



BUHLE POWER

Bidirectional charging of photovoltaic containers in oil refineries





Overview

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.

How can bidirectional charging/discharging a battery achieve maximum PV power utilization?

In addition, with the proposed strategies, the bidirectional charging/discharging capability of the battery is able to achieve the maximum PV power utilization. All the proposed strategies can be realized by the digital signal processor without adding any additional circuit, component, and communication mechanism.

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 bidirectional charging save Europe's energy & mobility sectors?

Bidirectional charging technology has the potential to save billions of euros annually by optimizing electricity usage and reducing system costs. A recent study by Transport & Environment (T&E) reveals that this innovative technology could transform Europe's energy and mobility sectors.



Bidirectional charging of photovoltaic containers in oil refineries



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

Jun 6, 2024 · Other studies in the literature considered coupling solar energy systems to oil refineries to decarbonize their operation. The applicability and feasibility of introducing a ...

[Green light for bidirectional charging? Unveiling grid ...](#)

Dec 1, 2024 · Bidirectional charging allows for higher use of volatile renewable energies and can accelerate their integration into the power system. When considering these diverse ...



[Collecting bidirectional flow energy through a photovoltaic](#)

Aug 15, 2024 · Here, a photovoltaic thermoelectric radiation cooling system is proposed. The photovoltaic, thermoelectric generator, and outer space are coupled in reverse order through a ...

[Bidirectional Power Flow Control and Hybrid Charging Strategies ...](#)

May 25, 2021 · The objective of this article is to propose a photovoltaic (PV) power and energy storage system with bidirectional power flow control and hybrid charging strategies. In order to ...



[A Grid-Tied Photovoltaic-Battery System for Bidirectional ...](#)

May 15, 2025 · Electric vehicle (EV) charging infrastructure has led to the advancement of grid-tied photovoltaic (PV) battery energy systems (BES) that support bidirectional energy flow. ...

[Pathways for Coordinated Development of Photovoltaic ...](#)

Mar 21, 2025 · The integration of PV storage, advanced charging infrastructure, and intelligent control systems represents a trans-formative approach to achieving a more sustainable and ...



[Integration of Solar Cells in Selected Petroleum Refinery ...](#)

Jun 30, 2025 · The goal of this research is to study the technical and economic feasibility of the integration of photovoltaic solar power systems in two of the biggest Iraqi oil refineries: ...



[Study: Bidirectional Charging Saves Billions ...](#)

Jan 15, 2025 · Integration of Solar Power Electric vehicles equipped with bidirectional charging technology can act as mobile energy storage units, ...



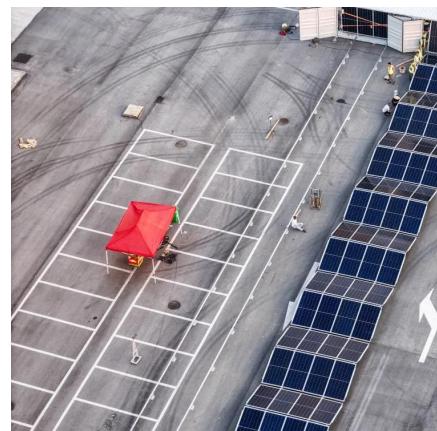
[Bidirectional charging as a strategy for rural PV](#)

...

Dec 12, 2023 · This study extends an earlier analysis of rural PV and heat pumps to include an evaluation of the potential for bidirectional EV charging in these areas. Rural China is ...

[Collecting bidirectional flow energy through a ...](#)

Aug 15, 2024 · Here, a photovoltaic thermoelectric radiation cooling system is proposed. The photovoltaic, thermoelectric generator, and outer space ...



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

Sep 1, 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 ...



[Study: Bidirectional Charging Saves Billions Annually](#)

Jan 15, 2025 · Integration of Solar Power Electric vehicles equipped with bidirectional charging technology can act as mobile energy storage units, significantly supporting renewable energy

...



Contact Us

For technical specifications, project proposals, or partnership inquiries, please visit:
<https://www.bukhobuhle.co.za>

Scan QR Code for More Information



<https://www.bukhobuhle.co.za>