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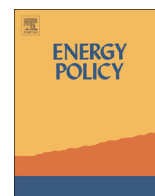
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# Energy shocks, crises and the policy process: A review of theory and application

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## Review Article

## Energy shocks, crises and the policy process: A review of theory and application



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## HIGHLIGHTS

- An analysis of the idea of “crisis” and its application to energy.
- A review of theories and models of the policy process and of policy change.
- Theory applied to two energy cases.
- Suggestion as to how the analysis of energy policymaking might be approached in the future.

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## ABSTRACT

What motivates changes in energy policy? Typically, the process begins with a notable exogenous event, a shock. Often, the shock leads to what is perceived to be a crisis. This review essay surveys theories of crisis policymaking from the social science literature and considers their application to changes in energy policy. Two cases—one from the U.S., the other from Germany—are examined in more detail from the standpoint of the theories discussed. Suggestions are made for improving energy policy analysis in the future.

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## 1. Introduction

It has been casually observed that in the United States “progress on energy policy” requires a crisis (Dunn, 2006). This is apparently understood among policymakers and the observation does, at least in one sense, fit the facts. Virtually all major U.S. energy legislation has passed during, or in the aftermath of, what has been widely perceived to be an energy crisis. In addition to new legislation, the atmosphere of crisis may also produce changes in the bureaucracy, the renewal and expansion of existing programs, or the realignment of advocacy groups both in, and outside of, government. Absent the perception of crisis, energy policy is typically stymied by competing interest groups and consequently any effort at significant policy change quickly loses momentum.

Whether any of America’s energy legislation or other policy changes represents “progress” is another matter. As described in Grossman (2013), for the most part, such legislation has embodied more the sense of government panic than a move toward effective energy policies. Keeler (1993, 441) has suggested that this is a likely outcome because, “A crisis can create a sense of urgency... [that] allows for unusually rapid acceptance of reform proposals intended to resolve the crisis.” Even President Jimmy Carter once noted that crises lead predictably to “ever more massive government bureaucracy and regulations, and ill-considered last-minute, crash programs,”<sup>1</sup> a cogent analysis, which he subsequently ignored.

Still, the connection between “energy crises” and ensuing changes in energy policy is very real especially in the American political context. This paper surveys theories and models of crisis policymaking in the social science literature and explores how well they illuminate the process and outcomes of energy policy efforts.

I have referred to “energy crises” often with the qualifier “perceived” because before any discussion of the theory of crisis policymaking, it is important to develop a clear understanding of just what is meant by a “crisis,” and especially an energy crisis. Claims that America (or even the whole world) has faced an energy crisis have been ubiquitous for the past forty years. Between 2001 and 2012, in the U.S. Congress alone, the term was used about 1200 times in debates and speeches.<sup>2</sup> So large a number of utterances suggest both its ready acceptance as a catch-phrase and that its meaning is ambiguous.

Scholarly literatures give various definitions of “crisis” generally (e.g. Keeler, 1993; Boin et al., 2005; Coyne, 2011) and there have been efforts to define “energy crisis” as a distinct subcategory. But based on these it is questionable that any event should have been called an energy crisis (Garrison, 1981; Grossman, 2013). Of course, if that is the case, it would seem that policy has been motivated only by the perception of a crisis.

Of course, even imagined crises do not occur in a vacuum. There are typically one or more precipitating events, “shocks,” that

lead to the ensuing “crises.” Shocks may be sudden and dramatic socioeconomic surprises, or they may start as mere glitches that mushroom into conditions that take on societal importance and entail potential economic and, more importantly from the policymaker’s perspective, political costs if left alone. It is fair to say that energy shocks have occurred although these have often been the result of poor policies not exogenous events in energy markets.<sup>3</sup> But it is important to distinguish an initial shock—e.g. a sudden oil price spike—from any larger sense of crisis that might follow.

This essay is organized as follows: the next section explores the definition of crisis as it appears in the scholarly literature as well as in common parlance. There are also specific definitions of an “energy crisis.” These definitions are much less demanding in terms of how strongly events impact a society. Indeed, it will be argued that the social science definitions of societal crises are too strong to apply to most energy problems.

Section 3 examines the theories and models of policy change, specifically as to the ways in which shocks and crises are thought to impact the policymaking process. In general, a shock brings public attention to an issue, and if the impacts are acute and/or persistent the situation may be deemed a crisis. The crisis mindset may push energy to the top of policymakers’ agenda, and lead to policy change, sometimes major change. The models and theories attempt to explain why the process of crisis policymaking may lead at time to significant policy changes, but at other times, to no changes, incremental change or changes that prove to be short-lived.

Section 4 considers how well the literature of crisis policymaking explains what is subsequently observed with respect to energy policy. Two cases of policy activity in response to perceived crises are briefly explored. The first is from the United States—the period in the early 1990s in the aftermath of the First Gulf War; the second is from Germany and examines the shocks and crises that led to Germany’s dramatic policy of “energiewende,” the “energy transition.”

A discussion of what has been learned and how future analyses might be structured concludes.

## 2. What is a “crisis”?

What is meant by calling any event a crisis?

Garrison (1981, 315) paraphrases one dictionary definition as “an acute turning point usually involving some disruption or disorder,” a definition not far from one that scholars have used. Coyne (2011), for example, defines a crisis as “an unexpected event that creates uncertainty and poses a direct or perceived threat to the goals and norms of an organization or society.” To Boin and tHart (2003, 544) it is a “grave predicament requiring urgent action.” Boin et al. (2005, 2) term “a crisis...a phase of disorder in the seemingly normal development of a system...[c]rises are

<sup>1</sup> Jimmy Carter speech to the nation, Nov. 2, 1977.

<sup>2</sup> Congressional Record, 107th–111th Congress. <http://thomas.loc.gov/home/LegislativeData.php?&n=Record&c=107>.

<sup>3</sup> E.g. the California electricity crisis (2000–2001) was caused largely by a very poorly designed electric power restructuring bill passed in 1996 (Duane, 2002; Grossman, 2003).

transitional phases, during which the normal ways of operating no longer work.” A Marxian perspective (Offe, 1976, 31) describes a crisis as “processes in which the structure of a system is called into question;” Nohrstedt and Weible (2010, 3) argue that, “Crises denote periods of disorder...along with widespread questioning or discrediting of established policies, practices and institutions.”

According to Congleton (2005), a crisis has three characteristics: surprise, unpleasantness and urgency. Urgency, the experience of unpleasantness in an immediate, pressing fashion, is crucial for Boin et al. (2005) as well. They argue that the components of a crisis are a “threat” as well as uncertainty and urgency. Because of a sense of urgency there is “time compression,” the apprehension that the “threat is here, it is real, and it must be dealt with as soon as possible...” But because there is “a high degree of uncertainty...both to the nature and potential consequences of the threat,” (Boin et al., 2005, 3) crises may also lead to a feeling of helplessness (“what’s next?” and “what can we do?”), as well as a tendency to policy recklessness. Eystone (1978, 155, emphasis in the original), for example, argues that “some actions taken in the midst of crisis probably should not have been taken, and would not have been taken except for the urgency of the moment.” Ahrari (1987), writing about the 1980 synfuels legislation<sup>4</sup> in the U.S., suggests such radical policy changes, might, in hindsight, be considered “irrational.”

Urgency does not necessarily mean that all crises are experienced acutely, or as threatening episodes that come as a total surprise to society. There are, for example, protracted crises or “creeping” crises that “take some time to develop...[and] involve an accumulation of adverse conditions” (Rosenthal and Kouzmin, 1997, 279). Still, these accumulations only become a crisis when they engender a feeling of emergency that must be addressed.

How much the sense of urgency matters with respect to crisis policymaking can be seen in connection to the issue of climate change. In the U.S., urgency has been largely missing (obviously not among experts and advocates, but with the general public<sup>5</sup>). Therefore no immediate action has been required, and little policy action, at the national level, has been undertaken.<sup>6</sup> While this has been true for the U.S. and many other countries, the German public did embrace climate change as a crisis (Brechin, 2003); this perception has persisted spurring radical policy changes.

A society-wide crisis (such as, at least in theory, a crisis related to energy) according to Keeler’s (1993, 440) definition, is “a situation of large-scale public dissatisfaction or even fear stemming from wide ranging economic problems and/or an unusual degree of social unrest and/or threats to national security.” Yet “it is often unclear which events should actually qualify as a crisis” (Nohrstedt, 2008, 258). This, I would argue, is especially true of events called “energy crises” In the 1970s, energy market disruptions were said to be a “threat to the goals and norms of an organization or society” (Coyne, 2011), but experience showed soon afterwards that they were not—even though the claim of “crisis” resurfaced frequently for the next four decades. Some of the consequences of the 1973 oil embargo, especially the lines at gasoline pumps, were both unanticipated and disagreeable, but the embargo itself was foreseeable; Akins (1973) had written of the possibility in the spring of 1973. Nevertheless, since 1973, well into the 2000s in

fact, polls have shown that Americans generally have expected that (a) there would be additional energy crises and (b) these would have the same kinds of effects as those experienced in 1973–1974. In retrospect, however, the one genuine surprise to Americans in 1973 quickly became accepted wisdom. That was, that the U.S. had become part of a world oil market and thus prices would be more volatile and out of the control of U.S. officials thereafter.<sup>7</sup>

But the main focus of public attention in every perceived energy crisis in the U.S. has been on the specific hardships the crisis seemed to be causing. This has affected definitions of energy crises, which tend to emphasize effects or a couple of simplifying issues. Common definitions, for example, center on the visible and discomforting problems disruptions in energy markets cause. A web site offers the following: “An energy crisis is a society-wide economic problem caused by a constricted supply of energy leading to diminished availability and increased price to consumers.”<sup>8</sup> Other definitions (e.g. Wikipedia) refer to supply “bottlenecks.” This perception tallies with experience of what have been called energy crises. But a supply bottleneck hardly seems a “grave predicament requiring urgent action.” In reality, energy crises in the U.S. have imposed costs and raised general economic concerns, but they have not represented genuine threats to national security, or the norms of society—as is encompassed in most scholarly definitions of “crisis.”

Of course, the *rhetoric* surrounding energy crises has emphasized extreme outcomes. Whatever the actual danger to society, in the midst of crises, policymakers, the media, and even parts of the energy industry have prophesized dire consequences if some sort of major policy action was not undertaken. In the 1970s the crisis was said to be both increasing dependence on other nations for oil, and rapidly dwindling domestic oil and natural gas supplies. Policymakers claimed the threat from this dependence imperiled the wealth, comfort and security of the U.S. if not the whole industrialized world. In fact except for price volatility (which could possibly cause mild economic downturns), none of the fears were realistic. Nevertheless, into the 2000s, officials continued to assert that the U.S. was a “hostage” to Organization of Petroleum Exporting Countries.<sup>9</sup>

Uncertainty is a component of a crisis, and especially so when the issues (such as those with energy) are technical, not easily explained and still less amenable to an obvious solution. Officials have seldom grasped the underlying causes of diminished availability or rising prices of energy supplies, nor have they comprehended what to do to overcome them (Grossman, 2013). Thus it has been indeterminate (to policymakers as well as the public) whether any policy change would offer some relief to consumers or make matters worse. Claims of benefits from proposals have been highly speculative, and often predicted effects have been at wide variance with one another. For example, year-round daylight savings time, imposed temporarily during the 1973–1974 Arab oil embargo, was predicted to cut oil consumption by somewhere between 30,000 barrels (bbl.) and 150,000 bbl. per day, a vast range of uncertainty, that could only confuse the general public. Forecasts of prices and reserves also were persistently and often enormously wrong, in the latter case provoking a belief that total exhaustion of energy resources was imminent (Grossman, 2013). Officials sought to deflect criticism of their lack of action by referencing, and pledging to back, one or another panacea new technology that would solve energy problems once and for all.

<sup>4</sup> Synthetic Fuels Corporation Act of 1980 (Public Law 96–294; 94 Stat. 633 *et seq.*).

<sup>5</sup> A Gallup poll in early 2014 showed climate change far down on the list of issues crucial to the American public. Survey respondents were far more worried about affordable energy. At: <http://www.gallup.com/poll/167843/climate-change-not-top-worry.aspx>.

<sup>6</sup> The Federal government has tried to address climate change through the Environmental Protection Agency and state governments, especially California, have adopted programs to reduce carbon dioxide emissions.

<sup>7</sup> Oil and gas price spikes are typically treated as energy market shocks. Hamilton (2003, 395) argues that “an oil shock occurs when oil prices exceed their 3-year peak,” a definition that has been used by other economists.

<sup>8</sup> ECON101.org. This is given as the “consensus” definition.

<sup>9</sup> Rep. Ed Markey (D-MA), Congressional Record 111th Congress. June 26, 2009.

Belief (both among officials and the general public) in the power of technology to resolve an energy crisis has been exceedingly naïve and unfulfilled (Grossman, 2013).

Despite uncertainty, in the midst of an acute crisis, policy-makers often feel compelled to propose changes that may be quite radical. But there is an important aspect to energy crises that make them quite unlike such crises as wars or natural disasters. That is, energy markets, especially oil markets, have usually resolved crises without any governmental intervention, much less radical change.<sup>10</sup> This cannot be said of war or, say, a disaster like Hurricane Katrina—to which no strictly market solution is possible. Even environmental crises generally demand a policy response, (including ones that involve energy such as power plant emissions or oil spills), although it may take the form of assigning property rights over environmental goods to allow for market-like solutions. But with energy, bottlenecks disappear unless existing policies prevent it; prices stabilize.<sup>11</sup> Policy changes often have started as radical proposals—made when a “crisis” was especially salient—but unless the sense of crisis persisted, legislation is likely to become more incremental (Lindblom, 1958), subject to the wishes of competing groups and leading to at most small changes at the margin.

Policymakers who have a vested interest in the distribution of energy-related benefits will also seek to prolong a crisis. That is, “The recognition of the potential utility of a crisis for the achievement of policy innovation is prevalent enough so that political leaders have often attempted to create through rhetoric and related actions a public sense of crisis” (Keeler, 1993, 440) whatever the reality. When the sense of crisis is gone so is the chance for larger change—and the redistribution of benefits major policy shifts create.

Regardless of what an individual legislator may think the term “energy crisis” means, in actuality he or she is likely to state it as what Zahariadis (2007, 76) terms a “higher order symbol.” Everyone knows what it means so it is self-explanatory, only it is not and often it is invoked with no clear explicit or implicit meaning, and no evident direction for policy.

Perhaps the best approach to the concept of energy crisis is suggested by Garrison (1981). The term “energy crisis,” he argues, is a linguistic symbol, a metaphor. The 1973–1974 energy crisis only revealed the *potential* dangers of resource exhaustion and world market dependence, but in fact there was neither an end to oil nor the loss of national sovereignty nor any other dire societal consequence. Thus calling it a crisis was not correct, he claims, in the sense that some dangerous turning point had been reached, but he avers that the “crisis” revealed that the turning point was now in view (although only hypothetically). Keeler (1993, 440) argues, it is “only when a social problem is severe enough to make a public audience receptive to its depiction as a crisis can it be expected to have a significant impact on the policy-making process.” But following Garrison it seems all that is needed is that the precipitating event (a shock) captures public attention and that any underlying problems can subsequently be depicted as severe—especially if some evident vestige of the shock persists. Stone (1989, 282) points out that “our understanding of real situations is always mediated by ideas; those in turn are created, changed, and fought over in politics...political actors use narrative story lines and symbolic devices to manipulate so-called issue characteristics

all the while making it seem as though they are simply describing facts.” Whether or not the story leads to policy change may depend on “skillful exploitation” of the issue characteristics by those policy entrepreneurs and groups that would benefit from it (Nohrstedt and Weible, 2010, 11).

Along the same lines as Garrison and Stone, I have argued that “there is really no such thing as an energy crisis” (Grossman, 2013, 5–7), meaning some kind of tangible set of events that leads to an actual exhaustion or protracted unavailability of primary or secondary energy supplies. Of course there can be temporary disruptions that are upsetting, but they have never represented a real threat to social order or national security. Nevertheless, the words “energy crisis” do convey some idea and exist at least as a figure of speech as Garrison (1981) argued more than 30 years ago. What they convey is ambiguous—but then so many of the tropes of energy policy—e.g. energy independence, energy security—are also indistinct, subject to multiple interpretations, and reflecting varying belief systems so as to make much of energy discourse a clash of monologues. Still, the belief in energy crises has catalyzed the policy process even when the result is no significant change in policy. Indeed, only those crises not amenable to market solutions, such as ones with significant externalities, are likely to benefit from a policy response.

### 3. Theories and models of crisis policymaking

From the mid-1950s through at least into the 1970s, the dominant theory of the policy process was *incrementalism* associated primarily with Lindblom (1958, 1959) (Dahl and Lindblom, 1953; Braybrooke and Lindblom, 1963). This theory posited that policy moved in small discrete steps. “A policy is directed at a problem; it is tried, altered, tried in altered form, altered again and so on” (Lindblom, 1958, 301). There are, in this view, “continual policy readjustments in pursuit of marginally refined policy goals” (Schulman, 1975, 1354). One characteristic of incrementalism is that policies tend to be aggregations of the views of various organizations and ideologies and the resultant policy “the sum total of countless individual interests” (Schulman, 1975) whose partisans engage in an ongoing process of strategic analysis and mutual adjustment (Lindblom and Woodhouse, 1993). The goal is to build majority coalitions for incremental change that will capture some benefits for each of their various constituencies. Lindblom of course recognized that crises leading to major policy changes occurred. He referred to them as “low understanding-large change” circumstances but he argued that “one would be hard put to formalize the methods appropriate” to analyze them (Braybrooke and Lindblom, 1963, 79). Instead, he focused on what many called (and some would call today) the “normal” policymaking process.

Because incrementalism did not easily accommodate crises or the policies that emerged from them, the advent of what were regarded as environmental crises in the late 1960s and early 1970s, called at a minimum, for “*additional* analytical” constructs (Schulman, 1975, 1370, emphasis in the original) that could account for “phenomena that lay outside” of prevailing theory and that elicited non-incremental policy responses. Alternatively, crises suggested the need for a different type of theory altogether. Examples of both of these responses are presented in the accompanying Table 1. It should be noted that in the policy literature there are strong distinctions made between models and theories (Ostrom, 2007; Schlager, 2007). Models are nested components of theories. That is, they “allow analysts to test specific parts of theories by fixing a limited number of variables at specific settings and exploring the outcomes produced” (Schlager, 2007, 294).

The first two columns of the table are roughly chronological and represent both additional analytics to incrementalism and

<sup>10</sup> Financial crises may be one other kind of crisis that suggests market solutions, and in the nineteenth century financial panics, investment bubbles and other sorts of financial crises were allowed to run their course. In recent years, however, government interventions have been typical.

<sup>11</sup> The most significant changes in U.S. energy policy arguably have involved the repeal of prior rules, notably the end of oil and natural gas price controls (Grossman, 2013).



**Table 1**  
Evolution of theories of energy policy formulation since incrementalism.

Non-incrementalist crisis models: addenda to incrementalist policy theory	Post-incrementalist theories of the policy process (incorporating shocks and crises)	Energy crisis models of policy change	Economic crisis models
Public satisfying-speculative augmentation (Jones, 1974) Issue-attention cycle (Downs, 1972)	Multiple streams (Kingdon, 1984) Punctuated equilibrium (Baumgartner and Jones, 1991, 1993) Advocacy Coalition Framework (Sabatier, 1986, 1988)	Ambivalent majoritarian (Ahrari, 1987) The “do something” dilemma (Grossman, 2012)	Rational choice with ignorance (Congleton, 2005) Crisis opportunism (Higgs, 1987, 2009)

new theory. That is, the *models* in the first column of Table 1, both from the 1970s, were seen as complements to basic incrementalist theory (the additional components Lindblom felt “hard put” to provide) to afford some means to explain and/or test what happens to the policy process in the event of a crisis. The *theories* in column 2 (beginning in the 1980s), on the other hand, were intended to revise considerably, if not replace, incrementalism as the central theory in analysis of the policy process. The third column lists models that have focused specifically on energy crisis policy outcomes in the context of policy theories noted in the first two columns. The first (Ahrari, 1987), provides another addendum to incrementalism. The second (Grossman, 2012), locates an energy policy model in the larger frame of various contemporary theories. The fourth column lists economic models that are pertinent to analysis crisis policymaking. Economic theory has tended to ignore crises except for those connected to the business cycle, but the two models discussed here have more evident applicability to policymaking in the context of energy or environmental crises.

### 3.1. From incrementalism to speculative augmentation and the issue-attention cycle

“You never want a serious crisis to go to waste.”—Rahm Emanuel, Chief of Staff to Barack Obama (2009–2010)

Intuitively, a crisis would appear an ideal circumstance to initiate major policy changes. As Rosenthal and Kouzmin (1997, 279) note, “one’s crisis may well be perceived as another’s opportunity” because a crisis is “characterized by the necessity to make critical choices” often quickly before the possible costs and benefits are really understood, and when a cure-all program however implausible can sound especially attractive. According to Eyestone (1978, 155), “Normally cautious politicians suspend their resistance to untried approaches in view of the perceived necessity to respond promptly to the crisis.” During the energy market disruption that began with the fall of the Shah of Iran in December 1978 and persisted well into 1979 a Carter administration official contended that members of Congress were so desperate for solutions they would vote for anything that sounded like one even if it was “wrong” (cited in Grossman, 2013, 203). Of course, given prevailing uncertainty during a crisis, there is “an unusually high propensity for making policy errors” (Congleton, 2005, 184). But with attention to the issue growing, ignoring it is not politically feasible (Eyestone, 1978).

With respect to energy policy in the U.S., in the face of a crisis, radical policy changes have always been proposed. But for the most part, they do not occur; more often than not, energy crises, politically, “go to waste.”<sup>12</sup> Even when more radical policies are adopted, the more drastic changes are likely to be partially or completely reversed when the sense of crisis has passed. Still there are usually some features of the policymaking landscape that do

change. The Arab oil embargo did not lead to the kind of radical legislation President Richard Nixon or leading members of Congress sought at the height of the crisis. But it did create a new narrative about energy and the role of policy (Grossman, 2013), an energy bureaucracy that burgeoned in the years that followed (Higgs, 2009), and a reordering of congressional committees as legislators attempted to claim a stake in energy policy (Gulick, 1975).<sup>13</sup> Also, many and varied lobbying groups and policy entrepreneurs appeared and sought whatever rents the national government was ready to appropriate.

But if in fact radical policy change seldom transpires in the face of crises, why does it sometimes occur? What are the essential characteristics of the crisis-policymaking process, particularly as applied to the energy-crisis process? What are the conditions that support (or not) major policy change?

#### 3.1.1. Public Satisfying-speculative augmentation

As noted, environmental crises of late 1960s had become major disruptive issues that that prompted a “dramatic surge in public concern” (Jones, 1974, 438), and a demand for more decisive environmental policies.<sup>14</sup> Thus policymakers were unable to “merely stave off or nibble at [the issue]” (Braybrooke and Lindblom, 1963, 71) as incrementalism suggested. These problems were, however, marked by “technical complexity,” such that the general public was lacking “knowledge of realistic alternatives (given scientific, technological, and economic realities)” (Jones, 1974, 439) Policymakers were reacting to public concerns but they did not understand the complexities either.

Jones (1974) therefore proposed a model of the policy process for these types of circumstances, a model he termed “public satisfying-speculative augmentation.” In essence, in a crisis where there is both urgency and high complexity, policy proposals become stronger and stronger, as if each new idea is meant to display a greater concern than any previous proposal. In the early 1970s, he found “active competition among elected officials [the president as well as Congress] to produce and be credited with strong legislation” (Jones, 1974, 454). Feasibility mattered far less than exceeding the previous proposals. This process marked air quality legislation of the early 1970s. President Nixon suggested that action on air pollution had “virtual wartime urgency” and the bill that came out of committee was called in Congress the “toughest air pollution clean-up bill ever.”<sup>15</sup>

Proposed energy legislation underwent similar sorts of speculative augmentation in the 1970s. The oil embargo led to: calls for energy autarky, beginning with Nixon’s Project Independence, proposed in November 1973; demands for counter-embargoes of

<sup>13</sup> This activity, according to Oppenheimer (1980, 5) also provided “new avenues for legislative obstruction” of energy policy proposals.

<sup>14</sup> The period was marked by a number of shocks such as the oil spill off the coast of Santa Barbara, CA and the fire on the Cuyahoga River, both of these events occurring in 1969.

<sup>15</sup> Quoted in the *Washington Post* see Jones (1974, p. 455).

<sup>12</sup> Ostrander and Lowry (2012) note in general the “failure to change” that has marked U.S. energy policy adopted during or immediately after crises.

food; appeals for energy industry nationalizations; and proposals for other radical steps. Democratic members of Congress criticized Project Independence mainly on the basis of a claim that they had thought of it first and had advocated for more comprehensive measures and larger budgets to achieve it.

At the same time, energy independence proposals demonstrate an important difference from environmental proposals. The Clean Air Act of 1970, one of the most consequential pollution control bills ever enacted, arguably came about as result of the process Jones describes. But importantly, air pollution, was unlikely to improve on its own; pollution has a measurable concrete reality, while energy independence is an ambiguous abstraction with multiple meanings. Of course, the gasoline lines and the escalating prices of energy in 1973–1974 were real enough, but those (as noted) ended through market forces.

“Public satisfying-speculative augmentation” as a model of crisis policymaking does help in appreciating the intense activity among policymakers when public opinion puts energy at the top of the agenda, but it does not for the most part explain the outcomes with respect to policy. That is, when does a crisis lead to dramatically altered policies, and when does it lead to nothing but policy rhetoric or to weak incrementalism? Also, how likely is it that a major policy change initiated during a crisis will be effective?

### 3.1.2. *The issue-attention cycle*

Political scientist Anthony Downs (1972) proposed a cyclical crisis model that predated both Jones's paper and the 1973 oil embargo, but addressed some issues that energy crises later raised. Called the “issue-attention cycle,” Downs's model had five stages: pre-crisis; “alarmed” discovery followed by “euphoric” enthusiasm; discouraging realization of the costliness of solutions; decline of public interest in the issue; and finally a post-crisis fall off in attention. In the first stage, a problem exists but it has not caught the attention of the general public or of policymakers. Thus, prior to the Arab oil embargo there were experts who expressed concern about the availability of domestic oil and gas supplies, but the issue was not near the top of the government's agenda nor did opinion polls find much concern about energy among the public generally. The gas lines and escalating prices following the embargo had a dramatic effect, raising an “alarmed” attention to energy. By the end of 1973, the Watergate scandal and rising inflation notwithstanding, almost half of the U.S. public believed energy the number one issue in the country. Policymakers—led by President Nixon's plan for “energy independence” by 1980—offered what could be called “euphoric” solutions accompanied by images of America's technological history, notably the Apollo moon landing, as an optimistic reminder that the U.S. had the know-how to solve any problem. Or as Downs (1972, 40) observes, “In the optimistic American tradition, [a] technological solution is initially assumed to be possible in the case of nearly every problem.”

By the spring, reports surfaced that the cost of energy independence would be on the order of hundreds of billions of dollars and it would succeed only if the policy was fortunate to experience (as one official said) the opposite of Murphy's Law—that everything that could go right did (Grossman, 2013, 39–40). Meanwhile the gas lines and the embargo had ended<sup>16</sup> and attention to energy waned as the Watergate scandal took center stage. But in the post-crisis phase there were changes of a sort Downs and other scholars argue would be likely. During the crisis

<sup>16</sup> Most people thought the latter had caused the former, but as is generally understood by economists today, U.S. oil price controls had been responsible for the gas lines, not the embargo (Grossman, 2013).

and in the immediate aftermath, there was intensive organizational activity and change with respect to energy within and outside of the government (Jones and Strahan, 1985). Many groups had coalesced around the issue of energy and they were ready to act later in the decade when a second national energy crisis made energy the leading public concern.<sup>17</sup>

According to Peters and Hogwood (1985), the exact impacts on policy of the issue-attention model are vague. As they note (239): “What is not fully clear from Downs's explication of the stages of the cycle is how far he envisages that some form of policy and organizational response is launched by government to deal with the issue before interest fades away.” Downs's model points to a conclusion that the crisis-policy process will wind down either when people realize “how difficult and how costly to themselves” (Downs, 1972, 49) solutions will be or when the public just becomes bored.<sup>18</sup>

In 1974, although there were reports about cost, the policy process wound down not because of boredom but rather because of symptomatic relief; the most discomfiting manifestations of the crisis had dissipated. Polls, which had reflected the public's sense of urgency about energy in early 1974, showed a marked decline in interest just months later. Still it is uncertain whether Downs thought of the “new institutions, programs and policies” that were “created to help solve” (Downs, 1972, 41) the crisis represented significant shifts in policy or not. Nevertheless there were some evident changes. As Baumgartner and Jones (2009, 87) observe in a discussion of the issue-attention model, when a crisis is salient, new programs and policies are likely to create “an institutional legacy. Institutions, especially government bureaucracies, do not simply ‘fade away’ like public interest or media attention...”

The issue-attention model appeared to argue that virtually all crisis legislation was fated ultimately to fail.<sup>19</sup> It would promise too much, cost too much and would soon be largely forgotten. That has not been the story of some environmental legislation, but it does have resonance with U.S. energy policy. In 1979–1980, there would there be another period of crisis, and this time major legislative initiatives would pass. But these major changes would be temporary, as it turned out, altering the policy landscape for a time, then lapsing into a Downsian post-crisis phase of inattention from the public at large—until the inevitable next claim of an extant “energy crisis.”

But what both Jones's and Downs's papers made clear was this: incrementalism was not a very helpful theory with respect to issues prone to shocks and crises. Subsequent theories of the policy process had to take the impact of such events into account.

### 3.2. *Three post-incrementalist theories of the policy process*

Downs and (more explicitly) Jones constructed specific models of crises and public policy to fill what was perceived to be a gap in the prevailing, incrementalist theory of policymaking. But scholars also began to design general theories of the policy process that

<sup>17</sup> Bernstein (1955) offered something of a precursor to Downs's stages-type model, what he termed “The Life Cycle of Regulatory Commissions.” As in Downs, regulatory bodies take on a life of their own and are unlikely to completely end “until some scandal or emergency calls attention to the failure of regulation...” (Bernstein, 1955, 95).

<sup>18</sup> Downs (1972, 49) writes: “[W]e should not underestimate the American public's capacity to become bored.”

<sup>19</sup> Downs did recognize that major change was at least possible. If, for example, an issue such as a visible pollution problem could stay salient long enough, is viewed as threatening to a large segment of the population, has a relatively small group that can be pointed to as the “villains” (Downs, 1972, 47), has a technological solution, and can be paid for without a general rise in taxes, then there may be the prospect of significant policies to address and possibly even solve it.

would incorporate shocks and crises as potential drivers of major or minor policy change. Although there are many contemporary theories, three are particularly influential, often use similar ideas and tropes, and all highlight the impact of “exogenous socio-economic shocks” and crises on policymaking, often using as examples energy and environmental issues at times of high salience.<sup>20</sup>

### 3.2.1. Multiple Streams

*Multiple Streams* (MS) theory borrows as a conceptual underpinning the “garbage can” model of choice (Cohen et al., 1972). In the garbage can are policymaking organizations (Congress, the EPA, etc.), conceived of as “organized anarchies” in which decision makers and their range of choices are fluid; ideas and people (with their varied preferences) drift in and out of the process with respect to any given problem, and no one individual or group controls the progression of choice. “[C]hoices looking for problems, issues and feelings looking for decision situations in which they might be aired” (Cohen et al., 1972, 2) are the norm. Policymaking occurs under a condition in which ambiguity is more evident than uncertainty. That is, there are different interests and interpretations with respect to a given policy choice, and as more interests become involved the interpretations become more varied. As Zahariadis (2007, 66) points out, more information may reduce uncertainty but it “does not reduce ambiguity.” Indeed ambiguity increases as the individual interests, decision rules, preferences, past policy choices, and so on are added to the rest of the “garbage can.” Motives and interests may be unclear not only to outsiders, but also to policymakers (conceived of as “boundedly” rational (Simon, 1972)) themselves. This is especially likely, it would seem, in the case where choices need to be made under time constraints—i.e. in a crisis.

In the MS structure, there are essentially three “streams,” basic components of policymaking: problems, policies and politics that are typically jumbled together in the garbage can and yet also exist independently. *Problems* exist outside the government although they may be generally salient only to one or another advocacy group; *policies* (that is, solutions) may be advanced by organizations as well as policy entrepreneurs many of whom are more concerned about advancing their own interests rather than solving a prominent socio-economic issue; and *politics* is the larger frame of ideologies, elections and public opinion, in which policymaking takes place. Yet shocks leading to crises may become what Kingdon (1984) calls “focusing events” that will “open a window” for policy entrepreneurs to “couple” the streams—link policy to a problem and to politics, and advance solutions that previously were lost in the garbage can. The result may be a major policy change (Kingdon, 1984; John, 2003; Zahariadis, 2007). Kingdon (1984, 103–104) argues that a single focusing event—he uses the 1973 oil embargo—might not in itself be sufficient to couple the streams and “carry a subject to policy agenda prominence.” Indeed, as noted, the sudden prominence of energy in 1973–1974 did not lead to a major policy change, but the return of gas lines in 1979 caused a large jump in “indicators of attention,” and polls showed widespread belief that the problem was not going away. Thus 1979–1980 saw a significant shift in energy policy in the U.S. and passage of dramatic, costly energy legislation. In this case, MS demonstrates how multiple related shocks *could* lead to a major policy change, although it does not suggest that a second (or any subsequent) episode *must* lead to major change nor does it mean that a one-time crisis will never have a major impact. According to this theory, there is no sequence that predictably goes from crisis to major policy change—or not. The unanswered questions are

when and whether those involved in the policymaking process are able to identify the “open window” of a “choice opportunity” and then be able to also “couple the streams” (Schlager, 2007). It is also unclear just who will be the decision maker and what information will most directly affect the outcome.

### 3.2.2. Punctuated Equilibrium

Shocks and crises play a key role in *Punctuated Equilibrium Theory* (PET) as well.<sup>21</sup> In PET, normality in the policy sphere is “stasis,” a quiet equilibrium (True et al., 2007, 157). As with MS, PET posits the potential for policy change when a shock (a punctuation) reorders a stable policy agenda. With increased attention and public concern now paid to the problem the shock has highlighted, there may consequently be a change in the “policy image.” In other words, the punctuation leads to an altered understanding of the problem at hand and what, therefore, policy is supposed to accomplish. This does not mean that everyone has the same understanding or sees the outcome in the same terms. But the shock alters the issue's place on the public policy agenda—perhaps—precipitating a major policy change.

At the same time, raising an issue's profile does not imply any particular solution, and in fact it does not imply that there is a solution, given that an issue may be highly technical. An issue's prominence means intense attention from policy entrepreneurs who have varying understandings of the problem and varying approaches for resolving it. Ultimately though, whether a major change occurs or not, seems to reflect the relative strengths of positive and negative feedback effects; if the former predominate there will be change while the latter will push the policy “back to its original position” (Repetto, 2006, 9). Also, change will depend on whether or not the “internal dynamics” of the policymaking system are close to “a tipping point” whereby exogenous events can induce significant changes in policy (Brock, 2006). But the consequences of a given shock are not known at the outset. PET argues that various events, ranging from serious crises to “relatively minor” occurrences, may “catch fire.” But what actually leads to an issue catching fire? The intensity of a shock or the persistence of a shock's effects (i.e. a crisis) would appear more likely to generate the “fire” that leads to policy change.

Retrospectively, however, one can argue that the 1973–1974 embargo event, for example, changed the image of energy, which had been a relatively minor concern and relegated to a low position on the policy agenda. It was, however, thrust to the top in late 1973 and then after falling for most of the rest of the decade it returned to prominence again in 1979. At that point, in the “spotlight of macropolitics” and in the midst of a perceived crisis, the energy issue “caught fire,” changed the thinking of policymakers (True et al., 2007, 158) and added new interests to the debate “in an environment of changing issue definitions and heightened attentiveness by the media and broader publics” (Jones, 1994, 185). But only in retrospect is it easy to see why the energy issue “caught fire;” the fall of the Shah in late 1978 did not in itself suggest any particular direction for U.S. energy policy, much less the major legislative program that passed in 1980.

### 3.2.3. Advocacy Coalition Framework

A framework is intended to be broader than a theory. According to Elinor Ostrom, frameworks provide a broad set of variables, rules and models that can be used to compare the explanatory power of theories from multiple disciplines (Ostrom, 2007). The *Advocacy Coalition Framework* (ACF) seeks to be a general “framework” for analysis of policy and policy change, but has typically

<sup>20</sup> See for example, Kingdon (1984) and Repetto (2006).

<sup>21</sup> This concept is borrowed from evolutionary biology, particular the work of Gould and Eldredge (1977).



been referred to as a theory (Schlager, 2007) and is often grouped with MS and PET as leading contemporary theories of the policy process. In essence, ACF focuses on the actions and beliefs of “policy subsystems,” consisting of “public and private organizations who are actively concerned with a policy problem.” Coalitions are groups within a policy subsystem “who share a set of normative and causal beliefs and who often act in concert” (Sabatier, 1988, 133). ACF emphasizes policy-oriented learning over time<sup>22</sup> and “theories about how to achieve [policy] objectives”—including for some, the objective of blocking policy change.<sup>23</sup>

Learning leads in general to minor change, while the “necessary condition for major change is a transformation of external factors,” (Capano, 2009, 24), mainly, “external perturbations or shocks” (Sabatier and Weible, 2007, 198). Shocks may cause shifts within subsystems causing dominant coalitions to be replaced by what had been a minority coalition, altering agendas and core beliefs (Sabatier and Weible, 2007, 198–199). Sabatier (1988, 136) notes how the Arab oil embargo depressed the American auto industry and that in turn moved the United Auto Workers union out of the advocacy group for clean air policies and into a very different coalition that opposed more stringent controls on auto emissions.

In the ACF, shocks and crises can affect policy in three ways: First, they can lead to the redistribution of political resources; for example, a crisis may “tilt the balance of power within the subsystem, paving the way for new actors to influence policy-making...” Second, if members of a minority coalition are “skillful” enough to exploit the unexpectedly altered conditions they may “advance their core beliefs in policymaking.” And finally, members of the dominant coalition might reconsider their beliefs in light of a crisis (Nohrstedt and Weible, 2010, 10). Nohrstedt (2005) argues that, to cite one instance, the Three Mile Island nuclear power plant event in 1979 in Pennsylvania led to a rise in antinuclear sentiment in Sweden and in turn the vacillation by leading members (Social Democratic Party officials) of the pronuclear power coalition. This ultimately influenced the pronuclear coalition to agree to a referendum on nuclear power, which led to a reversal of nuclear power policy.

Although ACF (as with MS and PET) provides insights into the way crises impact policymaking, it also leaves an important question unanswered: why does one shock or crisis lead to major policy change while another does not? According to Nohrstedt (2005, 1045) “[M]ajor policy change in the wake of external shocks is more likely if an incumbent coalition member either perceives them as threats to basic interests or as an opportunity to advance basic interests.” Yet that, too, is open to interpretation and according to Nohrstedt is somewhat at odds with the main thrust of ACF thinking that downplays “interests” assuming instead that subsystem participants are motivated more by “policy-oriented goals” and core “belief systems.” But these have no ready metric (Hann, 1995), and ACF like MS does not give a way of identifying the kind of information that will be crucial to the policy outcome (James and Jorgensen, 2009). Ultimately, as Schlager (2007, 310) argues, in ACF, MS and PET analyses, it is basically serendipitous whether or not an event, however dramatic, leads to major policy change.

### 3.3. Energy-crisis models of policy change

#### 3.3.1. Ambivalent majoritarian

While the models and theories discussed above often refer to

energy or environmental shocks and crises, Ahrari (1987) offers a model to explain the legislative outcome specifically of an energy crisis. In this model, energy legislation that had been defeated in the absence of a crisis not only passes but does so by large majorities when an energy crisis is notably prominent. His model, what he calls “ambivalent-majoritarian,” is strictly crisis-driven.

He uses as the exemplar of his model the major synthetic fuels bill passed by the U.S. Congress in 1980. Synfuels legislation, during the Ford administration, had been defeated in Congress in the mid-1970s. That bill, a limited policy of loan guarantees for prototype synfuels plants lost in the House of Representatives by one vote. But the much more grandiose synfuels bill offered in the midst of the 1979–1980 energy market disruption passed overwhelmingly (317–93 in the House), apparently committing the government to spending \$88 billion (\$249 billion 2013 dollars) toward synthetic fuels demonstration and commercialization.

Ahrari (1987, 72) claims that this outcome was due to the fact that “under crisis conditions involving a domestic policy [decisions are] made by a larger-than-usual (i.e. a crisis) coalition of legislators. ...The crisis coalition comprises legislators who remained ambivalent about the correctness, feasibility and even rationality of this policy, but voted for it only as a response to a crisis.” Given that ambivalence, such major policy innovations are likely to be impermanent. Thus, when the sense of crisis ended and what Ahrari refers to as a “‘normal’ environment” (that is, incrementalism) returned, the synfuels program was abandoned.

Of course, this argument gives only a very general answer to the question of when such a coalition will form, and produce major policy changes. Essentially it seems that the key is that a condition must cause discomfort among voters that is intense and protracted. The gas lines with continually rising prices left policymakers little choice but to act—though it is difficult *ex ante* to define where that point of action might be.

#### 3.3.2. The “do something” dilemma

Grossman (2012) also seeks to explain outcomes in legislative policymaking with respect to energy specifically in a U.S. context. This model is similar in some respects to Downs’s issue-attention cycle but it focuses more directly on the behavior of policymakers, particularly U.S. legislators. It posits a crisis-policy process (like Downs) as a series of steps, but it argues the process may stop, may advance to a stage of incremental or symbolic policy action or reach the end in major policy change.

The model hypothesizes that an energy problem elevated to the stature of a crisis is processed by elected policymakers as a threat to their office.<sup>24</sup> As discomfort from an energy problem rises, constituents demand action, and elected officials must “do something.” Others (e.g. Boin and tHart, 2003; Higgs, 2009) have noted a “do something” dilemma or “urgency mechanism” (Keeler, 1993, 441) faced by policymakers in a crisis.

But in Grossman’s model prompt action need not mean a major revision in policy. Instead, policymakers need to show immediate “engagement” with the problem but are likely to do so rhetorically at first, so if the crisis is in fact only a very short-term energy market shock, nothing need be done and elected officials avoid blame for having chosen a policy course that quickly was shown to be mistaken (Weaver, 1986).

If the crisis persists, however, in Grossman’s model, there is a second stage, “expression of intent,” whereby policymakers commit to various changes in policy intended to relieve the impact of the crisis or solve it. Some of these policy commitments are wholly symbolic (Mayhew, 1974; Cobb et al., 1976; Lyons, 1999; Grossman,

<sup>22</sup> Weyant (1988) explores this aspect with respect to natural gas policies in the 1970s and 1980s.

<sup>23</sup> For example, Jenkins-Smith and Weimer (1985) show how policy analysis was used as a tactic to delay and reverse actions with regard to the U.S. Strategic Petroleum Reserve.

<sup>24</sup> After Mayhew (1974, 5) this model sees a legislator as a “single-minded [seeker] of reelection.”

2012), such as a suggestion of turning off the Christmas lighting in Washington, DC during the 1973 oil embargo or for congressional resolutions such as, H.CON.RES.364, a “Concurrent resolution expressing the sense of the Congress with respect to the present world energy crisis” introduced in late October 1973.

The final stage of the model is “legislative action,” whereby policymakers are compelled by continued demands for action to vote for legislation. The longer the crisis has gone on, the higher the probability that there will be legislation that will represent a major change in policy. Thus various shocks in 1979 (first the disruption from regime change in Iran; then the Iran hostage crisis) led to the perception that the energy crisis was unresolved even in 1980 and required a far-reaching solution. This in turn resulted in passage of sweeping energy legislation that created goals for synthetic fuel production with expected expenditures of vast sums. If, on the other hand, in the time from when a crisis is experienced acutely to the time preceding legislative action, the energy market resolves the most discomforting factors (in 1974, for example) energy legislation likely will be incremental if any is passed at all.<sup>25</sup> Given that market resolution of energy crises has typically occurred within a few weeks or months of the initial shock, significant departures in U.S. energy policy have been rare and tend to be short-lived even when they are made policy. Ultimately, the default position of U.S. energy policy since the 1980s has been to let the market decide.

### 3.4. Economic crisis policy models

Economists have often grappled with models of crises but these have tended to focus on financial-monetary crises or recessions-depressions, and the policy tools to cope with them. Energy crises have in some instances entered financial crisis/business cycle debates, particularly the work of Hamilton (1983, 2003, 2009), who has suggested that nearly all U.S. recessions since the end of World War II have been in some sense driven by rising oil prices.<sup>26</sup> Such analysis typically will lead to a discussion of the efficacy in such circumstances of standard counter-cyclical monetary or fiscal policies.

General political models are also part of the economic literature. In fact public choice theory is essentially an examination, through a basic economic model of choice by rational actors, of the behavior and incentives of officials at all levels of government as well as the behavior of voters in the political process (Buchanan and Tullock, 1962; Mueller, 1989). But for the most part they do not focus on crises or policy responses to them.

Still, as noted earlier, economists have created models, grounded in economic theory, applicable to analysis of energy and environmental crises and the policies that emerged from them.

#### 3.4.1. Rational choice with ignorance

According to Congleton (2005) analysis of choice in time of crisis—i.e. policymaking—is largely absent in the public choice literature for an important reason: While a rational choice model permits “shocks of one kind or another...” he argues, it rules out crises because these involve not just shocks but “unpleasant surprises calling for urgent responses.” In order for rational choice to

provide insight into crisis policymaking one must move “beyond the usual assumptions of” rational choice models (Congleton, 2005, 185).

In essence what separates a crisis from a shock is ignorance. Crises do not, he claims, change “fundamental political incentives” (Congleton, 2005, 193); all actors in the political sphere will still try to maximize their utility and will choose to act rationally in a crisis based on what information is available to them.<sup>27</sup> But “[i]gnorance simply implies that the list of possibilities considered may be very incomplete and that the understanding of causal relationships...may be erroneous in many respects” (Congleton, 2005, 188). What this means, Congleton asserts (187–188), is that ignorant, but rational, individuals can make the right decisions when they have sufficient data, but “rational decision makers will make *systematic errors* insofar as they are ignorant of relevant variables and relationships” (emphasis in the original). In addition to ignorance, there is of course urgency, which means in this model, not only that many crisis-driven policies are mistaken, they may also generate future crises because “mistakes have unanticipated effects” (Congleton, 2005, 192).

Congleton models ignorance by including a term,  $Z$ , in individual utility functions.  $Z$  is a factor that initially unobserved. It might be stable or not, and its path over time is unclear. In other words, say observations give some clarity to  $Z$ , but if its future course remains unclear, policies fitted to  $Z$  at time ( $t$ ) may well be ill-fitted to  $Z$  at ( $t+1$ ). “Whether  $Z$  can be controlled or not policy mistakes are likely to continue until both  $Z$  and the policies for addressing  $Z$  are well understood, and this may take a long time” (Congleton, 2005, 192). In the meantime, due to ignorance, “Times of crisis...present interest groups inside and outside government with unusually great opportunities to profit by influencing the details of policies adopted privately within the legislature and publicly through media campaigns” (Congleton, 2005, 195).

Energy policy development in the U.S. has witnessed systematic policy errors stemming in large part to a misinterpretation of the events surrounding the 1973 Arab oil embargo (Grossman, 2013). The standard energy narrative for the last 40 years is that the U.S. has been “dangerously” dependent on world oil markets, markets that are controlled by the nations of the OPEC oil cartel, and by virtue of this dependence, members of this cartel can use oil as a weapon to coerce America into changing its national policies; thus the oil market is a threat to national sovereignty and to the American economy. The only solution to this threat is said to be energy self-sufficiency.

This narrative represents the “story line” that has been widely accepted and has remained even in the face of much evidence that contradicts it (Grossman, 2013). Policy initiatives, however, have taken the narrative as the starting place. By adhering to this version of events, policies have failed but are repeated in the midst of, or in the aftermath of, the next perceived energy crisis. This in turn has constituted a path dependent policy process that inevitably fails to benefit society but does benefit alert policy entrepreneurs (Grossman, 2013). Any significant energy problem revives the narrative and gives legislators, energy industries of various kinds, farmers, labor groups, environmentalists, government agencies, and coalitions of these groups the chance to benefit from the energy policy process (Holcombe, 2002).

#### 3.4.2. Crisis opportunism

The conclusion above fits with the work Higgs (1987, 2009). Higgs has studied the way in which crises are utilized by

<sup>25</sup> For example, in 1974, Congress passed the Energy Policy and Conservation Act that was thought by many including most of President Gerald Ford’s aides, to be weak legislation. In 2001, crises with respect to oil prices and electric power in California led to proposals for significant energy policy changes, but by autumn oil prices were falling and California had a surplus of electricity; no new energy legislation passed the U.S. Congress.

<sup>26</sup> Bermanke et al. (1997) argued that the monetary response to an oil price shock had the greater impact on the business cycle than the price shock itself—an argument Hamilton rejected (Hamilton and Herrera, 2004).

<sup>27</sup> As noted earlier, the rational actor of such economic models is replaced in political science as well as some economic approaches by a “boundedly” rational actor, with limited ability to calculate optimal behavior even when nearly complete information is available (Simon, 1972).

“opportunists inside and outside the formal state apparatus” to expand the reach and scope of governmental authority (2009, 4). Crises alter policies—some of which are imposed “without formal proceedings at all”—lead to new bureaucracies, and new laws. The latter are especially likely to endure because, “Rarely does the general public take much interest in a law’s repeal and public apathy fosters legislative inertia” (Higgs, 2009, 9).

Higgs points to an energy example. In late 1973, in the midst of a national energy crisis, President Richard Nixon created by executive fiat the Federal Energy Office in the Executive Office of the President. In May 1974, Congress approved a larger energy bureaucracy, the Federal Energy Administration, which soon had a staff of 3000. In 1977, it was subsumed in the cabinet-level Department of Energy and the staff size rose to about 20,000.

While energy laws have often been ineffective, few have been repealed, and extant legislation even if largely ignored for a time can become a lucrative path for policy entrepreneurs (or opportunists, as Higgs terms them) with a change in administrations. Indeed, controversy in the 2010s over benefits to the wind industry originated in legislation passed in 1992. Higgs writes that, of course, crises are by definition perilous occasions but “the greatest danger often resides not so much in the perceived threat as in the government’s ostensible measures to fend it off” (2009, 11).

### 3.5. Models and theories of the policy process: What do they explain?

How well do these theories explain the progress of energy policy not only in the U.S., but also in other developed countries with different democratic institutions?<sup>28</sup> The next section considers two cases of energy shocks and crises, and their outcomes, from various perspectives. All of the models and theories have something to add to an understanding of how shocks and crises affect the policy process.

Most of the models seek to examine short-term effects. The models of Charles Jones and Downs were intended “to account for phenomena” that incrementalism did not. The models provide insights into the immediate impact of shocks and crises to the policy process. Ahrari and Grossman are more interested in outcomes but in similarly shortened time frames. Few of these models, however, explicate how shocks and crises impact policymaking in the long run. Congleton’s is one model with significant long-run implications. As noted, it could explain the observation (Grossman, 2013) of a 40-year misinterpretation of the 1973–1974 energy market event.

Theories such as MS, PET and ACF are more precisely intended to offer an expansive, long-run view of the policymaking process. All three can be utilized in analyzing policies and policy outcomes of energy issues as they have unfolded over the course of years. MS and PET specifically target the impacts of shocks and crises on policy, how in fact a shock can upset a system fundamentally and send policy on a different trajectory that may require another shock to divert. Not surprisingly both have been used to illustrate policy change because of disruptive energy or environmental events. With ACF, which is especially useful in explaining policy processes and change over time, the role of shocks and crises is more ambiguous. Some ACF scholars regard shocks (both internal shocks to subsystems as well as external socio-economic events)

as pivotal in understanding policy change. But others assert that learning is the crucial factor in the policy process (see the discussion in Nohrstedt and Weible (2010)). There seems to be, however, sufficient flexibility in the ACF to allow both views (as well as a synthesis of them) to coexist within the ACF. ACF’s flexibility has meant that it has had greater use than the other models and theories in the analysis of policymaking in different institutional settings. It has been employed to examine a range of international energy and environmental policies: for example, U.S. natural gas policy (Weyant, 1988), Swedish nuclear policy (Nohrstedt, 2005), and Polish environmental policy (Andersson, 1999).

There is no reason, however, why multiple perspectives should not be applied to the same problem. As Dowding (1994) observed different theories in the policy literature are often complementary not contradictory. Ostrom (2006, 5) in fact has argued that there is an “overall strength [in] using multiple methods to attack tough analytical puzzles.” That energy policy often involves complex “puzzles” suggests that such an approach to understanding policy and policy change would be wise.

## 4. Energy crisis policymaking: two cases

In this section, two cases are examined from the standpoint of the models and theories noted in Section 3. The first, U.S. energy policy during, and in the aftermath of, the crisis in Iraq in 1990–1992, is an example that can readily be construed from various perspectives. ACF is utilized primarily to untangle the forces behind German policies that resulted in the *energiewende*, but the focus on one theory is intended only to be illustrative. There are undoubtedly insights that could be brought to bear from other models and theories noted here.

### 4.1. The comprehensive energy policy act of 1992

Energy issues had fallen into the background in the U.S. in the late 1980s, but Saddam Hussein’s decision to invade Kuwait in early August 1990 led to a United Nations boycott of Iraqi and Kuwaiti oil, removing four million barrels per day from the market. The price of oil, around \$20 per barrel (bbl.) at the end of July had risen to over \$35/bbl. by September. There was speculative buying and widespread fears of the return of gasoline lines. These did not recur since they had been the result of U.S. price controls, which were abolished in 1981—meaning that shocks like the one experienced in 1990 raised prices but did not lead to shortages.

Whether or not this event constituted anything that should have been called an “energy crisis,” it was portrayed that way and the rhetoric of crisis was notable among policymakers during the fall of 1990. As expressed by one member of Congress, if there was a return of gasoline lines, it would lead to a “revolution” in their districts (cited in Grossman, 2013, 267). But since there were no gasoline lines, the rhetoric soon was out of line with the perceptions of the public.

Nonetheless, the price spike and the subsequent Gulf War put the energy issue back in the spotlight, and various coalitions and policy entrepreneurs came forward demanding major change. But the price run-up was reversing by winter and so was the sense of crisis. The Gulf War fighting lasted only six weeks, and although many radical ideas were pushed forward, revealing signs of “speculative augmentation” (Jones, 1974) (e.g. a bill by Representative Harold Volkmer (D-MO) to achieve energy independence by the year 2000), a majority coalition in Congress for major change could not be solidified. After the alarm and euphoric solution proposals (as in Downs, 1972), energy legislation did proceed but with greatly reduced urgency. The issue did not (from a PET viewpoint) “catch fire,” because the feedback—for example,

<sup>28</sup> One might also add: do these theories help explain policy in developing countries including those like India that have long-standing democratic institutions as well as others with weak or non-existent democratic institutions? All of the above theoretical constructs and models assume some kind of larger group of policymakers beyond a single dictator or ruling clique. Whether these analytic tools can explain policy across regime types would be an interesting exercise but is one beyond the scope of this paper.



waning public and media interest—was mostly negative.

Over the 19-month period from the end of the Gulf War to final passage of legislation, the various groups in and out of government contested the contents. A fossil fuel coalition sought to expand exploration and production into the Arctic National Wildlife Refuge (ANWR) while environmentalists argued for a major expansion of the Corporate Average Fuel Economy (CAFE) standards. Much of the dispute was couched in terms of the American energy self-sufficiency—a politically popular theme, even though mostly undefined and ill-considered—but all radical policy ideas were soon either watered down or removed entirely.

In effect, Congress soon was engaged in a process that would lead either to a complete failure to affect any policy change or to a bill that offered small benefits to various interest groups. It was difficult for legislators and policy entrepreneurs to convince the public (and even others in the policy subsystem) that a crisis still existed; the public cared mostly about the price of gasoline but that problem had been cured in 1991 by market forces. Consequently, there was no general movement for any major policy change, or for some time, even for changes that were merely incremental. A coalition of coal state interests seeking special benefits, farming lobbies and their allies demanding expansion of incentives for ethanol, and other narrow interests also seeking rents, disrupted an easy passage. The Comprehensive Energy Policy Act of 1992 (EPAct 1992) was signed into law finally on October 15, 1992, but it was neither comprehensive nor much of a change in energy policy. One senator called it simply an expression of the “status quo...in energy policy.”<sup>29</sup>

This outcome suggests that if a “window” did open in 1990, it quickly closed. There was no inclination to couple the streams; with the most visible issue resolved, radical policies could have been regarded as solutions in search of a problem (Kingdon, 1984). There was little opportunity for minority coalitions to exploit the crisis; no reason for ambivalent legislators to vote against their better judgment (Ahrari, 1987); and no demand from constituents by spring 1991 that government “do something” (Grossman, 2012). EPAct 1992, as Downs and Higgs would have predicted, did expand some government programs and create others. One of these, a tax benefit for wind generated electricity, as noted earlier, would offer opportunities for policy entrepreneurs in later years. Arguably, EPAct 1992 embodied Congleton’s systematic errors as it expanded programs that were based on ignorance initially. But to interpret the longer-term impact of the legislation and trajectory of policy in its aftermath, a scholar would require broader theory such as MS, PET or ACF. These could be tested using models based on hypotheses about how policy systems would be thought to change after an event like the Gulf war.

#### 4.2. *Energiewende*

The theories and models noted in this article were largely developed by scholars in the U.S. using as examples events processed through American institutions. However, these ideas on policy have been employed (and at times amended) to interpret policy processes and change in other countries. The Advocacy Coalition Framework (ACF) has, in particular, been utilized by scholars internationally to provide a theoretical structure to explain the course of important public policies (Sabatier, 1998; Weible et al., 2009). One significant example has been its use in identifying the various events and forces that led to the inception and subsequent expansion of the German energy policy, *energiewende* (e.g. Jacobsson and Lauber, 2006), a policy that has developed over the past 30 years.

The term “*energiewende*,” meaning energy transition, was first coined in a 1980 study by Germany’s Institute for Applied Ecology that outlined an energy future with no oil or nuclear power, and that emphasized energy efficiency and renewable technologies. The Institute itself had emerged from Germany’s anti-nuclear movement, which had gained a public platform for itself beginning in the 1970s through mass demonstrations against new nuclear power facilities. This went against the predominant majority coalition that saw nuclear power as an important means of reducing dependence on imported oil or natural gas. Over the next three decades, the *energiewende* became the dominant policy of Germany—a major shift from policies that had predominated from the post-war era through the 1970s that emphasized domestic coal as well as nuclear power.

During the 1980s, a minority coalition coalesced around the anti-nuclear position, and a new political party, the Greens, began to contest elections both regionally and nationally. But the key to the anti-nuclear coalition’s ascendancy was the nuclear disaster at Chernobyl in the Soviet Union in 1986. The shock soon became a crisis marked by a sense of threat, in the form of a radioactive cloud that passed over portions of Germany. There was a pervasive sense of fear about the likely effects this radioactivity would bring.

Coalitions moved quickly to address the issue. The majority pronuclear coalition, led in government by the largest party, the Christian Democratic Union, and outside, represented by utility executives and nuclear power experts, argued at first that there was little danger of a Chernobyl-type disaster domestically because Germany used reactors that were far less likely to fail. They also claimed that the radioactive Chernobyl cloud would not taint Germany’s food supply. Members of government were shown in the media eating salad to prove there was nothing to worry about. Opposition Greens, unsurprisingly, called for immediate end to nuclear power production, while the Social Democrats (the second largest political party) argued that “nuclear power [should be] a transitory solution to the energy problem” (Krohn and Weingart, 1987).

Radiation, invisible to the senses and with impacts that might not appear for decades, can in itself engender fear and uncertainty. Radioactivity and its effects “have to be made ‘visible’ by the media and have to be defined, interpreted and framed by politicians, scientists and social movements” (Koopmans and Duyvendak, 1995, 237). In Germany, these forces only compounded the sense of crisis. Confusing, sometimes contradictory statements by state (länder) and federal government officials, heightened public anxieties and social groups politicized the issue in ways that played to public fears (Renn, 1990). Government bureaucracies that should have brought clarity did not. As a Frankfurt newspaper opined, “Confusion in the public agencies creates fear” (quoted in Krohn and Weingart, 1987, 55).

There was a dramatic shift in public opinion. Prior to the Chernobyl, polls showed that 52 percent of the West German public endorsed the majority coalition’s policy in support of nuclear power. Within a week of the first reports of the disaster, public backing dropped dramatically to 29 percent; 69 percent were now opposed, most in favor of a gradual shutdown, but 12 percent believed all nuclear power facilities should be dismantled at once (Krohn and Weingart, 1987). From an ACF perspective, this represented a “redistribution of political resources,” one of the possible “causal mechanisms that link events to major policy change” (Nohrstedt and Weible, 2010, 11). Even when the sense of crisis had abated, support for nuclear power languished.

Two reports at about the same time as the Chernobyl disaster made non-carbon (and non-nuclear) energy technologies seem a realistic (to some a necessary) alternative. A government study of energy released in 1986, “concluded that only reliance on renewables and efficiency would be compatible with the basic

<sup>29</sup> Senator John Chafee (R-RI), Congressional Record, Oct. 8, 1992.



values of a free society” (Jacobsson and Lauber, 2006, 261). The same year a German Physical Society document warned of a potential climate catastrophe from anthropogenic global warming (AGW), an idea that also captured the attention of the German public, and provided an impression of a second crisis. By the early 1990s Germans were far more concerned about climate change than any other nation in Europe (Brechin, 2003). With over 70 percent support for action on climate change, the issue soon impacted the dominant coalition; the Federal Chancellor Helmut Kohl declared climate change the most urgent environmental issue, an example it would seem either of a wish to protect his party’s election prospects or of policy learning, leading to a reconsideration “policy core beliefs” of Kohl’s party, the Christian Democratic Union (Nohrstedt and Weible, 2010, 12). In any event, it led to a widespread agreement within the broader policy subsystem that “energy use had to be profoundly changed” (Jacobsson and Lauber, 2006, 264).

The anti-nuclear coalition embraced renewables, gaining in the process support from renewable industry groups, academic researchers, green NGOs and think tanks, and even the owners of small hydroelectric facilities. In 1991, the German Bundestag passed the Electricity Feed-in Law (1991) to guarantee a return on renewables, succeeding against a coalition that opposed “subsidization of technologies unfit for the market” (quoted in Jacobsson and Lauber, 2006, 264) that included the major electric utilities and the Ministry of Economic Affairs. In fact, the utilities challenged the law in various venues, which slowed development of a transition to renewables, and with the integration of East and West Germany dominating the agenda in the early 1990s, little more was done to push an *energie-wende*.

But in 1997, a government proposal to reduce feed-in tariffs drew massive protests that brought Greens together with labor unions and religious groups and led to large, dramatic demonstrations. In 1998, the Greens entered the majority parliamentary coalition for the first time and pressed their energy agenda. The Energy Sources Act (2000) increased the incentives for renewables and promised a phase out of all of Germany’s nuclear power facilities. By the mid-2000s, Germany was the center of activity for renewable energy projects including the largest solar photovoltaic array in Bavaria and the installation of 29,000 MW of wind capacity. The official policy goal was (and still is) for 80 percent renewable electricity by 2050.

Despite the apparent strength of anti-nuclear/pro-renewables coalition, the German government under Prime Minister Angela Merkel decided in 2010 to extend the life of existing nuclear power plants. But then a new shock, the Fukushima nuclear power plant disaster in 2011, renewed the German public’s antipathy for nuclear power, and provoked an almost immediate policy reversal. The disaster also came just before state elections and it has been argued that Merkel felt obliged to protect her party’s electoral chances (Blackmore, 2013)—a sign perhaps that she saw this shock as a political threat. But whatever the rationale, Merkel announced the permanent closure of several nuclear facilities and the phase out of the rest by 2022—even though this has meant at least temporarily an increase in carbon emissions from German utilities forced to switch to coal.

The anti-nuclear, pro-renewables coalition remains the majority, retains the support generally of the public, and after managing to affect a major change in energy policy, has directed energy policymaking for the last 15+ years. But there are challenges to this group, especially from German industry, which now pays higher electricity costs than firms in most other industrialized nations, and consumer advocates and charitable groups who see the feed-in tariffs as a regressive tax affecting the poor most of all.<sup>30</sup> Whether they can realign German politics and make a different sort of change may depend on whether they, as the Greens

before them, can take advantage of the next energy shocks and crises.

But a key point to take from the German experience is that unlike in the U.S., energy-related crises have led to significantly altered energy policies that have endured, changes in energy markets notwithstanding. Then again Germany has undertaken major changes in energy policy (a paradigm shift, according to Helm (2005)) as a solution to an ongoing environmental crisis—climate change—that is at least for now still salient with the German public.<sup>31</sup>

Although ACF is clearly useful in explaining the advent of *energie-wende*, some scholars argue that any theory needs an institutional overlay to highlight the differences not only between the U.S. and Europe, but also among European countries. There has been some convergence of law within the EU, but there remain differences both in formal laws and, perhaps more importantly, in traditions and customs that inform choices differently even in countries as economically and geographically close as, say, Germany and the Netherlands.<sup>32</sup> According to the Jacobsson and Lauber (2006, 257) there must be an appreciation for a society’s “deeper historical and cultural influences,” what North (1990) terms a society’s “informal institutions.” This argues for incorporating into any inquiry of policy processes a comparative institutional analysis, particularly with regard to the ways “cross-national variations” impact resultant policy (Koopmans and Duyvendak, 1995, 235).

## 5. Conclusions

The theories and models discussed in this paper provide some general and very useful insights into the formation, character, outcomes and impacts of energy crisis policymaking and indeed energy policymaking generally. However, no one complete theory of crisis policymaking answers all questions, encompasses all of the variables, or explains all of the processes that might go into the evolution of energy policies across time and across the world. But a general idea of what theory tells us might be summarized as follows:

A crisis means that “normal” processes of policymaking have been disrupted—or at least that there is the perception of such a disruption. Officials, whether thought of as fully rational but ignorant, or as boundedly rational and thus limited in their ability to process information, due to widespread alarm, are confronted by a sense of urgency to act. But both the major issues of a given crisis and any solutions to it are at least unclear, and often conceptually and technically beyond their abilities (as well as those of the general public) to understand. In many cases, markets resolve the sense of crisis. But crises provide an occasion for major change (e.g. *energie-wende*), particularly if the crisis seems to persist. Although why the same crisis experienced in different countries leads to paradigm shifts in one place but little change in another, is a question requiring much more analysis than a review article can accommodate.

Theories and models may grapple with this situation differently, some illuminating only a few specific variables, others trying for a broader understanding of processes and outcomes. Policy processes are complex, and theories and models are by definition restrictive means of organizing analysis. A broad framework that

<sup>30</sup> As of early April 2014, the federal government had cut subsidies and introduced other “reforms” that began immediately to slow the growth of “green” electricity. (See the article at: <http://www.reuters.com/article/2014/04/08/germany-energy-idUSL6N0N01P20140408>.)

<sup>31</sup> For a discussion of energy issue salience see Lowry and Joslyn (2014).

<sup>32</sup> As Koopmans and Duyvendak (1995) point out, in the Netherlands there was no “detectable” change in public actions in response to Chernobyl.

would “specify assumptions, identify scope, establish general categories and definitions of concepts and variables, and provide a shared language for scholars...[would allow] for the comparison and further refinement of theories” (Schlager and Weible, 2013, 390). And further:

“Frameworks identify the elements and general relationships among [the] elements that one needs to consider for institutional analysis and they organize diagnostic and prescriptive inquiry. They provide a general set of variables that can be used to analyze all types of institutional arrangements. Frameworks provide a metatheoretical language that can be used to compare theories. They attempt to identify the universal elements that any theory relevant to the same kind of phenomena needs to include” (Ostrom, 2011, 8).

My own view is that energy policy requires its own framework. This would encompass various theories and models of how shocks and crises reorder coalitions, change policy dynamics, and lead to new (if not always unambiguous) understandings of what the policy process can actually achieve. Extant frameworks, ACF (as it has evolved), or perhaps Ostrom’s Institutional Rational Choice (IRC), which to date has been applied mainly to property regimes, might be adapted to crisis analysis (Schlager and Blomquist, 1996; Ostrom, 2006). But any such framework for energy policy would, like IRC, have to embrace institutional as well as behavioral theories and permit the kind of comparative institutional analysis noted in the section above. An effective energy policy framework could also test new theories of the policy process, comparing these approaches with older concepts. One recent addition to the literature that seems promising in this regard is the Narrative Policy Framework (NPF) (Shanahan et al., 2011, 536), which analyses the policy process as a competition between “stories [that] relevant actors...strategically employ.” NPF provides a way to parse the narratives—e.g. the U.S. dependency narrative—that underlie so much energy policy. Though posited as a framework of its own, narrative analysis has been presented by its creators as a theoretical approach “applicable to ACF research” (Shanahan et al., 2011, 535) and could no doubt serve as a separate theory and set of models to test in a different framework.

There are, in other words, many ways to finally structure a framework for the analysis of energy policy particularly policy in the face of shocks and crises, a means to study policy change in both the short and long term. But consider such a framework still work-in-progress.

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