Wind hydrogen hybrid system

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Based on these issues, hydrogen, which is considered an alternative energy carrier, is proposed to play a significant role in future energy because it can be stored and transported and has a high calorific combustion value, making it suitable to replace fossil fuels (Saxena et al. 2008). Its eco-friendly production process also accounts for one of its key features on the road to a better environment and the success of sustainable development (Joshi et al. 2010). Moreover, hydrogen can be directly applied to fuel cells to produce electricity without any toxic emissions but with an energy yield of about 122 KJ/g, which is 2.75 times greater than hydrocarbon fuels (Fan et al. 2021). Table 1 shows the thermophysical properties of hydrogen.