

## Introduction

On December 12, 2015, meeting in Paris under the auspices of the UN Framework Convention on Climate Change, 195 nations signed what has been hailed as an historic climate agreement.<sup>1</sup> The agreement was recognized as a “turning point, that this is the moment we finally determined we would save our planet” and that the assembled nations “share a sense of urgency about this challenge and a growing realization that it is within our power to do something about it.”<sup>2</sup> The signatories pledged to reduce carbon emissions with the intent of keeping global warming below 2°C while pursuing the more ambitious target of limiting temperature increases to 1.5°C from preindustrial levels. Although the short 11-page agreement does not set legally binding emissions limits, the parties committed themselves to a regime that requires them to report on the progress of their commitments every five years beginning in 2020.<sup>3</sup>

The technical, economic, and political complexities of climate change meant that the conference would not, by itself, solve climate change problems and the agreement was not cheered by everyone.<sup>4</sup> Of most concern was the fact that even if every country’s pledge to reduce greenhouse emissions is honored and implemented, they would not be sufficient to reach the climate goals set by the convention.<sup>5</sup> There are, though, significant upsides to the agreement even if it fails to solve the problems of a warming Earth.

First, the United States is taking a leadership role on the global climate stage.<sup>6</sup> We are now in the international arena as a country committed to addressing the challenges posed by climate change. Although the United States has stepped forward in the past, its voice has been notably absent in recent years. Next, US leadership on the international front is supported by its domestic energy initiatives directed at climate challenges. US energy policy can no longer operate independently of and unconnected to climate change. Finally, while it is true that there are large pockets of skepticism about global

warming, particularly in US party politics,<sup>7</sup> it is also true that the majority of people both in the United States and in the world recognize the need for action as the Paris climate talks bring attention to this increasingly serious global problem. There is, then, coalescence and awareness of the international dimensions of climate change, the need for domestic commitments to address it, and a growing public concern about the importance of acting now.

Most relevant to this book, the Paris conference emphasized the need for continued investment in energy/environmental innovations. Indeed, of central concern to the success of the Paris talks was the necessity for financial commitments to address both adaptation and mitigation measures. Those financial commitments were based on the recognition that industry participation and further public–private investments were necessary.<sup>8</sup> Significantly, a group of more than 20 billionaires announced the formation of a multibillion dollar fund named the Breakthrough Energy Coalition<sup>9</sup> to create a new, clean energy mix for the future. The Breakthrough Coalition will work together with a group of countries through a project known as the Mission Initiative to accelerate the clean energy revolution.<sup>10</sup> More importantly, the need for investments in clean power is now being recognized in the marketplace as financial institutions such as Goldman Sachs, Citi, and Bank of America also announce multibillion dollar investment commitments<sup>11</sup> in a clean energy market that is currently estimated to be worth more than one-half trillion dollars.<sup>12</sup> The value and necessity of innovation and investment is the central theme of this book. More particularly, innovation and investment must take place along three dimensions – in technologies and new markets, in business practices, and in the regulations that monitor both the energy and the environmental sectors of our economy.

*Clean Power Politics* is a book about political ideas as much as it is a book about energy policy. The politics of clean power is three-dimensional. At the ground level, partisan politics occupies the contemporary discussion of clean power initiatives and that partisanship has given rise to the current litigation fighting the president's energy agenda. Next, politics moves from the local and partisan level to an examination of the political economy of clean power and energy more generally. Finally, and most broadly, the book discusses the politics of clean power and the direction of US energy policy in terms of democratic theory.

Given the magnitude and complexity of climate change and the interactions of that phenomenon with a century-old energy paradigm, the matter of politics is inescapable. It is also inescapable that our country, as well as the world, is experiencing an energy transition away from a dirty fossil fuel economy to a cleaner economy utilizing increasing amounts of renewable

resources and energy efficiency. The shift away from fossil fuels to cleaner ones has been under way for decades now. Until recently, the transition has been moving slowly because of barriers erected by incumbent energy firms and their regulators for over a century. Nevertheless, those barriers and resistance to change must be traduced to make the clean power transition occur more swiftly and more efficiently. In order to accomplish a more aggressive approach to clean power, a new political narrative is necessary. *Clean Power Politics* describes and contributes to that new narrative in terms of the democratization of energy.

The core political idea that our energy politics and policy must become more democratic is also an idea that is central to our political economy – our energy economy must become more competitive. More competition, in turn, means a greater variety of energy resources, producers, and markets as well as expanded choices for consumers. For too long, US energy policy has been narrowly focused and limited to a handful of energy resources, and shaped by a narrow corporate and industrial structure once called the “hard path” by Amory Lovins. This narrow structure contributed to a fossil fuel economy dominated by a limited number of producers and by passive consumers.

For the sake of argument, it can be conceded that the traditional hard path energy policy contributed to US power and its economy for most of the twentieth century. It must also be conceded that most energy policies focus on short-term economic gains while ignoring long-term environmental and social costs. The recently announced investigation of Exxon Mobil’s years-long concealment of information about the damaging effects of carbon emissions underscores the short-term nature of energy policy.<sup>13</sup> Generating short-term private gain and imposing long-term social costs is not a new phenomenon; however, it is a dispiriting one.

In a prior book, *Ending Dirty Energy Policy*, I argued that a clean energy transition is a good policy option, at least in part, because traditional dirty energy policy is no longer consistent with the energy policy principles that have been developing for decades. I also argued that since the energy crises of the 1970s, energy policy studies have been moving toward a clean power transition and eventually began supporting it through specific policy recommendations. Importantly, those energy studies increasingly recognized the environmental consequences of the energy fuel cycle.

There is a natural physical connection between the exploration, processing, transportation, consumption, and disposal of the natural resources that we use to produce energy and the environment. At every stage of the energy fuel cycle negative environmental consequences follow. The energy studies supporting a clean power future recognize the inextricable link between

energy and the environment. This book, then, is a broad and sustained argument that the United States is and should make the transition to a clean power economy. And, more importantly, energy and the environment should be conceived of and treated as a whole. They should not be considered and regulated independently of each other. Suffice it to say here that neither our environmental nor energy futures will progress much if that separation is maintained.

In the late 1960s and early 1970s, the environmental movement became part of our social consciousness. At that time, concerns about the environment were not perceived as being related to energy policy in any sharply defined way. Then, the 1970s energy crises focused the country on its growing need for energy independence particularly from Middle Eastern oil. Also during that period, the country experienced dislocations in energy markets. The natural gas market was destabilized and shortages resulted; the electric industry hit a technological plateau as electricity prices begin to rise even to the point of consumers worrying about “rate shock”; and the expansion of commercial nuclear power came to a standstill. The reverberations from all of these energy events continued through the last decades of the twentieth century as energy policymakers and regulators concentrated on energy independence while deemphasizing the environmental consequences of energy production and consumption.

By the first decade of the twenty-first century, it was clear that our energy policy was more complex than we once assumed. At one time, the hardcore belief was that more energy production and consumption would result in greater economic growth. That assumption began to be questioned as policymakers started to concentrate on environmental needs, economic gains from energy efficiency, and the availability of renewable energy resources as ways of decreasing oil imports and increasing energy independence. Where nineteenth- and twentieth-century energy policy was grounded in the assumption of a direct and positive correlation between energy and economic growth, twenty-first-century energy policy became grounded in need for energy and economic security together with the need for environmental sensitivity.

Evolving energy policy principles have contributed to a major energy transition from a fossil fuel economy to a clean energy future. Although states have been involved with the clean transition for decades now, the Obama administration’s energy and environmental regulations put the federal government at the front and center of this transition. More importantly, it does so by aligning energy and environmental regulation in ways that have not occurred before and in ways that are necessary for the transition to be successful. While

the coordination of energy and the environment is a necessary element of the transition, it brings with it political and policy complications to the evolving energy/environmental policy landscape. Still, the clean energy transition has only become more important as markets for clean energy products and services expand with the help of a new regulatory apparatus. *Clean Power Politics* explains these developments in three parts.

Part I discusses the preconditions needed for a successful clean power transition. For too long, the federal government has largely been absent from climate change initiatives. In the past, clean air regulations did address greenhouse gas emissions but did not do so comprehensively. In June 2014, the Obama administration issued a proposed rule directed specifically at fossil fuel, most notable coal, generating power plants. Known as the Clean Power Plan (CPP), the rule was finalized in 2015 and is now being implemented as well as challenged. With the election of Donald Trump to the U. S. presidency, it is likely that the CPP will not survive. Nevertheless, the regulation is instructive about a sound future energy policy. The objective of the rule is to reduce greenhouse gas emissions, particularly carbon dioxide, by 32 percent below 2005 levels. As explained in Chapter 1, the CPP can be a significant advance for federal leadership both domestically and globally. Importantly, the CPP has been issued by the Environmental Protection Agency rather than from a federal energy agency, thus emphasizing the need to merge energy and environmental policies and regulations.

The second precondition for a transition to a clean power economy is to more precisely identify those energy resources that can assist the transition and distinguish them from those resources that perpetuate the traditional energy policy that relies on large-scale, capital-intensive centralized energy producers and relies upon dirty fossil fuels. Traditional energy policy is no longer consistent with current environmental needs; nor is it any longer consistent with the contemporary energy policy. In Chapter 2, clean power resources are defined and metrics for assessing progress on an energy transition are discussed.

The third precondition for the clean power transition is to understand the economic and political contexts in which the transition is being conducted. At its core, because of its significance as an economic input, energy is a crucial element of any nation's political economy. Today, in the United States, as well as other developed nations including China, clean energy resources are becoming an increasingly important part of an energy portfolio. Chapter 3 explains how a clean power future is shaped by and will continue to shape our political economy.

Once the preconditions for an energy transition have been specified, Part II explains how the transition will occur by first focusing on the necessity of

innovation. Innovation is discussed in three contexts. First, Chapter 4 describes the energy innovation process, the necessity of government financial and other support, and the central importance that markets will play in adopting clean energy technologies. Next, Chapter 5 discusses the business innovations that traditional electric utilities must adopt in order to contribute to that transition. Finally, Chapter 6 explains the necessary role for innovative government regulation in the energy sector to complement new technologies and new business practices.

Historically, energy industries and regulators worked from the same script. Both operated with a single goal in mind. Most simply, energy businesses and their regulators promoted the production and consumption of energy. Because of gains to be made from energy conservation and energy efficiency, the direct and positive correlation between energy and the economy no longer holds. All consumers can continue to rely on the availability of energy, continue to live and operate their businesses as before, and, at the same time, pay less for that energy. Our previous belief in the need for continued expansion of energy production must give way to a smarter and more efficient use of energy. Energy firms and their regulators must recognize that the traditional energy paradigm has shifted away from dirty fuels to cleaner fuels and to increased efficiencies and reduced energy consumption.

The book closes with Part III, which explains the transition to a clean power future. Together with innovations in technology, business practices, and regulations, a new political narrative about energy and the environment is revealed. In brief, that new politics is more democratic in two ways. First, energy markets are becoming more competitive. Incumbent energy firms that have long grown accustomed to government regulatory financial support now recognize and accept the fact that they must participate in a more competitive sector with a variety of new entrants. These new entrants provide a greater array of energy services and products at a smaller scale, at more localized sites, and will sell efficiency as well as energy.

Second, not only decision-making power over the energy future will shift away from large-scale incumbents to smaller new entrants but also decision-making power will shift to consumers themselves. Consumers of the future will enjoy more energy choices than they have had in the past and they will have greater control about their energy budgets and they will play a more significant role in energy planning and in the administration of energy regulations. Increasing energy market competition, the expansion of choices available to consumers, and the development of new energy resources and products are all part of the democratization of energy.