

MICROSCALE DISTRIBUTED ENERGY COGENERATION METHOD AND SYSTEM**ABSTRACT**

A microscale energy cogeneration system comprising at least one micro/nano-turbine for converting fuel into mechanical energy and a generator for converting mechanical energy produced by the micro/nano-turbine into electrical energy in the range of 1 to 5 kWh. Compressed air passes through a cold side of a heat exchanger. The compressed cold air and fuel delivered to a combustion chamber drives the turbine. At least one heat exchanger receives high temperature exhaust gas from an exhaust passage downstream from the micro/nano-turbine for heat transfer. The heat exchanger can be used to heat water and/or air of a house. A water heating system can be coupled to the heat exchanger for converting tap water into potable hot water and/or converting cool air into hot air. The portable micro/nano-turbine set can be scaled up by interconnecting several units to a network for balancing out the energy demand of multiple users.

Fig. 1