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Climate Change Mitigation, Technological Innovation and Adaptation: A New Perspective on Climate Policy

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Bosetti, Valentina, Carlo Carraro, Emanuele Massetti, and Massimo Tavoni, eds. *Climate Change Mitigation, Technological Innovation and Adaptation: A New Perspective on Climate Policy*. Northampton: Edward Elgar, 2014. xiv + 199 pages. Hardcover, \$110.00.

The book *Climate Change Mitigation, Technological Innovation and Adaptation* outlines the complexities associated with addressing climate change including economic structure, technological innovation, and geopolitical willpower. By focusing on global economics, the text considers barriers to climate policy and future energy transformation away from carbon to more renewable sources. Additionally, the authors highlight the role of innovation in mitigation and adaptation.

The main themes of the book emphasize the World Induced Technical Change Hybrid model (WITCH) which assesses both environmental and economic factors related to climate change. Acting as a simulation, the integrated model evaluates a wide-range of economic and environmental influences including research and development, carbon-free technologies, carbon taxes, and different aspects of climate policy. The overarching goal is to evaluate different outcomes based on predetermined interventions. In theory, WITCH incorporates both a top-down economic growth and bottom-up policy strategy, as well as provides a challenging critique of modern adaptation and mitigation techniques. The authors consider different methods by which global reduction in carbon dioxide may occur through innovative technologies. In addition to tackling the issue of uncertainty and the latest developments in the green energy sector, the text provides a basic foundation in climate literacy within the subfield of applied climate economics.

As the world approaches, or by some accounts has exceeded, a tipping point in terms of carbon dioxide emissions, the well-being of our planet depends on our ability to mitigate the causes and adapt to the changes in the climate system. While the book offers general knowledge of climate science, little attention is given to the consequences of inaction. Detailed economic and political analysis is provided, but further discussion as to the impacts seems warranted. The impacts are greater than economic stability, for instance, there are the issues of human health, climate extremes, and geopolitical instability. The precautionary principle is applied, suggesting that in order to reduce the cost of climate stabilization, collaborative action is needed. These assertive statements are necessary to move beyond political talking points and work towards immediate and effective interventions to address not only the causes but also the consequences of climate change.

WITCH is discussed within the context of other models (e.g. The Global Timber Model) and used as a framework to assess mitigation and adaptation strategies. While the text notes that forests are a major sink of carbon dioxide, other carbon sinks (e.g. marine ecosystems) are not outlined. While these may not have the greatest role in storing carbon dioxide, framing the discourse within the larger ecosystem adds value. The writers focus on economic benefits and

provide a detailed synthesis of technological fixes and policy-related opportunities; however, they do not consider other potential benefits to climate mitigation such as an improved quality of life (e.g. human health associated with reduced carbon dioxide emissions). While appropriate, the cost-benefit approach to mitigation also does not consider cultural influences that may inhibit or enhance innovation.

Climate Change Mitigation, Technological Innovation and Adaptation provides readers with a detailed evaluation of some of the barriers to progress in terms of addressing the causes and consequences of climate change. The economic structures, and often regional focus of climate policy, continue to serve as limiting factors. For those interested in exploring the topic in greater detail, the authors provide a robust list of literature associated with WITCH and climate change economics and policy. This book will appeal to academics, researchers, and policy makers interested in climate change policy and applied economics.

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