

Since its inception, Burns and Roe has been acknowledged for its accomplishments in the engineering, design, and construction of fossil-fueled generating stations and the application of advanced technologies to these power plants. We have completed more than 170 units totaling over 120,000 megawatts (MW) of capacity, associated transmission and distribution facilities, and the related supporting services essential to the development, financing, permitting, engineering, construction, and operations of these power projects.

In addition to engineering, procurement, design, and construction services, supporting activities include:

Burns and Roe has completed power projects utilizing many different types of designs, technologies, and fuels. Burns and Roe is established as an industry leader and innovator in designing plants that use all types of solid fossil fuels, including bituminous coal, lignite, and brown coal. The Burns and Roe coal-fired project portfolio includes over 70 stations totaling more than 20,000 MW.

Our experience has placed us at the forefront of the development of emerging technologies, including coal and vacuum resid gasification, and Integrated Gasification Combined Cycle (IGCC) technology. The extensive IGCC experience of Burns and Roe and its personnel is represented across the Americas, Europe, Asia, and Australia.

- Site selection studies
- Environmental impact assessments
- Flue gas abatement programs
- Environmental and licensing support services
- Independent engineering
- Owner's engineering
- Assistance in project development

Australia

Confidential Client – IGCC Gasifier Technology Selection - Burns and Roe is currently supporting a development program to secure project funding under the Australian Federal Government's Low Emissions Technology Fund (LETF) program for a 200 MW IGCC demonstration project. The project includes IGCC with Carbon Capture and Storage (CCS) via geo-sequestration. Our responsibilities include the development of technical and performance specifications for the gasification process, including the CO to CO₂ shift reaction for CO₂ separation and removal, the evaluation and conditioning of gasifier supplier proposals, and the selection of the recommended gasifier technology for the IGCC CCS program.

Queensland, Australia – IGCC Feasibility Study - Burns and Roe completed an engineering feasibility study for a 400 MW IGCC project, including CO to CO₂ shift for CO₂ geo-sequestration. The study included technology and commercial readiness assessments, conceptual design of the gasification process and combined cycle blocks, performance estimates, capital and operating cost estimates, and availability / reliability projections. This study also included an evaluation of the economic and technical feasibility of developing a small-scale 50 MW IGCC / carbon sequestration demonstration facility.

China

Burns and Roe, through a Technology Services agreement with Texaco Syngas, Inc. and Texas Development Corp., participated in the following Chinese projects:

CNTIC/Weihe and CNTIC/Dalian Chemical and Fertilizer Plants – Burns and Roe developed the preliminary Design Basis for both of these ammonia production projects. Our scope of work included developing feedstock feed requirements, gasifier operating conditions, synthesis gas composition (including waste gases – such as H₂S, CO₂, NH₃, and nitriles), thermal efficiency, and quench water requirements. We also reviewed detailed engineering P&IDs and vessel materials selection. Gasifier feed is Chinese bituminous coal at Weihe and heavy oil (vacuum resid) at Dalian.

Shanghai Coke and Chemical Plant, Shanghai – This facility, which went commercial in 1997, produces acetic acid and other chemicals using bituminous coal as a feedstock. The plant contains four quench gasifiers, three for on-site production of acetic acid and a fourth for export of synthesis gas to a nearby chemical plant. Burns and Roe's scope of supply was similar to that for the CNTIC/Weihe and CNTIC/Dalian Plants, with additional assistance provided to the Chinese engineering contractor in selection of the gasifier internal refractory insulation and the burner which were produced in the U.S.

Americas

Houston Light and Power Company – Burns and Roe personnel participated in the development of various alternatives for co-production IGCC applications using the Shell gasification process as a basis. The study evaluated various cycles and production of various petrochemicals.

IGCC Study for Argonne National Laboratory – Burns and Roe estimated capital and operating costs for integrated gasification combined cycle power generation systems. The study results were used by Argonne National Laboratory to compare, on a common basis, various advanced methods of power generation.

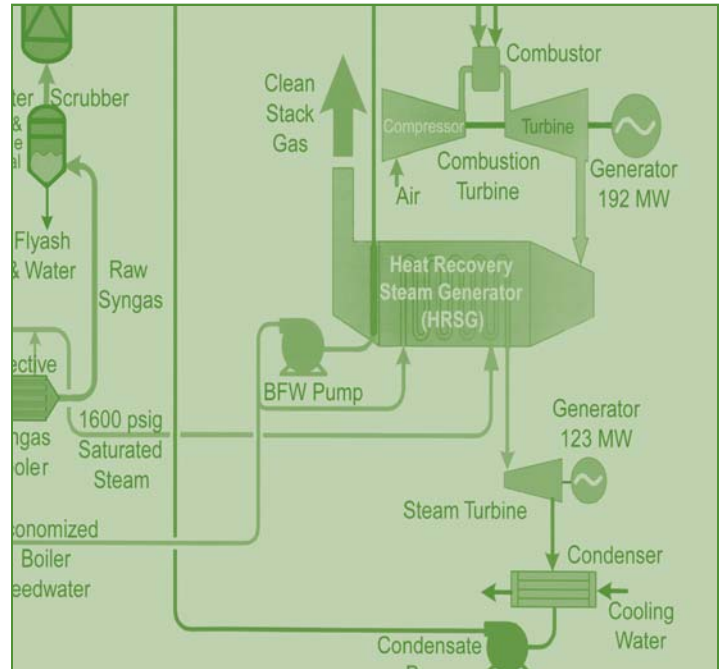
Electric Power Research Institute (EPRI) Study on the Co-production of Methanol and Electric Power – Burns and Roe prepared an IGCC reference plant conceptual design and cost estimate for EPRI for a plant designed to co-produce methanol and electric power. The study was based on the Texaco Coal Gasification Process and the Low Pressure Methanol Synthesis Process.

Medium BTU Coal Gasification Assessment Program for New Jersey – Under a U.S. Department of Energy grant, Burns and Roe studied the technical and economic feasibility, as well as the regulatory, institutional, and environmental issues, of District Gasification using coal to produce a medium BTU (heating value of approximately 300 BTU/SCF) gas in plants ranging in capacity from 20-40 billion BTU/day as an alternative to natural gas.

Texaco Syngas, Inc. and Texas Development Corp. – Under an engineering services agreement with Texaco, Burns and Roe performed feasibility studies, conceptual engineering, and cost estimates for coal and orimulsion gasification projects, as well as detailed analyses for the licensing of coal and vacuum residual gasification projects for multiple locations.

Europe

IGCC Project Due Diligence – Burns and Roe personnel provided due diligence services for the acquisition of a 24% equity interest in the 265 MW Api Energia IGCC project in Falconara, Italy.



At a Glance

Founded:	1932
Headquarters:	Oradell, NJ

DOMESTIC OFFICES

Oradell, NJ
 Mt. Laurel, NJ
 Washington, DC
 Virginia Beach, VA
 Los Alamos, NM
 Chicago, IL
 Idaho Falls, ID

INTERNATIONAL OFFICES

Singapore
 Taipei, Taiwan

The Legacy of Burns and Roe

Burns and Roe was founded in 1932 as a partnership between Ralph Roe and Allen Burns. From the beginning, Ralph Roe managed the firm with a vision of exceptional people focused on creating a global service company that provided complete customer satisfaction. In 1963, Kenneth Roe became President, succeeding his father. He led Burns and Roe through a period of unprecedented growth built on strategic customer alliances. He

never lost his vision of empowering talented people to meet the challenges of a growing world. Today, under the leadership of Keith Roe, Burns and Roe's Chairman and CEO, the Burns and Roe legacy lives on. Technically complex facilities remain the centerpiece of Burns and Roe's core capability of responsive service. Through three generations of family leadership, Burns and Roe continues to be a best-in-class service company.



Burns and Roe Capabilities

- Consultation and Studies
- Preliminary Engineering
- Plant Retrofit Programs
- Detailed Engineering and Design
- Construction Services
- Services to the Financial Community
- Procurement Services Supply Chain
- Plant Decommissioning



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