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Aurelia Rybak · Aleksandra Rybak

The Role of Clean Coal Technologies in Energy Transformation and Energy Security

Ensuring Energy Security: The Key Role of Clean Coal Technologies in the Energy Transition

Springer

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Preface

The presented book discusses issues related to clean coal technologies and their role in the energy transition. The analyses carried out concern the most important countries still relying on coal, i.e., China, India, Australia, and the USA, with particular emphasis on the European Union. Poland was considered the most representative country in this case, due to the available coal resources in its geographical area, as well as due to the large share of coal in the structure of energy production in this country. Additionally, Poland, as one of the EU member states, has an exceptionally complicated task—the energy transformation and decarbonisation of the energy system by 2050. The restrictive standards and expectations of the EU towards its members put Poland in an unprecedented position on a global scale. Either Poland will apply CCT and renewable energy and turn out to be a great winner, or it will suffer a failure, the main consequences of which will fall on its citizens. If the implementation of CCT is successful in Poland, there is a great probability that it will be successful in every country in the world.

The study focusses on coal because clean coal technologies have been created for coal and it is mainly coal that is the subject of most global decarbonisation treaties. However, other fossil fuels also generate the same harmful substances during combustion. In the case of crude oil, CO_2 emissions are only 20% lower, and for natural gas by about 50%. In the near future, these energy carriers will also have to disappear from the energy generation structure. Therefore, it will be necessary to develop technology that allows the use of fossil fuels in an ecological way, and the sooner actions are taken to build them, the better it will affect the stability in energy systems of countries around the world.

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