

## ABSTRACT

This electrical power generation system comprises a heater (12), a reactor (10), an exhaust gas heat exchanger (14), and a gas turbine (22). The heater is configured to supply heat to the reactor. The reactor is configured to generate hydrogen by pyrolysis of hydrocarbon gas into hydrogen and carbon. Fuel for the gas turbine includes hydrogen produced by the reactor. The exhaust gas heat exchanger is configured to provide heat of exhaust gas, which is discharged from the heater, to fuel gas in the electrical power generation system.