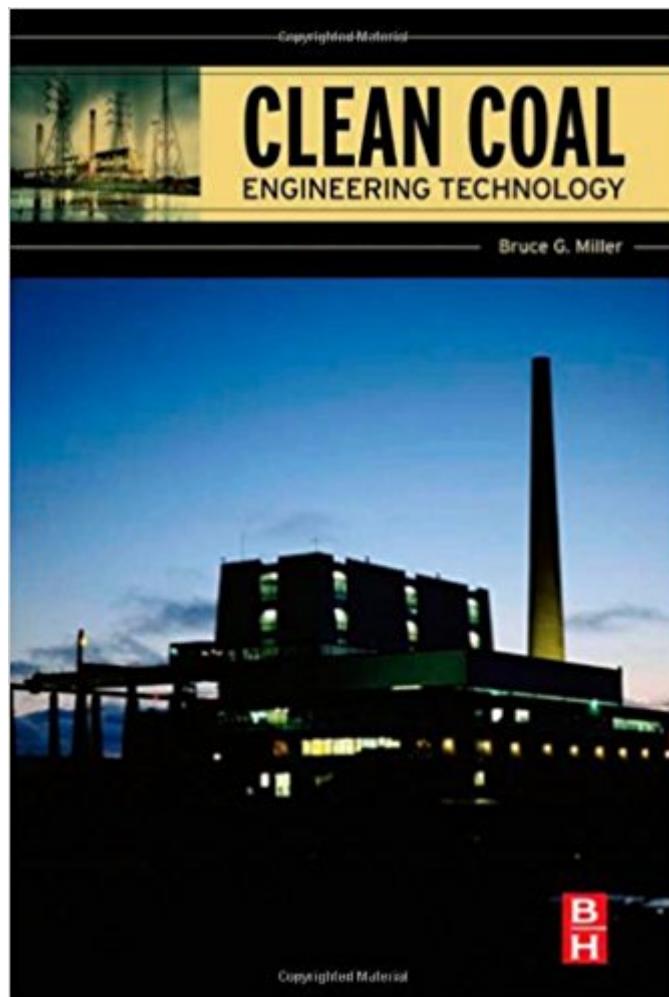


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# Clean Coal Engineering Technology



## Synopsis

Concern over the effects of airborne pollution, green house gases, and the impact of global warming has become a worldwide issue that transcends international boundaries, politics, and social responsibility. The 2nd Edition of Coal Energy Systems: Clean Coal Technology describes a new generation of energy processes that sharply reduce air emissions and other pollutants from coal-burning power plants. Coal is the dirtiest of all fossil fuels. When burned, it produces emissions that contribute to global warming, create acid rain, and pollute water. With all of the interest and research surrounding nuclear energy, hydropower, and biofuels, many think that coal is finally on its way out. However, coal generates half of the electricity in the United States and throughout the world today. It will likely continue to do so as long as it's cheap and plentiful [Source: Energy Information Administration]. Coal provides stability in price and availability, will continue to be a major source of electricity generation, will be the major source of hydrogen for the coming hydrogen economy, and has the potential to become an important source of liquid fuels. Conservation and renewable/sustainable energy are important in the overall energy picture, but will play a lesser role in helping us satisfy our energy demands today. Dramatically updated to meet the needs of an ever changing energy market, Coal Energy Systems, 2nd Edition is a single source covering policy and the engineering involved in implementing that policy. The book addresses many coal-related subjects of interest ranging from the chemistry of coal and the future engineering anatomy of a coal fired plant to the cutting edge clean coal technologies being researched and utilized today. A 50% update over the first edition, this new book contains new chapters on processes such as CO<sub>2</sub> capture and sequestration, Integrated Gasification Combined Cycle (IGCC) systems, Pulverized-Coal Power Plants and Carbon Emission Trading. Existing materials on worldwide coal distribution and quantities, technical and policy issues regarding the use of coal, technologies used and under development for utilizing coal to produce heat, electricity, and chemicals with low environmental impact, vision for utilizing coal well into the 21st century, and the security coal presents. Clean Liquids and Gaseous Fuels from Coal for Electric Power/Integrated Gasification Combined Cycle (IGCC) systemsPulverized-Coal Power PlantsAdvanced Coal-Based Power PlantsFluidized-Bed Combustion TechnologyCO<sub>2</sub> capture and sequestration

## Book Information

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## Customer Reviews

"This is the second book by Bruce Miller and the author describes it as an update of the first book Coal Energy Systems published by Elsevier in 2005. The title has been changed to reflect the greater emphasis on clean coal technologies to reduce the environmental impact of coal utilization. It is very much an update of the 2005 text, with all of the chapters and sections from the original included and updated by substituting more recent data, for example on coal and energy reserves and consumption and the status of coal technology developments particularly in the United States. [T]he book provides a good overview of the regulatory and environmental challenges facing the coal industry in the United States, and the programs and technologies being developed to address them." --AIE's EnergyNews, December 2011, Volume 29, No. 4, Page 106

Mr. Miller (B.S. and M.S. Chemical Engineering) has more than 30 years' experience in energy research and development, combustion systems, fuels characterization, preparation and handling, hardware development and testing, and emissions characterization and control. He has been PI or co-PI of over \$44 M in sponsored research. He is the author of four books published by Elsevier

This was a good book for background information, but that was about it. I would prefer stronger correlations be made to chemical reaction engineering.

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