

TECHNOLOGICAL AND ECONOMIC PARAMETERS OF CO₂ CAPTURE FROM POWER PLANT FLUE GASES

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The report deals with the technological and economic (cost) parameters of the release, capture and storage of the carbon dioxide in the flue gases of fossil fuel (coal, natural gas) fired power plants. It makes comparisons and generalisations through processing a wide range of data quoted from the literature.

As the first step, the topicality of the issue is justified by illustrating the role of fossil fuels in the energy supply of the more remote future with forecast data. During the technological development of power plants in the last 50 years, block capacity has increased considerably, 5-8 times, with thermal capacity increasing by 50-60%, as a result of which specific carbon dioxide release has decreased by 30-40%. The report briefly refers to the theoretical possibility of the sequestration of the carbon dioxide captured from flue gases in geological formations.

The enhancing effects of the implementation of CO₂ capture on investment costs and its reducing effect on net power plant output and utilization (thermal) efficiency are also analysed in the report. The efficiency of CO₂ capture and the parameters of atmospheric carbon dioxide emission are also given attached to fuel types and technological solutions.

As a parameter of the technological solutions, it is indicated what specific cost (USD/t_{CO2}) is demanded for CO₂ capture or avoidance, and to what extent it raises the costs of electricity production.

The condition of development financing is state subsidy without which reasonable economic considerations prefer power plants without capture. According to expert opinion, the first specific risks of construction and capture should also be borne by the state. It is expected that these risks can only be eliminated in the long run. In all probability, it will be indispensable to compensate both first users and initial stakeholders.