



Renewable energy supply for offshore gas-processing units coupled with energy storage.

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Description:

The pre-salt area in Brazil is one of the most promising areas for oil exploration in the world due to its high volume of oil of good quality. The actual platforms operating in this field are the biggest in terms of oil production and gas treatment capacity in the world. Two main factors limit the oil production of these platforms: The size of the CO₂ separation and reinjection plant and the limit of power generation.

One of the main challenges to develop oil fields is the availability of space on the platforms to make the pre-treatment of the oil and gases, rejection of water, and power generation. Petrobras developed a system called HISEP that can make the CO₂ separation and reinjection on the seabed, but this system needs a stable power source. Some different power sources will be evaluated, each one with its advantages and limitations. The renewable energies, mainly wind and marine current, have limited applicability due to their intermittency, requiring an energy storage system.

Goal:

The goal of this work is to model the integration of one or more sources of renewable energy generation coupled with an energy storage system and a subsea gas-processing unit. The system will use a hydraulic network to transmit power.

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