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Soggetti	Geological carbon sequestration Carbon dioxide mitigation Greenhouse gas mitigation
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Note generali	Description based upon print version of record.
Nota di bibliografia	Includes bibliographical references (p. 195-210) and index.
Nota di contenuto	Cover; Contents; Preface; Acknowledgements; 1 The context; Climate change science: the controversies; Global and national efforts to take action on climate change; About this book; 2 CO ₂ and climate change; Greenhouse gases; The nature of carbon dioxide; Carbon dioxide and earth's history; Weather versus climate; Causes of pre-human climate change; Distinguishing natural climate change from anthropogenic climate change; Sea level change as evidence for global warming; Global warming and extreme weather events; Act now or later?; Conclusions; 3 Where and why are we producing so much CO ₂ ? The production and use of energy and its impacts on CO ₂ emissions: an overviewThe use of fossil fuels; Two key sectors: electricity production and transport; Conclusions; 4 Technology options for decreasing CO ₂ emissions; Solar energy; Wind power; Hydroelectric power; Ocean energy; Biomass; Geothermal energy; Nuclear power; Sequestering CO ₂ through carbon capture and storage (CCS); Conclusion; 5 The mitigation mix; Population growth and the energy mix; Biofuels in the mix; Land requirements of different technologies;

Energy and water; Renewable energy in the energy mix
Non renewable energy in the energy mix
The energy mix in the medium to long term; Conclusions; 6 Where and how can we capture CO2?; Directly removing CO2 from the atmosphere; Capturing CO2 emitted from various sources; CCS and gas production; CCS and coal and gas-fired power generation; Post combustion capture; CCS and gasification; CCS and industrial processes emitting CO2; Technologies for separating CO2 from emissions; Conclusions; 7 How can we transport CO2?; Key issues in transportation of CO2 via pipelines; CO2 transportation by road, rail and sea; Reducing transportation costs: CO2 hubs
Conclusion
8 Storing CO2; Why geological storage over other forms of storage?; Identifying suitable geological CO2 storage sites: sedimentary basins; Features of a sedimentary basin that may make it suitable for storage; Storage of CO2 in depleted oil and gas fields; Storage in deep saline aquifers; Storage in coals; Storage in basalts; Storage in serpentinites; Assessing storage capacity; National assessments of storage potential; Conclusions; 9 How do we know CCS will be effective?; The nature of risk assessment; Geological risk; Existing natural gas storage facilities
Natural accumulations of CO2
Knowledge derived from large scale commercial CO2 storage projects; Location-specific risk assessment: characterising the site; The risks of earthquakes; The risk to groundwater; Monitoring; The regulatory regime; A 'social licence' for CCS?; 10 The cost of clean energy; The interplay of costs; The costs of capturing CO2 emissions from non-power sources; Transport and associated costs; Storage costs; Indicative total costs for CCS; Cost estimates derived from operational CCS activities; Costing uncertainty; Comparison costing; Conclusions
11 The technology and the politics of clean energy

Sommario/riassunto

Outlines the global challenge of decreasing greenhouse gas emissions.
