BUHLE POWER

Solar-powered containerized hybrid type for oil refineries

Overview

The purpose of this study is to investigate the potential use of solar energy within an oil refinery to reduce its fossil fuel consumption and greenhouse gas emissions. A validated ASPEN HYSYS model w.

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 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.

Is solar energy a viable alternative to crude oil?

As is well known, the methods and industries of exploiting, refining, transporting, and trading crude oil are well established. This is not the case with solar energy resources, which, although highly abun-dant, are expensive and not yet implemented at the whole industrial scale. Solar energy is not yet economical to har-vest.

Can solar catalytic chemical looping Biomass Refinery produce high purity hydrogen?

A techno-economic analysis of solar catalytic chemical looping biomass refinery for sustainable production of high purity hydrogen. Energy Convers. Manage. 243, 114341 (2021) Mohammed, S.A.; Al-Azawiey, S.S.; Ali, A.H.: Treatment of organic compounds resulting from oil refineries under solar light and reuse it for industrial purpose.

Solar-powered containerized hybrid type for oil refineries

[(PDF) Solar-assisted hybrid oil heating system ...]

Jul 16, 2023 · The purpose of this study is to investigate the potential use of solar energy within an oil refinery to reduce its fossil fuel consumption and ...

[Using concentrated solar power for crude oil distillation: a ...]

Jan 21, 2025 · It was published on Energy under the title "Concentrated solar heat for the decarbonization of industrial chemical processes: a case study on crude oil distillation". About ...

[Solar-assisted hybrid oil heating system for heavy refinery ...]

Oil refining is energy - intensive. Burning fossil fuels for heat in this process releases GHGs. Solar energy for steam generation has been studied globally. However, most studies focused on ...

[optimization of Configuration Hybrid Power Generation System at Oil]

Aug 10, 2023 · The oil refinery industry has a potential emission reduction by combining its fossil fuel with Renewable Energy usage. One alternative to reduce carbon emissions is the hybrid ...

[Solar-assisted hybrid oil heating system for heavy refinery ...]

Sep 1, 2023 · 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 ...

[Analysis of a Solar-Assisted Crude Oil Refinery System]

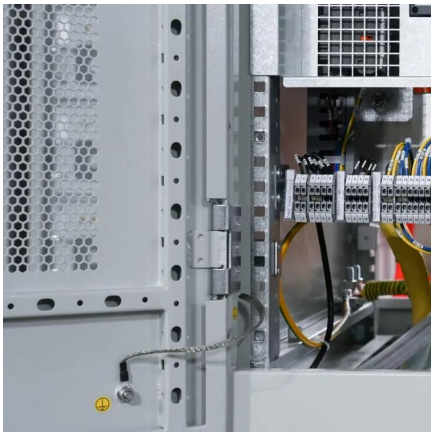
Feb 20, 2025 · Abstract With the growing urge to decarbonize the energy sector, actions toward reducing emissions of the oil and gas sector can contribute to bringing large cuts to carbon ...

[Analysis of a Solar-Assisted Crude Oil Refinery System]

Jun 6, 2024 · With the growing urge to decarbonize the energy sector, actions toward reducing emissions of the oil and gas sector can contribute to bringing large cuts to carbon emissions. ...

[(PDF) Solar-assisted hybrid oil heating system for heavy ...]

Jul 16, 2023 · The purpose of this study is to investigate the potential use of solar energy within an oil refinery to reduce its fossil fuel consumption and greenhouse gas emissions. A validated ...



[Using concentrated solar power for crude oil ...]

Jan 21, 2025 · It was published on Energy under the title "Concentrated solar heat for the decarbonization of industrial chemical processes: a case ...

[Solar oil refinery: Solar-driven hybrid chemical cracking of ...]

Jan 15, 2024 · This includes the framework and outline of the solar reactive utilization, model and construction of the solar-driven hybrid chemical cracking oil system, cyclic voltammetry ...

[Published at Energy Conversion and management]

Jan 30, 2024 · Abstract: Built on the Solar Reactive Utilization framework, this study presents an innovative concept called the Solar Oil Refinery, applying solar energy in the energy ...

[Solar-assisted hybrid oil heating system for heavy refinery ...]

Oct 24, 2025 · Abstract The purpose of this study is to investigate the potential use of solar energy within an oil refinery to reduce its fossil fuel consumption and greenhouse gas ...

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