# The Costs of Inaction: The Risks of Failing to Implement the Clean Power Plan

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There has been much discussion in recent months about the future of the domestic energy system. Amid growing concerns about climate change, the Obama Administration has encouraged cleaner energy development, with increased use of renewable energy systems in place of dirtier fossil fuels. Seeking to accelerate this shift towards renewables, the Administration last month published the Clean Power Plan, which aims to reduce carbon dioxide emissions from existing fossil fuel power plants by 32 percent below 2005 levels by 2030. To this end, the Clean Power Plan requires each state to develop strategies for controlling its power sector emissions. States that don't do so will have emissions controls imposed on them by the federal government.

Not surprisingly, the Clean Power Plan has been vehemently opposed by numerous states, as well as industry. Less than a month after its publication in the *Federal Register* on October 23, already more than 15 lawsuits have been filed challenging the Clean Power Plan. One of those suits is being led by Texas, along with West Virginia, and 24 other states. In announcing the suit, Texas Attorney General Ken Paxton warned that the Clean Power Plan "will dramatically raise…electric bills and threaten the reliability of the electric grid," by accelerating retirement of coal-fired power plants. Similar concerns have also been raised by other state policy-makers and industry groups. This week, the American Coalition for Clean Coal Electricity and six other groups published a report indicating that energy prices may increase by up to 20 percent (at times of peak demand) in some states under the Plan.

These claims have been disputed by environmentalists and others, who point to analysis by the Environmental Protection Agency, indicating that prices could actually fall under the Clean Power Plan. Regardless of whom you believe, it's important to keep in mind that failing to implement the Clean Power Plan could have its own costs, associated with climate change. As noted above, the Plan aims to reduce carbon dioxide emissions from existing fossil fuel power plants. Those plants are, by far, the largest domestic source of greenhouse gases which contribute to global warming.

The Intergovernmental Panel on Climate Change has warned that, unless greenhouse gas emissions are reduced, global temperatures could rise by up to 7.8$^{o}$C by 2100 (compared to pre-industrial levels). Rising temperatures will be accompanied by shifts in the amount, timing, and distribution of precipitation. Regional differences will become more pronounced, with wet areas expected to become wetter, and dry areas drier. In all areas, precipitation will increasingly be concentrated into fewer heavy downpours with longer dry periods in between, leading to prolonged droughts followed by flash floods. Other extreme weather events, including hurricanes and tornados, may also become more frequent.

These changes in the climate will have major impacts on the energy system. A new study, published last month by the Department of Energy (DOE), found that "[s]ome energy infrastructure assets have already suffered damage or disruption…from a variety of climate-related impacts, such as higher temperatures, rising sea levels, and more severe weather events." Such disruptions are likely to become more frequent and severe over coming decades as temperatures continue to rise.

Ambient temperatures influence various aspects of the energy system, including both the level of energy demand, and the ease of

energy production. On the demand side, temperature changes and other climatic variations often cause shifts in energy usage, particularly for residential heating and cooling. Here in Texas, for example, high summer temperatures lead to increased use of air conditioning resulting in a spike in energy demand. Temperature and precipitation patterns may also affect energy production by altering the amount of water, biomass, and other resources that are available for generation.

Given the above, the climate is a key consideration in designing energy systems, with infrastructure tailored to account for regional differences in temperature and precipitation. For example, the design of thermoelectric power plants' cooling water intakes is based, in part, on the expected range of air and water temperatures. In the southeast, where rates of precipitation are high, many large plants incorporate once-through cooling technologies that require large amounts of water. In other regions, where water is scarce, plants may incorporate closed loop systems that reuse cooling water.

With a changing climate, existing energy systems may have to be re-designed and/or new systems established, so as to avoid service disruptions. Here in Texas, for example, increasing temperatures and decreased precipitation are likely to reduce the efficiency and capacity of existing thermoelectric power plants. Operation of these plants may also be negatively impacted by hurricanes and other extreme weather events. At the same time as energy production declines, demand for energy is likely to rise, placing added stress on the system. This could lead to higher energy prices and undermine grid reliability.

The risks to energy systems could be reduced by avoiding further emissions of greenhouse gases that contribute to climate change. The Clean Power Plan is a key component of ongoing efforts to control emissions and, while the Plan may not be sufficient to prevent future temperature increases, it does represent an important first step towards that goal. Implementing the Plan may well have costs, particularly in the short-term. However, the longer-term costs of failing to act could be even greater.

Clean Air Act · Clean Power Plan · climate change · coal · Department of Energy · energy · epa · greenhouse gas emissions · Texas · West Virginia

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