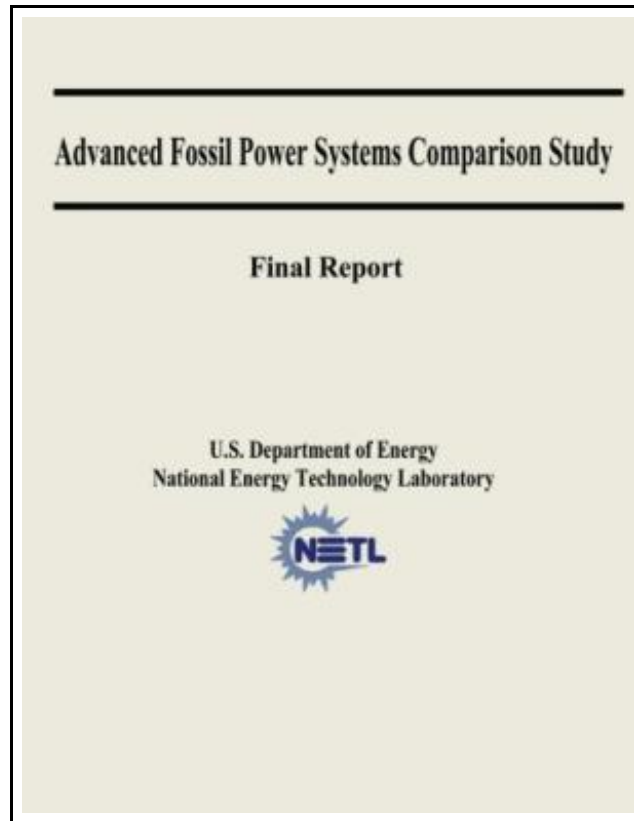


# Advanced Fossil Power Systems Comparison Study Final Report



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## ***Reviews***

*This publication is definitely not simple to begin on studying but quite fun to see. It really is full of knowledge and wisdom I am just effortlessly can get a satisfaction of studying a created pdf.*  
**(Alfreda Bradtke)**

## ADVANCED FOSSIL POWER SYSTEMS COMPARISON STUDY FINAL REPORT



CreateSpace Independent Publishing Platform. Paperback. Book Condition: New. This item is printed on demand. Paperback. 320 pages. Dimensions: 11.0in. x 8.5in. x 0.7in. Aspen Plus (version 10. 2) simulation models and the Cost of Electricity (COE) have been developed for advanced fossil power generation systems both with and without carbon dioxide (CO<sub>2</sub>) capture. The intent was to compare the cycles based on using common assumptions and analytic standards with respect to realizable performance, cost, emissions and footprint. Additionally, commercially available (or near term) reference plants were included for comparison. The advanced fossil power systems considered were: (both natural gas and coal fueled) Hydraulic Air Compression Cycle (HAC); Rocket Engine Gas Generator Cycle; Hydrogen Turbine (air) Cycle; Hybrid Cycle (Turbine Solid-Oxide Fuel Cell); Humid Air Turbine Cycle (HAT) (CO<sub>2</sub>) capture not considered. Reference Plants developed based on previous NETLEG and G studies included: Pulverized Coal (PC) Boiler; Natural Gas Combined Cycle (NGCC); Integrated Gasification Combined Cycle (IGCC). Capital cost estimates were developed for the above cases using data from the EG and G Cost Estimating Notebook (version 1. 11) and several contractor reports. The format follows the guidelines set by EPRI TAG methods. Individual equipment sections were based on capacity factored techniques. The costs are reported in first quarter 2002 dollars. The total capital requirement includes equipment, labor, engineering fees, contingencies, interest during construction, startup costs, working capital and land. Other assumptions are provided in summary tables in Appendix B which contains the COE spreadsheets developed for all cases. Results are compared in Table 1 (Natural Gas Cycles) and in Table 2 (Coal Cycles). These results demonstrate the following key observations: For all systems, (CO<sub>2</sub>) capture entails major cost and efficiency penalties; Only Hybrids perform at or near the Vision 21 efficiency goals summarized in Appendix D; Rocket Engine cycles have lower...



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