Carbon Capture and Sequestration: Integrating Technology, Monitoring and Regulation

The nature and subject of this book are clearly very timely following the release of the 2007 Fourth Assessment reports by the Intergovernmental Panel on Climate Change (IPCC) and its dire predictions of climate change in the event of unmitigated, ‘business as usual’ anthropogenic carbon emissions. With a projected need to decarbonize the global economy by 50% or more by the middle of the 21st century, then the need for successful carbon capture and sequestration (CCS) technologies is paramount. The book is described as a ‘volume’, implying that it is a part of a series on this subject, but this is not apparent from the Preface. Nonetheless, the objective of the text is to describe the current state of technologies and to assess the technical, legal, and socioeconomic forces required to enable CCS to become a viable atmospheric CO$_2$ reduction strategy. For those hoping that the text will cover all aspects of CCS, including photosynthesis-based sequestration, afforestation, biofuels, microbial CO$_2$ sequestration, etc. then some disappointment is in store. More accurately, the title of the text should be ‘Carbon Capture and Geologic Sequestration’ as the book is almost entirely dedicated to this aspect of CCS to the exclusion of others. However, there is comprehensive coverage on the process of geologic CCS including capture of CO$_2$ from industrial and power generation sources, transport of CO$_2$ to a sequestration site, as well as CO$_2$ injection and storage in subterranean and sub-seabed geological formations.

The book is divided into two parts: the first focuses on carbon separation, capture, monitoring, and sequestration technologies; and the second on the legal and environmental issues that need to be addressed to implement such technologies into future fossil fuel-based energy management systems. The second part of the book is largely American-centric with limited focus on aspects of international regulatory and legal drivers and socio-economic factors. The book omits reference to the very latest IPCC 2007 information—and instead refers the IPCC’s Third Assessment, dating back to 2001. The IPCC’s Working Group III report of the Fourth Assessment released in May 2007, which focuses on mitigation technologies and strategies for prevention of adverse climate change, gives a broader perspective of CCS technologies and is recommended reading in conjunction with this text.

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