

HYDROGEN FUEL CONVERSION IN FIRED EQUIPMENT

Organizations are facing unprecedented challenges in achieving their strategic climate goals. Now is the time to evaluate options for hydrogen refueling, efficiency improvements, and novel methods of CO₂ reduction in fired heaters and boilers.

You can reduce carbon footprints by refueling fired equipment with hydrogen or ammonia. When planning a refueling effort there is much more to consider than just the Wobbe Index and combustion performance. The system will experience changes in temperature, velocity, flame speed, radiation heat transfer, and even mass flow. Often, mechanical details limit the success of transitioning to low carbon fuel.

Using our expert combustion, heat transfer, and simulation knowledge, XRG can enable you to achieve maximum performance. We offer entire system studies, recommended operating practices, purpose-built equipment, and turnkey solutions to hit your low-carbon target.



STAGES TO REFUELING

Stage 1: Complete a risk/reward analysis for each heater in a plant

- Fuel pressure
- Burners
- Temperature
- Material evaluation
- Efficiency
- Cost of conversion
- Screen for hydrogen incompatibility

Stage 2: Evaluate piping and PRV

Stage 3: Implement and analyze on selected heaters

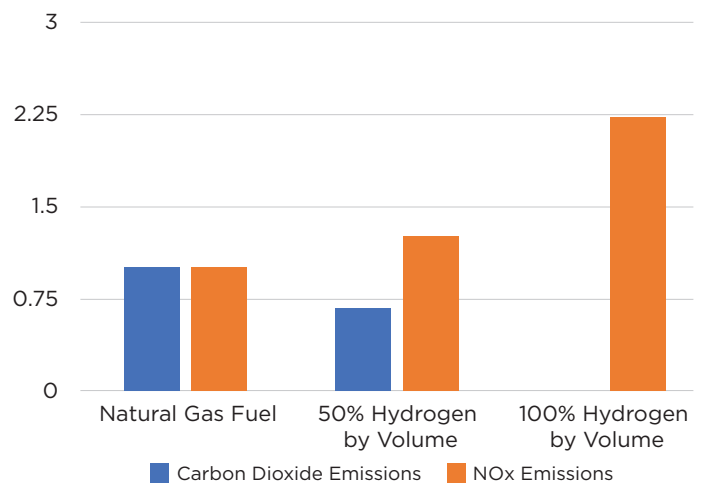
- Flame speed analysis
- Flashback prevention
- CFD analysis
- Hydrogen test witness services

We offer Complete Turnkey Solutions!

Switching to hydrogen or ammonia reduces or completely eliminates CO₂ emissions from your heaters, but there are many other factors to consider such as efficiency, fuel cost, component suitability, and NOx emissions.

XRG can navigate trade-offs and provide completely customized solutions for individual scenarios.

Normalized Emissions by Fuel



Why XRG?

XRG Technologies is an innovative engineering and procurement firm specializing in fired equipment for the refining, petrochemical, and power markets.

Combining over 200 years of diverse expertise in heat transfer, combustion, and CFD, XRG is uniquely equipped to solve these challenges delivering a superior engineered product every time!