

PROJECT SUMMARY

Name of Applicant: Pratt & Whitney Rocketdyne, Inc. (PWR)
Project Manager: Alan K. Darby
Principal Investigator: Scott E. McVey
Project Title: Dry Solids Pump Coal Feed Technology

Objectives and Goals of the Project: Pratt & Whitney Rocketdyne is developing a Dry Solids Pump (DSP) coal feed system, which is projected to reduce a 3000 tons per day (tpd) gasification plant feed system capital cost by \$41M or 40% of the feed system cost. At the end of the program in CY2016, the DSP will be ready for the next phase of commercial development; the operation of a 1000 tpd in a first-of-a-kind commercial demonstration Integrated Gasification Combined Cycle (IGCC) or coal-to-liquids plant by 2020.

Description of the Project: PWR will mature the Dry Solids Pump to TRL 6 with continued testing of the current prototype pump, including specific pump upgrades to improve overall performance. The data will compare DSP feed system technology to a state-of-the-art lock hopper system in an IGCC plant with 90% carbon capture. At conclusion of the program, a conceptual design of the next generation 1000 tpd DSP will be prepared.

Potential Impacts:

The outcome of this project is to advance the DSP to TRL 6 and ensure that results generated provide the required data to design a commercial pump. Subsequent analyses will validate the Techno-Economic Analysis to substantiate the pump's contribution to lower cost gasification plant feed systems by 40%, and production of electricity or chemicals by 55%.

Participants:

Pratt & Whitney Rocketdyne, Inc. (Canoga Park, California)
Energy and Environmental Research Center (Grand Forks, North Dakota)