

***Green vs. Green:
The Political, Legal, and Administrative Pitfalls Facing Green Energy Production***

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Introduction

Our purpose in this book is to evaluate the political, legal, and regulatory environment facing large-scale green energy development in the United States. In particular, we focus on the political, legal, and regulatory environment for solar, wind, geothermal, biofuels and small to micro hydro energy development. There are many evaluations of the economics of green energy and we do not attempt to add to or evaluate those claims (see, for example, Fogarty, Tom and Robert Lamb, *Investing in the Renewable Power Market: How to Profit from Energy Transformation 2012*, Wiley). Economic claims aside, there are real barriers to entry for developing green energy. The most prominent of these barriers are the existing environmental laws and regulations. After extensive review of current environmental policies, including those promoting green energy development, we argue that in sum, environmental laws and regulations hamper the development of clean energy. In addition, the micro-goal of protecting individual areas, species, small-scale ecosystems and other local environmental aims often limits ability to achieve macro-goals like preventing global climate change or transitioning to large-scale green energy production. Statutes and regulations designed to protect environmental and cultural integrity from degradation directly conflict with other stated environmental ends.

We analyze political choices using the tools and assumptions of economics. The focus of that analysis is how individuals choose within the constraints of rules. Thus, instead of studying just the structure of bureaucracy, we also study how that structure affects the individual bureaucrat. Congress is a large, complex institution that is best understood, we believe, by studying the individual members and how they act within the formal and informal rules of Congress. Likewise, when we study interest groups, we consider the individuals in those groups. We evaluate individual benefits and costs from participating with the group. We assume that citizens, legislators, bureaucrats, and interest group members have passions and interests they pursue through governmental processes. It is as if we view

politics as a game and these various players in the game are the game pieces. Unlike a board game, however, these game pieces move on their own power. They sometimes group together to form alliances to accomplish their ends. Sometimes they sit back and watch others play.

This model of politics and the democratic process is a simple one. The players—voters, interest groups, politicians, and bureaucrats—attempt to accomplish their own ends through government. By assuming these players are self-interested, we do not assume that they are selfish. We are simply saying that they attempt to accomplish their own goals. Examination of the actual goals is where notions of selfishness and otherness can be discerned. We assume that many people have goals that are other-interested. Many want to save polar bears and prairie dogs, for example. Others care only for themselves. People attempt to achieve their goals even if those goals and actions conflict with those of others. Thus, our self-interest assumption is that people pursue their own goals, and that those goals can be broad or narrow.

This is essentially a common sense view of politics. We all know that most of the time people invest their scarce time in doing what they value the most. Conversely, they choose to not invest in actions that have little payoff for them. Of course, we do not always know what is best for us, but neither does anyone else. The decision environment is best characterized by varying degrees of uncertainty; that is, we only rarely know with confidence what will happen. We always choose in varying states of ignorance with respect to what nature and other rational, self-interested people are contemplating. But, people have invented ways of reducing uncertainty. We call those inventions rules and some rules are cultural, others are political implementations of cultural rules, and others are simply political.

The social order that emerges from socio-political rules reduces uncertainty and allows people to advance their self-interests. Such rules structure the behavior in the political game. Among those rules are constitutions that prescribe how subsequent policy choices and decision changes are to be made. Civic rights, property rights, contracts, etc., serve to better define who commands which resources and

how they may be employed and transferred. The important point is that collective institutions are highly important matters with good and bad consequences for individual and joint welfare.

Institutional Analysis and Policy Design

Evaluating the political, legal, and regulatory environment for green energy requires choosing an analytical framework, a theory of policy development, implementation, and evaluation. There is, however, no overarching or unified theory of public policy. In fact, there are competing and even conflicting theories. The February, 2009 issue of *The Policy Studies Journal* (Vol. 37, issue 1), for example, contained what the editors called a “policy shootout” in which authors of ten papers competed to make the best pitch for their favored approaches to policy analysis. Many of the proffered approaches overlap and complement each other. Even so, it is quickly clear from reading the articles that the field is an eclectic one.

We chose to apply the Institutional Analysis and Development (IAD) framework to policy analysis and design developed by Elinor Ostrom and her colleagues at the Workshop in Political Theory and Policy at Indiana University (Ostrom, 2011, 7-27; Ostrom, 2007, 21-64). The IAD framework is a policy analysis tool that provides a means of organizing information and data across different policy levels. It emphasizes organizations and interactions among the various actors in the policy arena (Ostrom calls it an “action arena”) that interact. The IAD emphasizes what we believe to be the most fundamental aspect of policy formation-- the institutions within which policy processes take place. We use “institution” in the way used by Ostrom (1996) and Douglass North (1990). An institution, according to them, is “a widely understood rule, norm or strategy that creates incentives for behavior in repetitive situations” (Polski & Ostrom, 1999). Institutions can be laws, policies, customs or formal and informal procedures. They may be visible, as in the case of a particular law, or they may be invisible, existing in the minds of each member of a community. They coordinate actions because they create expectations about how others will act in a particular policy or collective choice arena.

Both Ostrom and North stress that institutions and organizations are different analytical concepts.

Institutions are rules. Organizations are structures. Institutions may be the product of conscious human choices such as a law, regulation, or court decision, or they may be the product of the unconscious accretion of rules of thumb or experiences. Institutions that are the product of human actions but not of conscious design can be as formal as the common law and as informal as the rules determining whether offense or defense calls fouls in a pick-up basketball game. Whereas organizations are visible, institutions can be rather invisible, especially to outsiders. A city council is a visible organization, for example. But the customary rights, sanctions, and norms shared in a community are often invisible in the sense that they are not written down anywhere. They develop through time and exist in the minds of the community members.

Social order emerges because socio-political institutions and organizations reduce uncertainty and allow people to advance their self-interests. They structure the behavior in the political game. Political organizations create policy arenas within which rules are decided. Among those rules are constitutions that prescribe how subsequent policy choices and decision changes are to be made. Civic rights, property rights, contracts, etc., serve to better define who commands which resources and how they may be employed and transferred (Kiser & Ostrom 1982, 208). Kiser and Ostrom identified three levels of political institutions: procedural, collective choice and constitutional. The procedural level consists of rules that direct how individuals act. The collective action level is the set of rules determining how to make procedural rules. That is, it consists of legislative procedures. The constitutional level defines and limits the kinds of legislation that may be adopted. Our focus is on the collective action and procedural rules. Specifically, we consider local, state, and national legislation and the effects of that legislation once it is converted into procedures and regulations.

In our analysis, we examine both institutions and organizations. We identify formal and informal organizations and attempt to discover and evaluate institutions that exist within and across those institutions. Our analysis, we believe, provides a means of better understanding the patterns of interactions that result in green goals conflicting with green policies.

Analytical Concepts

Institutions and Organizations

Policy processes are messy, or more formally, they have a great deal of complexity. They operate within different levels of institutions and across organizations. They may be created by interactions that are games within games as protagonists and antagonists bargain, threaten, cooperate, or demonize. Often, groups that cooperate at one level are in opposition with each other at another level. A major reason for that complexity in the United States is that our organizational context is federalism, a system in which political power, or sovereignty, is divided among the national, state, and local governments. Distinct as well as overlapping areas of rights to govern reside in each level of our federal system. Power at each of these levels is often separated between judicial, executive, and legislative authorities. In many counties and municipalities however, the executive and legislative powers are not separated. Instead, they are combined in the county or city council. Separating power within levels of government is not required in a federal system but it is a feature of American federalism. Local political power is not restricted to cities or counties as it is also exercised by special taxing districts such as mosquito abatement or water conservation districts, associations of government and even the most rapidly increasing form of local government—homeowners’ associations. All told, there are more than 80,000 different governments in the United States.

Sometimes jurisdiction between all these levels of government overlaps and sometimes it does not. The federal government can pass a law to protect endangered species that cannot be ignored by other state and local governments. Those governments can, however, establish rules more restrictive than those from the national government. California for example, has a statewide Endangered Species Act that is more powerful than the national one. Conversely, because zoning authority resides with state and local authorities, a local homeowner association may choose to establish rules prohibiting solar panels from being seen from the road. Just as the association can banish basketball hoops to the backyard, it can banish solar panels to the backside of a roof, regardless of the national government’s

desire to promote solar energy.

The Democratic Process

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neither does anyone else. All decision environments, including policy arenas, are characterized by varying degrees of uncertainty; that is, we only rarely know with confidence what will happen. This is especially true in policy decision environments. We must choose to participate, or not, in varying states of ignorance with respect to what other rational, self-interested people are contemplating. We noted above that Kiser and Ostrom identified three levels of political institutions: constitutional, collective choice, procedural; we also noted that our analysis is at the collective choice and procedural levels. We assume that at the collective action level (Congress, legislatures, councils and boards), many players in the collective action game will attempt to have laws passed that are consistent with their own goals. Further, we expect that they will also attempt to influence the content of procedural-level rules and regulations and will work to ensure that procedural rules are followed. Citizens pursuing their private desires quickly learn that organized groups have more influence on laws and regulation setting than do individuals. They often, therefore, organize into interest groups where they can pursue their goals.

Individuals and groups lobby to have their interests reflected in the structure and outcomes of laws, rules, and regulations. Much lobbying is what economists call “rent-seeking,” which is more than just seeking favors. It is attempting to collect benefits, both physical and emotional (what economists call ‘rents’) from capital they do not own. The standard term used to describe them is “rent-seekers.” Rent-seeking literature identifies outcomes from lobbying that are quite the opposite of that predicted by James Madison in Federalist 10. In that essay, Madison argued that the federal design provided by the proposed constitution would control the excesses of factions. He defined factions as “a number of citizens, whether amounting to a majority or a minority of the whole, who are united and actuated by some common impulse of passion or of interest, adverse to the rights of other citizens or to the permanent and aggregate interests of the community.” Madison was especially concerned about majorities taking advantage of minorities and believed that with their new form of government, they were creating a political marketplace in which majority factions would compete with and control each others’ excesses. It is possible to interpret Madison’s analysis as concluding that the political game

played under the rules of federalism was in some ways, an exchange or gains-from-trade game.

In Federalist 10, Madison did not anticipate situations exactly opposite to majorities exploiting minorities; that is, situations in which minorities use the political system to exploit majorities. The rent seeking literature takes up that analysis by viewing political games as wealth-reducing activities. In these games, the amounts of wealth the players spend attempting to gain rents are, in total, more than the value of the rents gained. As we explain in detail below, they are locked tragedy of the commons. By seeking their own interests, they often make others worse off. Attempts to stop the Cape Wind project (Chapter 4) may, for example, be a form of rent seeking. If the opponents are successful in blocking the project, one likely result is that more carbon-based energy will be used than if the project were built. Rent seekers attempting to get a regulation adopted can harm other interests, as is the case of protecting the Indiana bat under the Endangered Species Act, which in effect, makes some excellent wind power sites unavailable.

Group members seldom see the costs of their actions but they do see the benefits. Prairie dog proponents rejoice at saving prairie dog colonies but they often do not pay the costs of formerly productive agricultural lands being rendered unproductive. Mandating that a city increase the amount of wind power it uses but also enacting laws that prohibit siting wind power anywhere near the city means that wind generation facilities have to be located elsewhere, usually in rural areas in other states. Thus, the city's politicians and citizens get the benefits of wind energy and the environmental and social production costs are exported to other places. A city council or state legislature can adopt a solar or wind energy mandate without considering the costs of siting and transmitting the energy. They do not have to consider the costs to a rural area of having hundreds of windmills or hundreds of acres of solar facilities, whose energy production is exported elsewhere. Likewise, groups opposing siting a wind farm on their favorite viewshed do not have to consider the costs of not reducing the amount of carbon-based energy.

Divorcing costs from benefits is what happens in the familiar setting of a group dining together

and agreeing to split the bill. The situation even has a name—the *unscrupulous diner's dilemma*. If the bill is being split evenly, the selfish diner will order an exceptional dinner in the belief that her/his fellows will order normally. But, if everyone orders more in the expectation that others will help pay the cost, they each end up with a far higher bill individually and severally than if they had agreed at the outset to each pay their own portion of the bill. If friends are willing to do this to each other face-to-face sitting around a table, think how much more interests in the policy arena might be willing to do it to anonymous others.

The unscrupulous diner's dilemma was illustrated in an environmental context by biologist Garrett Hardin in his 1968 article, "The Tragedy of the Commons." He focused the attention of the environmental movement on incentives and human action. In that essay and others (e.g. 1977 & 1982), Hardin showed that analyzing most environmental issues, from overcrowding in national parks to overgrazing commonly owned property, requires an understanding of who controls access to a resource, who gets the benefits from using it and who pays the costs. Hardin said the answers to those questions lead to basic policy principles for encouraging preservation.

In this classic article, Hardin claimed that many of our environmental problems are caused by a system of open access to a commonly owned environment. He summarized conventional wisdom about common property¹ as follows, "Ruin is the destination toward which all men rush, each pursuing his own best interest in a society which believes in the freedom of the commons. Freedom in a commons brings ruin to all" (Hardin, 1968, 1244). Hardin's article became one of the most cited environmental articles ever published and his call for "mutual coercion, mutually agreed upon" was the intellectual justification for decades of environmental legislation in the United States.

Hardin used a pasture as an example of how the commons can produce tragedy. As long as grazing on the commonly owned pasture is below carrying capacity, a herdsman may add another cow without negatively affecting the amount of grazing available for other cows. But once carrying capacity is reached,² adding the additional cow has negative consequences for all users of the common pasture.

The rational herdsman faced with adding the extra cow calculates his share of the benefits (100%) and his share of the cost ($1/n$ herdsmen) and adds the cow. And another. As do all other herdsmen. Each may care for what is common but can do nothing about it since one person exercising restraint only assures himself a smaller herd, not a stable, preserved commons. Thus, the commons is a paradox—an individual acting in his self-interest makes himself and everyone worse off in the long run but an individual acting in the group interest cannot stop the inevitable ruin.

A misunderstanding about the tragedy of the commons is the claim that the core problem is lack of conscience. If people simply developed a conservation ethic, were less greedy, less inculcated with western values and more caring of the community, the common claim is that the tragedy would not happen. Hardin rejected appeals to conscience out of hand; "To make such an appeal is to set up a selective incentive system that works toward the elimination of conscience from the race" (Hardin 1968, p. 1245). Further, to conjure up conscience "in the absence of substantial sanctions, are we not trying to browbeat a free man in the commons into acting against his own interests" (Hardin, 1968, p. 1245)? He claims, with much justification in evolutionary biology, economics, and political science, that successful policies are those that do not require people to act against their self-interest. Appeals to conscience may work in the short run but self-interest means such policies are not sustainable.

Hardin claimed the core problem to be lack of responsibility as defined by philosopher Charles Frankel. "Responsibility is the product of definite social arrangements. ... A decision is considered responsible when the man or group that makes it has to answer for it to those who are directly or indirectly affected by it", (Hardin, 1968, p. 1244) he said. Frankelian responsibility exists, then, when people taking an action must pay the costs of that action. Since costs also imply benefits, the other side of the responsibility coin is that the person taking the action also receives the benefits of that action.

On the commons, individuals have the authority to add an extra cow and each gains the benefits of his actions. But, the costs of each herder's actions are spread among all other users of the commons. *Any action on a commons is intrinsically irresponsible because costs are socialized and benefits are*

privatized. Without the corrective feedback provided in a system establishing Frankelian responsibility, destructive actions are encouraged and, Hardin says, inevitable.

The idea of the commons is a core concept for understanding problems faced in creating green energy. Assuming that green energy makes everyone better off by reducing carbon consumption, it is clear that no one can be excluded from the benefits. But the provision dimension is another story. Green energy facilities need to be placed somewhere but they can be excluded from many, if not most, locations. The strategy for locals is to say they are in favor of green energy but the facilities need to be located elsewhere. The producers of green energy, thus, are restricted from accessing available sites, which reduces the amount of green energy production. Returning to Hardin's story of the common pasture, producing green energy makes society better off. But, we all have an incentive to disallow production facilities in our favorite part of the pasture. In this new story, we are not adding more cows to the commons, thus creating a tragedy through destruction. Instead, we are systematically reducing the amount of pasture available for energy production. Protecting the pasture from energy production facilities makes everyone else worse off. In such cases, small, local interests harm the general interest.

Another analytical tool consistent with and often used in conjunction with the tragedy of the commons story is 'externalities'. When people take actions that create costs for a second person without that person's permission or sometimes knowledge, they are producing what are known as negative externalities. Conversely, there are positive externalities. A family adopting a stretch of highway and keeping it clean makes everyone else better off. Their actions have positive spillover effects on others. When someone fouls the air or a stream, they are producing negative externalities.

In the context of Hardin's common pasture, adding an extra cow once the pasture has reached carrying capacity produces a negative externality. The person adding the cow gains all the benefits from adding the cow and the costs of his or her actions spill over onto all other users. The costs of adding the cow are socialized and the benefits are privatized. Socialized costs and privatized benefits mean that the person adding the cow gets a 'free-ride' at others' expense. They are free riders.

An excellent treatment of the free rider problem and its implications for group action was provided by Mancur Olson in his 1965 book, *The Logic of Collective Action: Public Goods and the Theory of Groups*. Olson and Hardin wrote about the same general issues, how individuals acting in their short-term self-interest can produce outcomes that make the group worse off. Hardin wrote about individual action in a commons and Olson wrote about individual action (or non-action) in achieving group goals. Olson explained that the problem of groups achieving their goals comes down to the free rider problem. Everyone in the group may share a common goal but when everyone in the group gets the benefits of achieving the goal, whether they contribute to obtaining it or not, there is a strong incentive to let others work toward the goal. Or, in other words, they are incentivized to free ride.

Olson illustrated the point made by welfare economists about situations having two distinct characteristics—non-exclusive provision and non-rivalrous consumption. Non-exclusive provision means that once a benefit is provided for one member of the group, it is provided for all. That is, individuals cannot be prohibited from the benefits. Non-rivalrous consumption means that one person's consumption does not affect other peoples' consumption. Standard examples of such situations are police protection, GPS signals, flood control, and national defense. Something characterized by non-exclusive provision and non-rivalrous consumption is known as a public good. With private goods, on the other hand, usually the owner enjoys private goods, and that person's consumption means others cannot consume it. Oranges, cell phones, and automobiles are just a few from the myriad of examples.

Private goods are easily provided in markets because there are willing buyers who can only get the benefits of the private good by purchasing it. The problem with public goods is that when the benefits of something (a project or getting a new law or regulation adopted, for example) are non-exclusive and where consumption is non-rivalrous, successful group action is unlikely. If everyone thinks that way, no one produces a public good voluntarily. Public goods are, therefore, less easily provided than are private goods. The incentives are all wrong: since people obtain the benefits of a public good without paying for it, if it gets provided, there is a powerful incentive to offer nothing or

little in exchange.

Consider the problem of getting people to voluntarily pay higher prices for switching their energy consumption away from fossil-based sources to greener ones. Such a switch produces a public good—lower carbon production. Everyone shares the benefits of making the switch, even those continuing to use energy produced from coal. The costs are paid by those willing to pay the higher price. Consider the problem facing a wind energy entrepreneur who hopes people will willingly pay him to produce low-carbon energy. If he tries to sell subscriptions to his service, he will find that although many people claim they want the energy they consume to be greener, few are willing to pay the higher price. Something that people want in the abstract—greener energy—fails to be produced because those same people are not willing to pay for it. Of course, if they can get others to pay for it, they are all in favor.

We note that although public goods and commons problems are similar, there is an important distinction. In the commons, consumption is rivalrous, whereas it is non-rivalrous for public goods. The distinction is important when considering policies for overcoming the free rider problem in each case. In a commons, causing people to become responsible for the externality they produce can change their behavior. For public goods, private incentives such as subsidies or other benefits can encourage a sufficient amount of people to contribute so that public goods are produced.

The Action Arena

The green energy game is played in the same institutional arena that traditional energy development operates in. Private interests, organized and unorganized opposition and strict legal requirements characterize that arena. Opponents to traditional energy projects discovered that the projects had to go through several political chokepoints before receiving authority to proceed. These chokepoints operate much like a firewall between a local network and the internet. Before any information can enter a local network, it must meet authentication tests, error detection tests, and rules regarding syntax and semantics before it can enter the local network. Political chokepoints work the same way. Before a

project can move from proposal to actual development, it must meet the requirements established by federal legislation and regulation and, because we are in a federal system, it must also meet requirements established by state and local laws and regulations. Those proposing a project must authenticate that the proposed project will meet all applicable regulations. Because opponents are skilled at challenging a project, the proposal must not contain errors in its projections of impacts on local flora and fauna, groundwater, air, archeological sites, sacred Native American lands or geological formations. All this has to be done according to rules and procedures created by national, state, and local legislation and court interpretations of that legislation.

Firewalls stop any information that violates or does not meet its procedures; political chokepoints do the same for proposed energy projects. Challenges to fossil fuel projects come from a broad range of sources, well organized, and funded environmental groups to local garden clubs, for example. The concerns vary. Some are simply NIMBYism (Not In My Back Yard), cloaked as environmental concerns. Others raise serious questions about human and environmental health and welfare. The chokepoints allow groups to challenge project viability, environmental effects, and economic and cultural outcomes. In addition, chokepoints allow for challenges to procedures. Did the project need to meet requirements of the National Environmental Protection Act (NEPA) for an Environmental Impact Statement (EIS) or was it justified in just doing an Environmental Assessment (EA)? Did it provide a realistic range of alternatives as required under NEPA? What about Clean Water Act (CWA) or Clean Air Act (CAA) requirements? Will endangered species be affected? Did the company file the needed paperwork on time and in the proper format? Are historical and cultural sites adequately protected as required under the Antiquities Act? Were Native American tribes consulted early in the process? If the project affects any stream, does the proposal meet requirements of the Army Corps of Engineers for mitigating wetland impacts? Even if the project gets past all the federal rules, does it meet the requirements of a state land use plan or local zoning rules? Can the project be challenged using common law nuisance requirements? The list can go on and on. The point is that there are many

political chokepoints and they proliferate with each new local, state, and national law, the regulations that carry out the law and relevant court decisions.

Green energy projects must go through the same political chokepoints as traditional energy projects. Although nearly everyone favors developing alternative or “green” energy, they prefer that operations be located elsewhere. Local citizens and politicians often consider them unsightly, they may be fatal to local wildlife, legislators want to tax them to increase tax revenues, local communities want to charge impact fees to build local infrastructure, local environmental groups worry about environmental impacts and Native American Tribes are concerned with negative impacts on sites they consider sacred. Farmland preservationists worry that windmills or solar farms will destroy traditional farming. It quickly becomes clear that the constraints on alternative energy development are not just physical—long distances from transportation corridors, desert or mountainous terrain, necessary and available water supplies—but political.

The most obvious political chokepoint is the set of national environmental laws (we describe them and their requirements in some length in Chapter 3). These include the National Environmental Protection Act (NEPA), the Endangered Species Act (ESA), the Clean Water Act (CWA) and the Clean Air Act (CAA). Each of these acts imposes restrictions that apply to any development. A solar farm that generates as much electricity as a natural gas well and power plant takes up thousands more acres and effectively destroys all vegetation under the collectors. Wind farms disturb thousands of acres and significantly affect viewsheds. Wind turbines have also been known to kill bats and some birds, including species that are endangered. Geothermal plants disturb 1-8 acres per megawatt (MW). Permits to disturb plant and animal life on public lands have to be granted through a drawn-out permitting process, often five years or more. At the very least, an Environmental Assessment (EA) has to be done and often an Environmental Impact Statement (EIS). Each of these involves studies, public hearings, other public input, revisions, and finally publication—all examples of political chokepoints

As noted earlier, wind and solar farms can consume thousands of acres. The visual disruption

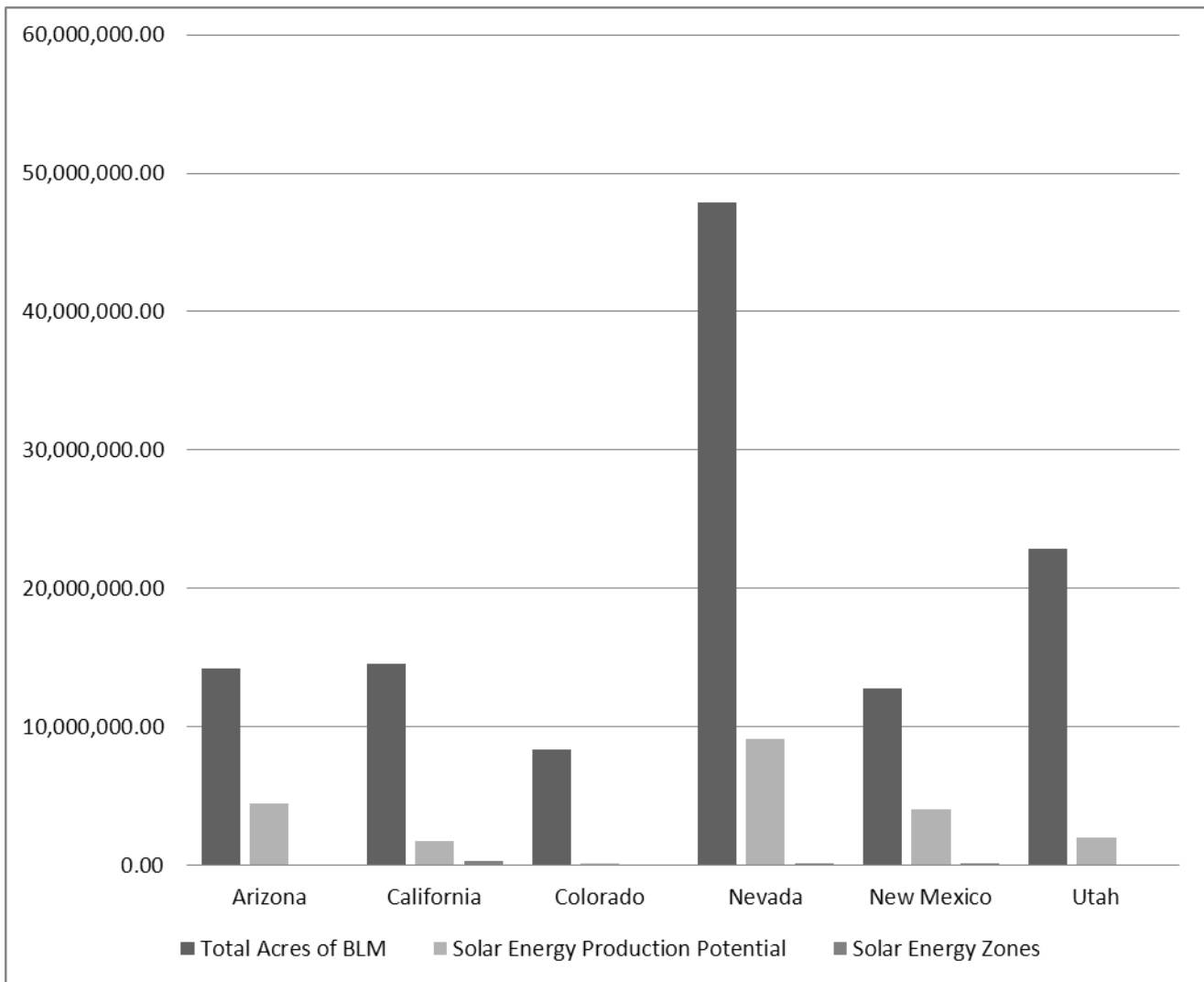
from these plants is significant. The 12 MW solar farm in Upper Sandusky, Ohio consumes 80 acres of former farmland, for example. Almost nothing grows under the solar panels because the panels intercept the sunlight. Wind turbines generating 1.5 MW typically have a hub height of 260 feet with another 115 feet from the hub to the tip of the rotor, for a total height of 375 feet. By comparison, the U.S. Capitol building is just less than 289 feet tall and the Statue of Liberty is 305 feet tall. The newest “tall” towers from GE have a hub height of 393 feet and can generate 2.3-2.7 MW. From the hub to the tip of the rotor is another 154 feet, so the structure from ground to rotor tip is 547 feet. These are massive structures. The proposed Cape Wind project in the Nantucket Sound would install 130 tall turbines across a twenty-five mile area and, although Cape Wind has been granted federal approval, local opposition is significant and legal battles continue on a variety of fronts.

State and local laws, as well as some federal rules, control the development of private lands. NEPA rules for example, do not generally apply to private lands but even projects on those lands must meet Clean Air Act and Clean Water Act requirements. They must mitigate any wetland losses and any effects on cultural or historical sites must be controlled, in addition to meeting state and local land use requirements.

Developing green energy on the federal estate is controlled by the national government and those lands can provide many sites for large-scale alternative energy production. After all, the federal estate contains over one-third of the nation’s on-shore lands. There ought to be thousands, if not millions, of acres of public land suitable for wind and solar farms and geothermal installations. The Bureau of Land Management (BLM), for example, manages just over 258 million acres, much of it in the arid West. Surely there are many suitable alternative energy sites on just those acres, let alone on the 193 million acres of forest and grassland managed by the National Forest Service. In fact, there are many such sites. The question is not whether there are suitable lands but whether current policies will allow them to be developed.

Ideal conditions for large-scale solar generation exist on the BLM lands of the desert southwest.

Those conditions include the appropriate latitude for maximizing the number of daylight hours and the geographic location's effect on weather patterns. Sites that are often cloudy are not appropriate for solar installations (Solar Power: Environmental Benefits, n.d.). In 2011, the BLM prepared a draft programmatic EIS for solar energy siting on BLM lands in Arizona, California, Colorado, Nevada, New Mexico and Utah. The BLM first identified areas with physical conditions appropriate for solar energy production that have not already been set aside as Wilderness, Wilderness Study Areas, Areas of Critical Environmental Concern, National Monuments and Parks, etc. Next, the BLM worked with the states to identify lands that could be readily developable without substantial environmental controversy. Of the nearly 99 million acres that the BLM estimates are potentially suitable for solar production, the EIS identifies twenty-four Solar Energy Zones totaling 677,384 acres, which is less than .01 percent of BLM lands in the five states. See Graph 1 below.



Environmental groups, according to official statements at public hearings and in general, overwhelmingly support the idea of solar power and the idea behind the Solar Energy Zones in their comments at public meetings and written comments to the BLM. But, many believe the Solar Energy Zone proposals go too far, are in the wrong places and need to be modified or, in some cases, are outright rejected. Concerns were raised about the effects on the Sonoran Desert Tortoise, gulleys and other riparian areas, animals and insects. The Southern Utah Wilderness Alliance (SUWA), for instance, noted that the Wah Wah Valley (one of three proposed Solar Energy Zones in Utah) is too near lands with Wilderness characteristics. Other groups complained about insufficient water in the Wah Wah Valley to sustain solar production (Chapter 5). The Sierra Club asked that two of the Solar Energy Zones in California be removed from consideration entirely. All told, the amount of ‘uncontroversial’

land available for solar energy production on public lands in the five states suggests that we should not expect widespread, significant production of solar from the public lands in the near future (Solar Energy Development, n.d.).

One of the serious chokepoints for developing any form of alternative energy on the public lands is the time and energy that must go into producing and reviewing an Environmental Assessment (EA) or Environmental Impact Statement (EIS). A President may order agencies to expedite review of an EIS or EA (as President Bush did to speed up the approval process for oil and gas and President Obama did to speed up approval of solar and wind-generating facilities) but ordering an agency to expedite something and actually having it happen is not the same thing. According to our conversations with BLM officials, even expedited reviews in the BLM take a minimum of three years and are more likely to take five years. The result is that, just as there were few actual “shovel ready” projects that could be implemented when the Congress passed the American Recovery and Reinvestment Act, there are few energy sites of any kind on the public lands that can be developed easily, quickly or perhaps ever, regardless of the wishes of a Congress or President.

There is no single action arena for approving the development of green energy. Approving a wind energy project, for example, often requires local building permits, changes in zoning, navigation through state regulations and production of an EIS or EA. In addition, it might require Section 404 permits if it affects any of the waters of the United States. If, as is often the case in the West, transmission lines cross private and public lands, negotiations must be carried out with federal and state agencies as well as private parties. The local building board, state regulators, federal regulators, and comment periods for and challenges to an EIS and state and federal courts are separate chokepoints at which different participants challenge the project.

Progress through these different arenas or chokepoints is not necessarily linear, as some arenas are in play simultaneously. Others require approval in another arena to even be considered. A Section 404 permit for example, is only considered after an EIS is completed. And, the Army Corps may ignore

the recommended alternatives in the EIS. These processes are messy, complicated, and confusing.

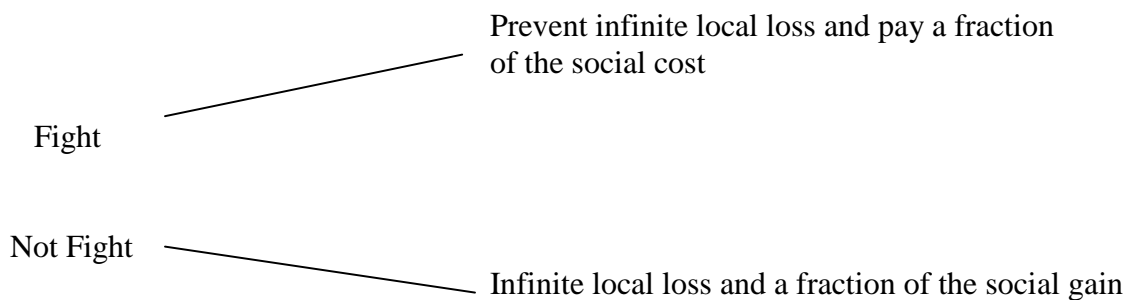
Choices and Decisions

In the spirit of the unscrupulous diner's dilemma mentioned earlier, we now turn to what we call the green vs. green dilemma. The dilemma is as follows: green activists sit down at the alternative energy development policy table. If the individual pays the costs of each person's choosing to preserve a local area from alternative energy development, those costs will be weighed against the local benefits of preservation. But if everyone at the table shares the costs of preservation, while the benefits remain local, there is little incentive to compare total costs and benefits. Just like each diner ordering the expensive meal, each activist chooses local preservation. The result is lots of local preservation but little alternative energy development. Activists usually base their opposition to new development, especially on public lands, on the value they place on a particular area such as a viewshed, watershed or on local fauna and flora, some of which may be endangered. Clearly, people are attracted to wild places for psychological reasons and development would harm the enjoyment people get from them remaining wild. Local environmental resources such as watersheds and endangered species however, are more than amenities. They are valued parts of integrated or interwoven natural systems and ecosystems. They provide ecosystem benefits for which there are few metrics for determining their value to humans.

What we have is an action arena in which some participants place essentially infinite value on a local resource that could be substantially harmed by alternative energy development. These participants strongly object to being classified as Not In My Backyarders (NIMBY). They see themselves as trying to 'save' their local environment, not as serving some private interest. NIMBY, as generally defined, is pejorative as is its companion term, BANANA (Build Absolutely Nothing Anywhere Anything (or Anyone)). A reason that activists react negatively to being labeled as NIMBYs or BANANAs is that the terms are usually construed as referring to people acting out of narrow, selfish interests. Activists we have talked to genuinely believe they are acting out of generous and even altruistic interests.

We believe, however, that NIMBY is not an accurate way to evaluate the green vs. green dilemma. Local activists believe they are acting to protect local but broad interests, not narrow ones. Saving habitat for a local endangered species or preserving a viewshed is acting to preserve something to which the activists attach very high, if not infinite value. On the other hand, their share of the benefits from increased amounts of green energy is not infinite or even large. If increasing green energy production is a public good, it is a relatively low-valued one. We are back to the free rider problem in which locals say they support increased amounts of green energy but the local contribution will be inconsequential to the overall goal. They decide, rationally, to protect their local resources.

One way to view the dilemma and the decision to act or not when a alternative energy project is proposed is in the form of a decision tree. The decision to fight has a potential payoff of infinite value and the cost of the action is shared with everyone else in the country. Even a small chance of winning is sufficient to motivate. The decision to not fight is often chosen if the development has an infinitely negative payoff and a fractional positive payoff.



As is evident in the figure, local interests will dominate the decision calculus. Of course, there is still the free rider problem as one voice is not likely to be decisive, so one gets the benefits or costs of an action whether or not s/he participates. But, environmental activists are likely to have a higher degree of ‘subjective efficacy’ than others (Moe, 1988; Acevedo and Kreuger, 2004). This trait, which leads them to overestimate the significance of their own contributions, encourages them to join groups. A study of participation in Common Cause, a non-profit citizen watchdog group, showed that a

combination of low cost and laudatory purpose encourages people's initial decision to join (Rothenberg, 1992). Those most likely to join Common Cause were affluent, highly educated, politically active and politically liberal—all traits that were sufficient to overcome a low initial cost of membership. In addition, those who remained members stayed because of a 'learned commitment' to purposes i.e. they found the group's purposes compelling and the activities pleasurable. This suggests that at least some people will overcome the urge to free ride and will involve themselves in protecting local environmental assets. These activists show up to public hearings, try to get appointed to stakeholder forums and submit testimony and even their own studies about the proposed project. Such ongoing participation may not stop a project but it might change it enough to make it more palatable.

The decision to not fight may be only temporary. An activist may consider in which action arena he or she is most likely to be effective. Participating in public hearings and stakeholder forums is something that many project opponents avoid. Instead, they move to a completely different arena—the courts. One interest group that has become a frequent guest of the court system is WildEarth Guardians (WEG). WEG has filed scores of suits against those they feel have violated environmental laws. They have petitioned to have thousands of rivers in Colorado protected from any intervention, including hydroelectric projects. Any instances where they feel companies are abusing the environment and thus neglecting or at best, not aware of environmental laws, they take those companies to court to ensure they are aware of their actions.

The decisions activists face in the various action arenas can be categorized according to three choices identified by A. O. Hirschman's (1970) book, *Exit, Voice and Loyalty: Responses to Decline in Firms, Organizations and States*. When faced with a decline in one's benefits, Hirschman said a person could *exit* the relationship, *voice* opposition and provide proposals for change or remain loyal to the situation. Loyalty to firms or brands is an example. Accepting a policy based on party loyalties or because it comes from a politician one attaches him or herself to are others. It may be too expensive for an activist to participate in each action arena that exists in the American system of federalism—local

planning board, city or county council, agency hearings and court proceedings, for example. A rational strategy, once one decides to not exit all action arenas, is to be loyal in some and exercise voice in others.

Choice	Outcomes
Exit	Physically or emotionally leave the action arena. Those who exit from one arena however may return to the issue when it enters another action arena.
Voice	Be actively involved in opposing the project. Submit testimony at public hearings, get appointed to stakeholder forums and submit studies relevant to the process and issue. Organize opposition and post propaganda online. Meet with politicians. Stir public opinion.
Loyalty	Accept the process and believe that it will produce a ‘fair’ result. Alternatively, believe that one person’s participation has little value and invest time and energy into something in which s/he is more likely to have an impact.

Integrating the Analysis

In order to understand why local green groups chose to oppose regional alternative energy projects, it is necessary to view their decision through the IAD lens. It seems almost unorthodox, at times, for conversationalists to oppose projects that would ultimately have a positive effect on the environment and would lead to less pollution in the long run. It is the decision by energy companies to site their project in what the green group views as an *especially* damaging location that often riles the conservation group; they see a myriad of other options for siting. Even if on a personal level, individuals that are part of a conservation group think that employing more alternative energy is

preferable to less. As part of that group, they will have faith in the process and might even begin to actively oppose alternative energy plants.

Policy Arena

Since all actors in the following case studies are operating in the same policy arena, that context must be thoroughly understood. One of the major conflicts that will characterize these studies is the inherent friction created from the federal system. As will be explored in depth in the following chapter, many federal environmental regulations are written so as to ensure that the federal government is able to retain exclusive authority over their lands, despite their location. Thus, states are forced to accept a certain level of interference. States can, however, choose to make laws that are stricter than those imposed nationwide. For example, Utah has a higher smoking age -nineteen- than the rest of the country, where an individual can smoke once they are eighteen. Understanding the policy arena also incorporates an understanding of alternative energy type, siting conditions and specific area conditions, all of which are factors explaining why that particular area was chosen. Additionally, there should be an exploration of the preferred policy outcomes and how those match up with the actual outcomes, if they even match up at all.

Local Stakeholders	State Stakeholders	National Stakeholders
Citizens, user groups	User groups	User groups
Local politicians	State politicians	National politicians
Homeowner associations, special districts	Public Service Commission	Rent seekers
Energy companies	Utility Companies	Energy companies
Green groups and nonprofits	Green groups and nonprofits	Green groups and nonprofits
Planning and zoning commissions	State regulators and the judiciary	National regulators and federal courts
Farmers and ranchers		

Stakeholders

Once the context is understood, the agents acting in that context must be considered. Generally there are several key stakeholders, those at the local, state, and federal level. The beliefs, values, and preferences of these stakeholders must be reviewed and compared with their respective communities. Are these stakeholders benefitting from the proposed energy plant or what do they stand to lose if the plant is or isn't sited? What is the preferred outcome of the situation for each stakeholder, how do these outcomes match up with the realized outcome and how much control to these stakeholders have over the outcome? The positions of each of the players must also be considered, in addition the information available to them and how they use that information.

Generally, these players fall into four distinct categories. First, we will discuss citizens. These citizens may be user groups that enjoy access to these areas and the beauty or recreation it provides them. Second, are the politicians. Politicians will generally push for policies that got them elected to

office and will keep them in office. Also, politicians have the power to appoint those in the third category—bureaucrats and regulators. It is those in charge of the regulating agencies that decide how legislation passed by politicians is implemented and applied. These bureaucrats implement laws on at every level of government, from small homeowners' associations regulating the use of solar panels to national agencies managing wind energy proposals. Finally, interest groups can lobby politicians, bureaucrats, and citizens for their support. These interest groups may be on other sides of the issue and will lobby for outcomes that benefit them most at every level of government.

Each of these stakeholder types has a set of tools available to them; some tools are distinctly assigned based on stakeholder type, other tools are available to all types, regardless. Citizens can petition interest groups, donate money to causes, or join groups in order to expand their impact. Both citizens and interest groups share many tools in common. Citizens and interest groups can take advantage of politicians, especially during an election year. If they do not receive the answer they want from a politician, they can start a voter initiative. As part of these groups or as an individual, citizens can file lawsuits in order to have energy plant construction halted or ended all together. When proposals are put up for public comment, citizens and groups can use this period as a way of creating noise around a project proposal so it will receive more attention. Additionally, citizens and groups can protest projects or make themselves into an unofficial watchdog.

Politicians have several tools that are unique to their position. They can propose and pass legislation that will either help or inhibit projects. Under their legislative duties, politicians also have the power to implement taxes or fees and set mandates and goals that will affect projects. In order to gain support, politicians can make policy statements regarding their opinion on a certain problem or how they would like to see an outcome be achieved. They appoint bureaucrats and individuals at regulatory agencies. Politicians also control the funding that these agencies receive, which can in turn, dictate how powerful these agencies are.

Bureaucrats and members of regulatory agencies set and control many of the barriers to entry

for energy projects. Homeowners’ associations regulate covenants, conditions, and restrictions. Lower level bureaucrats implement nuisance laws, planning and zoning laws and set local procedures. Utility company bureaucrats set rates and make decisions over what type of energy they choose to buy. Further up the bureaucratic chain are policy implementers; here federal and state environmental institutions are created and framed.

All of these stakeholders have access to the following set of tools, some of whom have learned to use them expertly. Lobbying politicians is available to all stakeholders, even politicians, who can pressure each other to pass legislation. Stakeholders can also take issues to court and make the judiciary clarify legislation. Using media to change public opinion and garner support for your cause is a widely available tool, which must be used carefully. Social media has become a newer tool, and a favorite of conservation groups.

	Citizens	Interest Groups	Politicians	Bureaucrats & Regulators
Voice: Clamor, media, letter writing, initiatives	X	X	X	
Procedural Tools: Comments EIS/EA, zoning, studies	X	X	X	
Lobbying	X	X	X	X
Policy Tools: Rate setting, taxes, mandates, regulations			X	X
Courts: Nuisance laws, procedure	X	X		

Rules in Use

The next step is to analyze the rules that stakeholders adhere to. Rules may be formal listed rules such as legislation, or informal rules such as implicit community standards. Formal laws include all of the federal environmental institutions that have multiplied over the past fifty years. Any federal laws that govern businesses may also be part of these formal rules. In this text however, we focus only on energy siting. States also have their own set of formal rules. Some states such as Massachusetts and California have their own NEPA process, an environmental review procedure that will be explored in depth in the next chapter. Local counties, cities, districts, and even homeowners' associations may also have their rules regarding how energy can be sited and how the construction of these sites can occur. Informal rules involve the unspoken set of cultural values and societal norms that govern how people act (Smajgl, Leitch, & Lynam, 2009). These rules can include how individuals are expected to operate once they join an interest group or a regulatory agency. The way in which the four types of stakeholders interact is also governed by informal rules. Many of the rules describing how these groups should use the tools available to them such as the media, are governed by these unspoken standards. Also, using these rules in a more untraditional way than what has been described above, outside of their customary use, fits into this description.

Analyzing Outcomes

Once all of the above components are understood, then the final outcome of the situation can be analyzed. First, all of the possible outcomes should be recognized. Then, achieved outcomes should be compared with the policy objectives. It is important to note whether the results were satisfactory or important and if they had a lasting effect. What are the expected results of these outcomes and will they affect areas outside of the immediate policy arena?

In order to fully understand the stakeholders, their expected or preferred outcomes should be studied. Citizens will prefer whichever outcome will give them the most utility and benefit; this may mean cheaper utility rates, more energy options or greener energy options. Interest groups will want to

see their policies being implemented. Politicians will seek after rents or votes, possibly both at the same time. Bureaucrats will try to seek outcomes that will allow them to keep their jobs, meaning they will trend towards outcomes that have little negative impact or controversy.

The purpose of the following narratives is to analyze the patterns of interaction between green interest groups, energy siting companies, regulators, and regulating agencies, citizens, and politicians. By understanding the patterns of interactions, readers will be able more thoroughly understand the outcomes and why those outcomes matter. Additionally, readers will be able to understand how to apply the IAD framework in order to understand future green v. green conflicts.

Endnotes

¹ Since Hardin first wrote about the commons, scholars have distinguished between common property in which there are no relevant institutions (open access) and common property as a social institution complete with use rights, sanctions, and norms. All references in this discussion to the commons or common property should be understood as open access.

² Carrying capacity is not a fixed or even constant measure across all systems of grazing. The absolute number of cows able to use a particular pasture without destroying it varies according to timing of the grazing, rest periods, moisture, weather, etc.

Green vs. Green

Solar Power

In the 1980's Arnold Goldman set out to fulfill his dream of constructing the world's largest solar power generating plant. Two decades later, that dream is becoming a reality in California's Mojave Desert.ⁱⁱⁱ Recent growth has been slower than expected, with average annual rates as low as 3 percent between 1990 and 2007.^{iv} The story of Luz International Ltd. and its Ivanpah plant illuminates key factors that have limited growth in the industry. These include varying levels of political support and public opinion over time, increasingly restrictive regulatory requirements, and conflict between environmental groups themselves.

Luz International Ltd. began construction of the world's largest solar power plant in the 1980's. In the wake of the oil crisis of 1973, government support and public opinion both favored alternative energy sources like solar. Tax credits helped make the company's undertaking economically feasible, however, when these credits expired in the 1980s, Luz International was forced to declare bankruptcy. Two decades later, BrightSource Energy is set to complete the Ivanpah Solar Electricity Generating Station (SEGS), in California's Mojave Desert. The project is "currently the largest solar plant under construction in the world," and will produce enough power to serve over 140,000 California homes during peak hours.^v In contrast to earlier attempts, however, Brightsource now faces opposition from organized conservationists. These activist groups seek to halt development of the area, which they view as valuable wilderness and habitat for the desert tortoise, listed as threatened under the Endangered Species Act.^{vi} For such environmental groups, the fate of the desert tortoise is more important than the production of clean energy that would help meet the country's growing demand.

In order to produce solar power from its Ivanpah plant, BrightSource must overcome diverse obstacles including grassroots opposition, and both state and federal regulations. In attempts to comply with the California Environmental Quality Act and the federal regulatory process, the company completed mitigation plans including the installation of 50 miles of tortoise fencing at a cost of \$50,000 per mile. High costs also resulted from the company moving 38 adult tortoises off site, and made the employment of full-time biologists necessary.^{vii} As of June 2012, Brightsource estimated it had spent \$22 million caring for desert tortoises on or near the site and predicted it will spend an additional \$34 million to meet regulatory requirements.^{viii}

Despite Brightsource's costly attempts to comply, construction was halted after early estimates of the number of tortoises living on the site were found to be incorrectly low. To prevent negative impacts on the large number of tortoises living in the area, construction plans have been frozen until BrightSource Energy completes a new Environmental Assessment and can find a solution that satisfies green advocacy groups and regulatory requirements. Until that happens, high costs are being incurred on behalf of taxpayers who are funding this project through subsidies, and potential solar power is being lost.

In the Mojave Desert, and across the country where attempts to develop solar power are being made, meeting the nation's energy demand is being neglected in favor of conservationism. The hurdles faced by Brightsource demonstrate the problem of green vs. green; when environmental goals and groups come into conflict with one another resulting in poor outcomes. Although Brightsource's Ivanpah plant could produce clean, renewable energy for thousands of homes, some environmental groups believe protection of the desert tortoise should not be sacrificed for any reason. Over the years, such groups have successfully lobbied for restrictive regulatory requirements that make it difficult for companies to develop green energy sites, even on federal lands. As a result, potentially valuable green energy sources like solar power are being left undeveloped while millions of dollars are spent caring for tortoises.

Policy Recommendations:

- Limit ability of environmental groups to file frivolous lawsuits to reduce costs.
- Streamline compliance process for ESA and other environmental litigation.

ⁱⁱⁱ Ivanpah Solar Project Named CSP Project of the year. (n.d.). BrightSource. Retrieved March 2, 2012, from www.brightsourceenergy.com/images/uploads/press_releases/Ivanpah_CSP_Project_of_the_Year_A

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