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Title: Off-grid solar-powered containerized smart oil refinery in Norway

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Can solar hybrid system generate steam in oil refinery?

Conclusion The present study investigates the feasibility of solar hybrid system to generate steam in the oil refinery to maintain the temperature of heavy crude oil products before despatching from storage tanks. Due to the intermittent behaviour of solar energy, the solar hybrid system is integrated with a sensible heat storage tank.

Can solar energy systems decarbonize oil refineries?

Other studies in the literature considered coupling solar energy systems to oil refineries to decarbonize their operation. The applicability and feasibility of introducing a concentrated solar power (CSP) system to reduce partial reliance on process heaters of a crude oil refinery was studied by Danish et al. .

Can solar energy drive crude oil refineries?

Employing solar energy to drive crude oil refineries is one of the investigated pathways for using renewable energy sources to support lowering the carbon emissions and environmental impact of operating the processing of fossil-based fuels.

Can a TRNSYS solar heating system be used in a refinery?

Using TRNSYS software, the proposed Parabolic Trough Collector (PTC)-based solar heating system paired with the boiler is modelled. Sensible thermal energy storage (TES) system is integrated into the refinery's process heating to handle the intermittent nature of solar energy.

Ready to Transition Beyond Diesel? Discover the next generation of mobile, autonomous clean power. MOBISMART integrates solar, fuel cells, and ...

But could solar power offer a green alternative? Store Norske Energi, a state-owned energy company based in Longyearbyen, is testing whether solar ...

Whether deployed as a standalone microgrid or part of a larger portfolio, our containerized systems ensure rapid installation, guaranteed reliability, ...

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Solar and wind energy are emerging as viable options to power refinery operations, reducing reliance on fossil fuels and cutting ...

Herein, a solar multi-energies-driven hybrid chemical oil refining system, exemplified by residual oil cracking, has been successfully developed and formulated in solar ...

Solar and wind energy are emerging as viable options to power refinery operations, reducing reliance on fossil fuels and cutting operational costs.

The power plant runs an alkaline electrolyzer to generate green hydrogen (derived from solar energy). Steam is also extracted from a high-pressure turbine to meet the demand ...

Whether deployed as a standalone microgrid or part of a larger portfolio, our containerized systems ensure rapid installation, guaranteed reliability, and the resilience needed for extreme ...

But could solar power offer a green alternative? Store Norske Energi, a state-owned energy company based in Longyearbyen, is testing whether solar energy could be used to transition ...

The present study investigates the feasibility of solar hybrid system to generate steam in the oil refinery to maintain the temperature of heavy crude oil products before ...

They explored an integrated system of various components into the entire plant, included solar energy in heating applications, and evaluated the major performance ...

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