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(57) Abstract :

The present invention relates to a method and system (10) for optimum usage of ammonia by generating power through combustion using a combination of plate and shell-and-tube heat exchangers (2) coupled with a combustor kept in a combustion chamber (1). The system (10) further comprises a porous catalyst chamber (3), a N₂/ H₂ separator (4), a compressor (5) for high pressure N₂, H₂ storage and a backup compressor (6). The generated hydrogen is cycled to the combustion chamber (1) and the generated flue gas is used to heat the heat exchanger (2) and to run a turbine (7) to generate power. The piping required for transport of the decomposed hydrogen is minimized. The dependency on the catalyst efficacy is significantly reduced. This results a significant cost savings as cheaper catalysts may be used quite effectively. The invention offers ammonia that can be transported easily and extracts hydrogen for fuel at site. This lowers the overall costs and helps industry draw benefits of hydrogen.

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