the local branches and the central party organization. Even if all three major parties eventually turned antinuclear after the Chernobyl accident and the holding of the nuclear referendum, it remains a fact that none of them proved to be reliable and explicit allies to antinuclear claims before the 1987 referenda. As such, the Italian antinuclear forces looked at that time isolated with no important means, at the national level at least, to influence the nuclear energy policy agenda.

However, antinuclear alliances and strategies were being pursued at the local level, and they constituted an essential latent factor of the outcome of the 1987 referendum. In the opposite camp, a fragmented nuclear energy sector hindered any coordinated attempt by the pronuclear industry to influence governmental decisions on nuclear energy policy. Moreover, a political culture based on partitocracy (whereby political parties hold most decision making power on day-to-day politics but also on most aspects of the daily lives of citizens and industries) attributed much power to political parties and especially to their elites, which maintained close but informal ties with the economic elites. The informality and the uncertainty raised by these clientelist ties made it very difficult for the industry to invest in nuclear energy.

The latent situation was unlocked by the 1986 Chernobyl accident that triggered the mobilization of antinuclear public opinion, the shift in position vis-à-vis nuclear energy of the major political parties, the increased fragmentation of public institutions on how to handle the crisis, and a major shift in the policy debate arena: the nuclear issue was promulgated to the top of the national agenda and, as such, multiplied the number of conflict arenas. The political
parties, one by one, came to support the holding of a nuclear referendum and further expressed their skepticism toward nuclear energy. As a result of the referendum, a five-year moratorium on all nuclear power plants under construction was voted on August 6, 1988. As such, the Italian case reflects the situation in which an external event (Chernobyl) triggered a series of shifts in other conditions that had been in latent preparation.

The second path covers the cases of Sweden and Spain with an absence of highly mobilized antinuclear movements (soc) and of an arms length state-nuclear industry relationship (ind), but with the presence of allies in established political parties (POL), of shifting policy arenas (ARE) and of a focusing event (FOC). Sweden phased-out its nuclear energy sector in 1980 following a national referendum, while Spain legalized a moratorium in 1984, nine years after the death of Franco. Levels of antinuclear social movements were comparatively unimpressive in both countries in the second half of the 1970s for Sweden and in the first half of the 1980s for Spain. The Swedish protest movement had been mainstreamed by the establishment of a Royal Energy Commission, and the Centre Party was quick to pull nuclear energy into its issue portfolio. The issue was thus “owned” (Petrocik 1996; Petrocik, Benoit, and Hansen 2003) by a mainstream political party, a fact that had the effect of institutionalizing the nuclear energy debate outside the movement realm, and at the same time advancing nuclear energy to the top of the Swedish political agenda. On the other hand, the Spanish movement occurred only at the local level and was instrumentalized by regionalist movements such as the Euskadi Ta Askatasuna (ETA). Thus, the reasons for an absence of a high antinuclear mobilization were different in Sweden and Spain: while the Swedish antinuclear public opinion was present but its materialization (movements) had been pacified through a process of institutionalization, the Spanish antinuclear public opinion existed mostly only in connection to the regionalist movements.

Both countries experienced a period of political instability at that period of time and saw the arrival into power of political parties sympathetic to antinuclear stances. The 1976 elections saw the demise of the Social Democrats in Sweden, and the country experienced a nonsocialist government for the first time in 44 years. The Centre Party (former agrarian party) attracted support with its overtly critical stance on nuclear energy and formed a government with Conservatives and Liberals. The Centre Party became a high-profile party due to its ownership of the nuclear issue, and the difficulties it encountered once in government—coupled with the 1979 Three Mile Island accident—deepened the political crisis Sweden had been experiencing since 1976. The 1980 referenda on nuclear energy made possible the ending of this partisan and ideological crisis, and the moderate nuclear phase-out outcome was welcomed both by the public and by the elites with a return to “business as usual.”

In Spain, the political instability was the background “scenery” to the political decisions surrounding the nuclear energy issue. Indeed, with the death of Franco in 1975, Spain was experiencing its first steps into liberal democracy. While the Franco dictatorship had developed an ambitious nuclear energy program (the first National Energy Plan of 1975 planned for the production of 56 percent of Spanish electricity to come from nuclear sources by 1985), it was countered by one of the strongest emergent political parties, the Socialist Party (PSOE), which had turned definitively antinuclear after the 1979 Three Mile Island accident. As the PSOE won most of the legislative seats during the 1979 general elections and the economic crisis hitting most parts of the world called for economic rationalism, the Spanish nuclear sector was hit by the murder in 1981 of two nuclear engineers at the Lemoniz nuclear power plant by separatists who used the nuclear energy issue to express their discontent towards the central government. Following this incident, the PSOE called for a temporary halt of the Spanish nuclear energy program.
The third path covers the cases of the Netherlands and Belgium with the absence of a highly mobilized antinuclear movement (soc) and the presence of allies in established political parties (POL), of an arms-length state-nuclear industry relationship (IND) and of a focusing event (FOC). In 1994 the Dutch government to shut down its last nuclear power plant in Borssele by 2004, and Belgium enacted its phase-out law in 2003. In both countries, these decisions have gathered relatively little attention from the public or from the elite in comparison to other countries such as Sweden or Germany. The reason for the low level of Dutch antinuclear movement mobilization lies in the process of early institutionalization of the nuclear issue. The public debate of the early-1980s demobilized these movements, although the scope of the latter was already limited as they were only identified at the local level even before the public debate.

In Belgium, the nuclear issue was also institutionalized in the early 1980s with the organization of a parliamentary debate which started in 1983, and also with the creation of the two green parties, Ecolo and Agalev. Until then, antinuclear mobilization was still active, at least in the Flemish part of the country. As such, in both countries, the institutionalization of the nuclear issue through party politics meant the end of street level mobilization. In Belgium, Ecolo and Agalev have kept the issue as one of their most important items on their political agenda since then, while in the Netherlands the PvdA (Labor Party) had turned antinuclear after Chernobyl and smaller parties (D'66, GroenLinks, Socialistische Partij (SP)) had always declared themselves against nuclear power.

The history of major nuclear energy policy changes are strikingly similar in the Belgian and the Dutch cases: claims by antinuclear movements had been institutionalized through political parties who exercised important influence over policy making, and the general elections preceding the major changes were a focal element in both countries as they saw the historic demise of Christian parties (CVP or Christelijke Volkspartij in Belgium and CDA or Christen-Democratisch Appèl in the Netherlands, both pronuclear) and the reinforced presence of antinuclear parties within the governing coalition. Furthermore, in both cases, the antinuclear policy did not figure high on the political agenda in comparison to other issues. Hence, the “major” changes in the nuclear energy policies of both countries were decided upon without soliciting much attention.

The fourth path represents the configuration of conditions for the British case with the absence of highly mobilized antinuclear movements (soc), of allies in established political parties (pol), of an arms-length state-nuclear industry relationship (ind), and of a policy arena shift (are), but with the presence of a focusing event (FOC). The United Kingdom decided in 1989 to postpone any decision on the construction of further nuclear power plants for five years until 1994. This case is somewhat “special” in the sense that all conditions display a negative value (“0” value) except for the focusing event condition. From this, two statements can be made: first, this configuration confirms the importance of focusing events in the explanation of major changes in nuclear energy policies; and second, the British case is an exception of some sort since it goes against the theoretical assumptions behind each condition.

In contrast to the other cases, it cannot be said that the issue of nuclear energy has been institutionalized at any higher levels than that of street-level mobilization. The United Kingdom has indeed not known any antinuclear social mobilization comparable to that in the other cases under study. Antinuclear mobilization was small in scale, but more importantly, it was “institutionalized” on its own from the beginning: the mobilizing strategy of the British
movements was conventional in character and did not seek to build any alliances with the political parties.

In this context, antinuclear claims did not have any explicit and stable allies among the established political parties (mainly Labour and Conservatives). Labour did express antinuclear stances just before and during the Sizewell B public inquiry at the beginning of the 1980s, but it was an opposition aimed at the current Conservative government’s plan to develop a Pressurized Water Reactor (PWR) design-based nuclear power program, and not an opposition to nuclear energy per se. The 1983 Labour party manifesto confirmed the opposition to Sizewell B and to the PWRs, but not to an energy policy which included nuclear power. As such, antinuclear stances were neither visible nor supported by the institutionalized political system. Furthermore, the pronuclear Conservative government led by Thatcher entertained a close relationship with the nuclear industry. The existing literature points to a “considerable amount of influence” the nuclear industry exercised upon nuclear energy policy (Simpson 1991), and the policy style reflected an entrenchment of government and industry on nuclear energy matters (Rudig 1987).

The decision to privatize the nuclear energy sector acted as a focusing event. Although the decision was part of a more global process that the Thatcher government had launched that touched a diverse range of policy areas (such as telecommunications in 1984 and railways in the early 1980s), the liberalization soon became problematic as the nuclear industry demanded financial support and guarantees from the government as a consequence. In a rather embarrassing move, the government thus had to withdraw several nuclear power plants from the privatization process. The only available solution to withdraw from this locked situation was the 1989 moratorium on new nuclear power plant construction.

The last path covers the cases of Germany and Switzerland with the presence of all conditions: highly mobilized antinuclear movements (SOC), allies in established political parties (POL), an arms-length state-nuclear industry relationship (IND), a policy arena shift (ARE) and of a focusing event (FOC). Germany decided in 2002 to phase-out nuclear energy, while in 1990 Switzerland approved a ten-year moratorium on future nuclear power plant construction. They share the particularity of displaying the presence of all five conditions hypothesized to facilitate a major nuclear energy policy change.

Both cases experienced a high level of antinuclear mobilization within the five years preceding a major policy change. In fact, in both countries, antinuclear movements have, despite some down periods, remained active throughout time in comparison to other countries. The German movement did not wane as in other countries during the 1990s and continued to mobilize around the nuclear waste issue, focusing on the Gorleben reprocessing plant. In Switzerland, the 1986 Chernobyl accident and the subsequent 1988 decision to abandon the Kaiseraugst nuclear power plant project mobilized and encouraged antinuclear activities. However, the sustained antinuclear mobilization did not prevent the institutionalization of the nuclear energy issue through national party politics. In 1998, an anti-nuclear governing coalition composed of the Green Party and the Social Democratic Party (SPD) took office and agreed on a nuclear phase-out program. Although the elaboration of the phase-out project encountered opposition from within the Ministry of Environment (BMU) and from the nuclear industry, the nuclear energy issue was such a raison d’être for the Green Party and a high-profile issue for the SPD that it stayed well anchored in the political agenda.

In Switzerland, the Socialist Party, one of the four governing parties, was a stable ally of the antinuclear movement but could not do much since the other three parties (the bourgeois parties) were firmly pronuclear. Although the Socialist Party, together with smaller parties such as the Green parties, significantly contributed to the strength of the antinuclear movements by sharing information and other resources, it was the sudden reversal of position...
by the bourgeois parties in 1988, by agreeing to abandon the Kaiseraugst project, which finally unlocked the dead-end situation in which the nuclear energy issue had been entrenched since the beginning of the 1980s. As such, both Switzerland and Germany are “exceptional” cases in the sense that a strong antinuclear mobilization did not prevent a solid institutionalization of the nuclear energy issue and vice versa.

The mechanisms linking the shift in the debate arena and the occurrence of a focusing event are also very similar in the two cases. There was first a significant external event that enhanced the effect of antinuclear mobilization and of political allies, who in turn could push for a shift in the arena of debate where the policy change was enacted. In Germany, the 1998 nuclear safety breach scandal helped the Greens during the legislative elections, which propelled them as a governing party. The Greens took the opportunity to lift the nuclear phase-out policy onto the governmental agreement, thus bringing it to the top of the governmental agenda. In Switzerland, it was the 1986 Chernobyl accident that triggered all the governing political parties to gather around the cancellation of the Kaiseraugst project in 1988, which in turn can be hypothesized to have impacted the shift in the debate arena through the 1990 nuclear referendum (from party politics to the public arena, and from the local arena to the national arena).

By including antinuclear mobilization in our model, we had implicitly hypothesized that antinuclear movements would impact on policy change if they were accompanied by a facilitating political context or by a focusing event. However, except for the cases of Germany and Switzerland in the late-1980s, movement mobilization was empirically low when major nuclear energy policy change occurred. Returning to the cases allowed us to bring in nuance and context to this counterintuitive finding, but the results nonetheless lead us to question our initial suppositions. Do movements really have an impact on policy change, even in “good company”? Worse, do they prevent policy change?

POWERLESS MOVEMENTS?

Although the literature on movement impact on public policy at large “has provided inconsistent results” (Uba 2007: 12), and specific research on the impact of antinuclear movements on nuclear energy policy has produced results that are “quite discordant” (Giugni 1999: xxii), recent research agrees on a conditional or contingent power of social movements on policy (Amenta, Carruthers, and Zylan 1992; Amenta, Caren, and Olasky 2005; Giugni 2004, 2007; Cress and Snow 2000; Soule and Olzak 2004). In other words, according to these studies, movements need to be carried by other political factors, such as a favorable public opinion or the presence of political allies. However, a still very limited number of scholars seem to be pointing to an even more dramatic interpretation of movement impact on public policy: social movements do not, or at best very moderately, have any leverage over policy making, even when they operate in a favorable political context.

Burstein and Linton (2002) embarked on a review of past studies on the impact of political organizations on public policies. Their state-of-the-art conclusion is that political organizations, including social movement organizations, had a statistically significant impact in half the studies they reviewed, but had a substantial impact on policies in only a fifth of those studies (394). They believe that despite the accumulating negative results on movement impact on public policy, scholars continue to search for empirical support and to refine the theoretical framework, partly because “theories predicting that there will be such an impact are so plausible and so widely accepted that contrary evidence is not noticed” (398). The normative implications of such studies might also incite scholars to counter-proof negative findings about the powerlessness of movements on governmental activities.

More recently, Giugni evaluated the impact of ecology, antinuclear, and environmental movements on public policy in the United States, but with a twist consisting in starting the
research with “a more skeptical stance [that leaves] open the possibility that movements have no impact at all” (2007: 196). And indeed he finds that movements, even when they are accompanied by political allies and a favorable public opinion, “have at best a moderate impact” (213). Although the author suggests several methodological, theoretical, and empirical reasons why these results should be nuanced, the cat had already been set amongst the pigeons. Can it be possible that social movements don’t exercise any significant impact on public policies?

The results might raise even greater worries by suggesting that the nonmobilization of antinuclear movements could be an explanatory factor of major nuclear energy policy change. However, the idea that a “quiet” social mobilization is conducive to major policy change is not entirely new. Burstein and Sausner (2005: 417) found that “sometimes collective action may be successful when it is inconspicuous.” They refer to the study by Jacob (1988) where the author argues that major reforms in marriage legislation have been implemented precisely because the proponents of reforms were careful not to become visible, and hence managed to keep potential opponents to change unmobilized. However, Burstein and Sausner do not elaborate further on their suggestion.

How then, exactly, can we explain the paradox of a powerful—in the sense that they are part of the policy-change causal process—but silent—in the sense that they are de- or un-mobilized—mobilization? The underlying logic might be that in some cases “big” decisions are easier to take in an issue-pacified context where the discussions and negotiations are led in a well defined arena with well established rules. Uncontrolled interventions from outside these spheres might polarize political positions in such a way that the status quo would in the end appear as the least risky option for all decision making bodies, as in some kind of Pareto optimum. However, we don’t observe this paradox in all the relationships between social movement mobilization and policy change. Thus, we hypothesize that this paradox may apply only to so-called “high-profile” policies.

High-profile policies, as coined by Duyvendak (1995) and further elaborated by Kriesi and his team (1995), refer to policy areas that are considered crucial by the authorities because they are of central importance to the core business of government. As a consequence, “challengers face a rather closed political system” and “political authorities tend to follow a more exclusive strategy and to concentrate their efforts on defeating challengers” (Kriesi et al. 1995: 97). Nuclear energy is cost intensive and, as such, a change in its policy bears high economic consequences. The technology touches upon the national interest of a country in that energy independence is an important component of national sovereignty. Nuclear energy policy is thus considered a high-profile policy (Kriesi et al. 1995; Giugni 2004, 2007). In such high-profile policy domains, the increased visibility and stigmatization of the issue might hinder its propensity to major changes. Since diverse interests are at stake, a change would have repercussions for policy actors in a substantive number of other policy domains as well.

We can therefore theorize that high-profile policies such as nuclear energy are easier to change when the negotiations are operated outside of the loud and stigmatizing realm of street protests and within closed arenas. As such, the institutionalization of the protest issue is usually a necessary step to impact policy change. Indeed, while street protests bring about attention of the institutionalized political spheres, it is through these institutionalized channels that major policy change is most likely to be accomplished. In one of the only writings found dealing with the counter-productivity of social mobilization, Cress and Snow (2000) conclude on their study of homeless organizations’ mobilization: the “presence of allies provides a legitimate voice for putting a positive spin on disruptive protest and for placing the SMO’s grievances and objectives on a city’s calendar…. However, when such attention and action are present in the context of an already responsive city, disruptive protest is unnecessary and likely to be counter productive” (1098).

However, if nuclear energy did not at some point attract the attention of policy makers, nuclear energy policy would surely not change by itself. Thus, while the stigmatizing street
protests might be counterproductive for nuclear energy policy change, they nonetheless usually trigger a process of political institutionalization if the protests are given enough visibility and salience. Most of the time, the transfer of the nuclear energy issue into the institutionalized political spheres induces the demise of street level antinuclear mobilization, as the organization of Energy Committees or the appropriation of the nuclear energy issue by one or several political parties take away mobilizing forces.

CONCLUSION

This study has several implications for the literature on the impact of antinuclear movements on major nuclear energy policy change. First, as suggested by several studies (Amenta et al. 2005; Giugni 2004), movements do not have a lone direct impact on policy change. In our study, antinuclear movements never appear to have a singular impact policy change. If they had, the mobilization condition would have appeared as a sufficient condition in our equations. As advocated by Amenta and colleagues (2005), movement scholars should build models that ask: In which context do movements matter?

Second, and more specifically on nuclear energy policy, our study reveals that for high-profile policies such as nuclear energy, the contextual requirements for movements to impact policy change are stringent. In our cases where both a high antinuclear mobilization and a major policy change were observed together (namely the Swiss and German cases), all of the other four conditions needed to be present as well. This is concordant with the recent trend in the literature on movement outcomes, whereby antinuclear movements are found to have only little policy impact (Burstein and Sausner 2005; Giugni 2007).

Third, based on these negative findings, we posit that antinuclear movements have more chances of impacting policy when they have a low-key presence. Furthermore, we hypothesized that this would be verified on high-profile policies, as strong social mobilization in such policy areas would polarize the position of decision-making bodies in such a way that a major change decision could not be politically viable. We hope that further empirical research will test this hypothesis, as it involves a highly normative question as well: Do social actors outside the established decision-making realm need to constrain their actions in order to bring about sweeping changes in important and sensitive policy areas?

It is important, however, to add nuance to the hypothesis that silent mobilization has an impact on high-profile policy such as nuclear energy. First, the fact that a low-key, antinuclear mobilization facilitates major policy change does not imply that movements do not play any decisive role in the policy process. In several cases, a prior high antinuclear mobilization helped the nuclear energy issue to reach the political agenda. Antinuclear movements were nonexistent in Belgium when the nuclear phase-out law was enacted in 2003, but they had been quite active during the second half of the 1970s and into the early-1980s, when the parliamentary debate over nuclear energy began. Although we cannot argue that it was the movement which triggered the organization of the parliamentary debate, since the decision was taken in 1975 when movements were only beginning to mobilize, they can be hypothesized to have sent a warning sign to the authorities and to have to some extent impacted the repeated postponing of the decision to build a fifth nuclear power plant and its eventual cancellation in 1988.

Second, our hypothesis on the silent power of movements or on the power of silent movements should also be nuanced in light of the cases of Switzerland 1985-1990 and Germany, where antinuclear movements were still highly active when the moratorium and the phase-out law were enacted. However these two cases have several unique features, such as independent local courts or direct democratic tools, which allowed movements to coexist with an institutionalization of the nuclear energy issue into more established arenas.
A third nuance is added on methodological grounds. Although we conclude with a rather controversial hypothesis on the dampening impact of movements on policy change, we are aware that such a proposition should be tested by including negative cases—that is, cases of major nuclear energy near miss. In other words, the relationship between the occurrence of a highly mobilized antinuclear stance and the occurrence of major “missed” policy changes is a mandatory and necessary next stage for this hypothesis to evolve any further.

Finally, this research focuses on the policy impact, and, more precisely, on the enactment of major policy-change decisions and represents a very narrow, albeit important, type of impact that a movement can exercise. Movements can impact otherwise on their own by acquiring acceptance within the policy-making process, by raising an item on the political agenda, by impacting policy changes of varying scopes, by yielding structural effects, etc. (see Giugni 1998 for a review). In conclusion, this article finds support for the hypothesis that highly mobilized social movements may prevent major policy changes, especially when the policies are high profile. We particularly invite further research on this hypothesis that will include the analysis of negative cases.

NOTES

1 There are, however, a couple of studies on antinuclear movements covering a large number of countries. Flam and her team (1994) analyze the evolution and the impact of antinuclear movements in eight countries. Whereas Flam’s work focused on antinuclear movements (origins, development, strategies, and impacts), ours is geared toward the explanation of nuclear energy policy change. There is, therefore, a different purpose to the two studies. Rudig (1990) also reviews the activities of antinuclear movements in a large number of countries.

2 QCA is one of the few methods that permits a formalized, and thus replicable, analysis and that keeps an essentially qualitative and case-oriented process both upstream (data gathering and coding) and downstream (interpretation). QCA yielded several methodological extensions such as Fuzzy Sets (Ragin 2000) or TQCA (Caren and Panofsky 2005). However, we believe that for both of the above cited extensions, they would not suit the analysis of a study with such a small N like ours or, in other words, a study with such a tight ratio between the number of conditions (independent variables) and the number of cases. Scholars interested in QCA should refer to the bibliographical database maintained by the COMPASSS Research Group (www.compasss.org).

3 While social movements and their alliances with political parties are often part of the set of explanatory factors in the exogenous approach, the relationship between the state and the nuclear industry—a “policy style” Rüdig (1987)—found in the endogenous literature focuses on a more specific actor than the state.

4 The Appendix lists the studies in question.

5 The process of selecting the cases for comparison on the dependent variable has been the target of numerous debates. Although it is an important issue, we will not expand on it in this article, but for scholars interested in pursuing this topic, see Chapter 4 of King, Keohane, and Verba 1994; Chapter 6 of Brady and Collier 2004; Geddes 1990; Dion 1998; and George and Bennett 2005.

6 We would like to emphasize the conceptuality of this five year period: this length during which variables are measured is given as a reference and not as a strict exclusive period. There is no theoretical claim that this time period should be of one year, or five years, or ten years, or more. Among the only quantitative studies on nuclear energy policy change, Giugni (2004) chose a lag period of one year (such a short lag is justified by his use of time-series data over two decades), and Rucht (1995) chose to perform a bivariate analysis of aggregated data on the strength of antinuclear protests between the 1970s and the end of the 1980s and of a similarly aggregated index of achievement of planned constructions of power plants between the same period. It is nonetheless implicit in all studies that nuclear energy policy change is a particularly lengthy process due to its sensitive implications on national energy independence, its ties with military applications, and so forth. Other more qualitative studies do not specify any specific time frame and usually cover a time period in which relevant elements can be linked to a policy decision (Jasper 1990; Flam 1994; Rudig 1987). As such, this should be seen as an informal invitation to practitioners of more qualitative methods to also share an “indicative” measurement period in future studies.

7 Some argue that policy decisions or adoptions and policy implementations represent different “phases” of the policy cycle (DeLeon 1999). As such, different dynamics are at work across the different stages. In this paper, we focus on policy decisions or adoption stages and therefore do not analyze whether or how these decisions are implemented, although we acknowledge that such a study would complement our understanding of the policy process across its “value chain.

8 Again, the threshold criteria are presented in an extremely simplified way here, in order to keep the focus on the latter part relating to the social mobilization condition. Readers who wish to know more about the overall model should refer to Yamasaki (2007).

9 Except for the cases of Belgium and the Netherlands, the occurrence of a focusing event was indeed observed in all
instances of major changes. This factor was, together with the absence of highly mobilized antinuclear movements, the closest to being a necessary factor in explaining major nuclear energy policy changes.

As a reminder, the conditions were given a similar “causal direction” during their coding process. As such, the presence of each condition is theorized to facilitate major policy changes.

More specifically, they review the results of 53 sociological and political science articles published in the top-level journals between 1990 and 2000.

### APPENDIX: LIST OF STUDIES REFERRED TO IN THE CODING OF THE CASES

<table>
<thead>
<tr>
<th>Country</th>
<th>Sources</th>
</tr>
</thead>
<tbody>
<tr>
<td>Belgium</td>
<td>Rihoux (2000); van den Noortgate (1996); Vanden Borre and Michiels (2002); Walgrave (2005).</td>
</tr>
<tr>
<td>Germany</td>
<td>Blowers and Lowry (1997); Hackel (1980); Mez (2000); Rucht (1990); Rudig (1990, 2000); Wagner (1994).</td>
</tr>
<tr>
<td>Spain</td>
<td>Espejo Marin (2002a, 2002b); Jimenez (1999); Lancaster (1989); Roskin (1977); Rudig (1990).</td>
</tr>
<tr>
<td>Finland</td>
<td>Hämäläinen (1991); Jasper (1990); Kojo (2006); Paastela (2003); Sundberg (2003).</td>
</tr>
<tr>
<td>Italy</td>
<td>Carnovale (1991); Della Setta (1999); Diani (1994); Giugni (2004); Lucas (1985); Sartorelli (1987); Tricarico (2001).</td>
</tr>
<tr>
<td>Netherlands</td>
<td>Arentsen (2006); Hatch (1986); Soetendorp (1991); van der Heijden (1994); Verbon and Geels (2007).</td>
</tr>
<tr>
<td>Sweden</td>
<td>Flam and Jamison (1994); Jahn (1992); Kaisjer (1992); Kitschelt (1986); Lindstrom (2002); Nilsson (2006); Nohrstedt (2005).</td>
</tr>
<tr>
<td>United Kingdom</td>
<td>Collingridge (1984); Dalquist (2004); Helm (2003); Hewlett (2005); O’Riordan, Kemp, and Purdu (1988).</td>
</tr>
</tbody>
</table>

### REFERENCES


Mobilization


