

## A Comparison of Improving the Efficiency of Pressure Retarded Membrane Distillation through Waste Heat Energy

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Waste heat energy exist a lot around, but it has not been a well-used heat source since it is difficult to process. Recently, a lot of research has been conducted in various fields to utilize waste heat energy. One of them, pressure retarded membrane distillation (PRMD) is a desalination process that produces water and uses the remaining pressure to produce electricity energy. Now, a closed-loop PRMD has been proposed, adding thermo-osmotic energy conversion (TOEC) which converts thermal energy into mechanical energy and enables power generation. Closed-loop PRMD combines the advantages of traditional methods to produce water and energy together. This increases energy efficiency compared to traditional methods. Furthermore, through economic analysis, we analyzed whether open-loop PRMD has reasonable advantages over traditional methods.