

Clean Coal Technologies and Environment

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Coal provides 68% of all the primary energy resources in the world as well as in Alberta. At the same time it provides 80% of electricity in many countries such as India, China, Australia and US. In Alberta also it provides about 85% of electricity. There are fast developments taking place in the field of renewable energy sources such as biomass, wind, solar and geothermal. However, the proportional use of coal is not going to change significantly over next 30-40 years and we need to see how we can achieve more environmentally friendly usage of coal.

Coal does not have a public perception of being a clean fuel. This might have been true in past with chimneys dark plumes, but it has been continuously improving leading to very clean technologies available at present. A number of clean coal technologies have been developed over last few decades to reduce emissions such as NO_x, SO_x, mercury and particulate matter from coal utilisation. In recent years, climate changes resulting from emission of Greenhouse Gas emissions have become an important environmental issue, socially, politically and technically. This has impacted the use of coal and developments of carbon capture and sequestration technologies in order to reduce or eliminate completely these emissions leading to Zero-Emission power plants of the future. This presentation will present a chronological development of these technologies and some discussions on the relevance to Alberta and Canada.