Due to its enormous scale, the problem of regulating climate change contains many complications that cannot be addressed by simple models of an environmental externality. This dissertation seeks to address this complexity and shed light as to how these facets of the climate change problem reflect on optimal policy. Firstly, our incomplete knowledge of climate change introduces uncertainty that should be accounted for when picking the optimal climate policy. The first chapter of the dissertation addresses the issue of uncertainty by examining the concept of climate change skepticism - a belief that climate change may not be emission driven. The second chapter focuses on uncertainty in fossil fuel prices, examining their impact on the investment into renewable energy innovation. The remainder of the thesis is focused on another complication, the impact of fossil fuel scarcity on climate change policy. The third chapter examines the optimal renewable subsidy when both oil and coal are also present in the market. The last chapter, studies the effect of a monopolist power of oil exporters on the developed world’s climate policies.

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