

INTEGRATION OF PRODUCED WATER THERMAL DESALINATION AND STEAM METHANE REFORMING

ABOUT THE PROJECT

Partnered with Los Alamos National Laboratory; Engineering, Procurement and Construction LLC (EPC); and Williams, the project aims to demonstrate hydrogen production using water produced during oil and gas extraction. The project integrates a produced water thermal desalination technology along with autothermal or steam methane reforming (ATR/SMR) for efficient hydrogen production. Success in this project would allow Wyoming to lead the emerging hydrogen industry without sacrificing any drinkable water.

The project demonstration will use water produced during oil and gas extraction by integrating supercritical water desalination and oxidation (SCWDO) with steam methane reforming (SMR). SCWDO uses heat to remove salts, metals and organic molecules from water and SMR then combines this pure water with methane to produce hydrogen. The team has previously shown that the heat intensive SCWDO process can be coupled to the front of an SMR process. Both SCWDO and SMR are hot processes, and the project will show how they can be integrated at large scale to conserve heat energy, enabling field demonstration of a 15% cost reduction over existing SMR technologies at approximately one ton of hydrogen per day.



AT A GLANCE

Project Total: DOE Funding: \$4,997,749;
Non-DOE Funding: \$4,999,387

Total Value: \$9,997,136*

Project Duration: 2 years

Objectives: Demonstrate hydrogen production using water produced during oil and gas extraction

Project Location: Greater Green River Basin

**total amount prior to award negotiations*

PROJECT PARTNERS

Los Alamos National Laboratory

Williams

Engineering Procurement and Construction
LLC