Potential analysis of hot spring power generation with Kalina Cycle technology

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Abstrak

In this study, based on the typical binary mixtures (ammonia/water) low temperature thermal power generation cycle, a new method for the potential analysis of hot spring additional power generation is proposed. The calculation model is built with Kalina cycle technology for the power generation potential analysis. According to the characteristics of the cycle, the veriﬁcation items are given to verify the correctness of the calculation model. It is proved that the model is correct by sampling check a set of calculation data. And then, a case study is carried out in Hokkaido since it has the largest number of hot spring resorts in Japan. Results show that the hot spring additional power generation capability in Hokkaido is about 9828.0 kilowatts. And it can bring additional earnings about 2.781 billion Yen for Hokkaido every year.