

Methane gas recovery method, carbon dioxide low emission power generation method and its system

High energy output ratio and efficient methane gas recovery

Overview

Recently, methane hydrate (MH) has attracted attention as an energy resource to replace conventional fossil fuels. Heating and decompression methods have been proposed to dissociate and recover methane gas from MH by heating or decompressing the MH layer. However, the heating method consumes more energy to heat water than the energy produced by the recovered methane gas. On the other hand, the decompression method has the problem that the MH layer freezes due to the endothermic reaction when the methane gas dissociates, and the methane gas cannot be recovered efficiently.

In the present invention, we developed a system for recovering methane gas by drilling multiple wells, dissolving carbon dioxide, injecting heated seawater, and using the preheated injection well as a production well. In addition, by converting methane gas into electric energy and using the heat energy released at the time to recover methane gas, the system can be operated as a more efficient and environmentally friendly system.

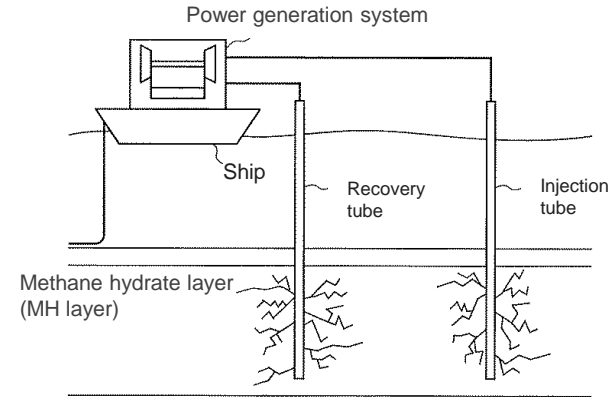
Product Application

- Methane hydrate
- Resource energy

IP Data

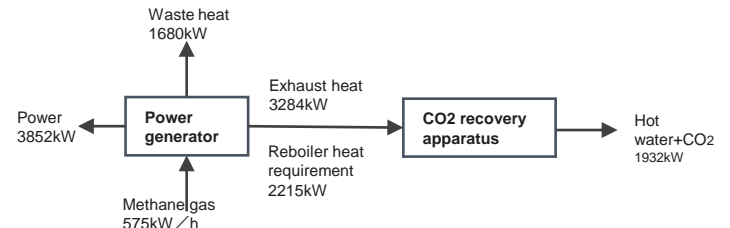
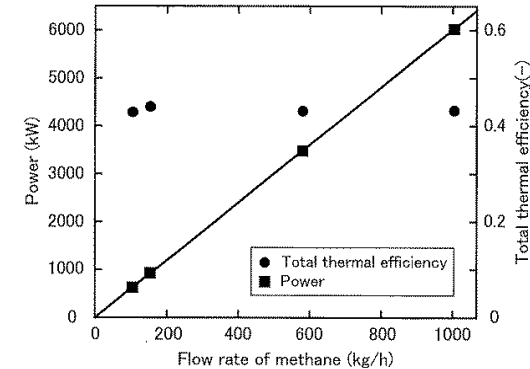
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Power generation system of the present invention



Relationship between methane gas flow rate, output power, and thermal efficiency

- Power generated is proportional to methane gas supply
- Thermal efficiency is about 44%



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