

10kW Solar-Powered Container 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.

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 abundant, are expensive and not yet implemented at the whole industrial scale. Solar energy is not yet economical to harvest.

Can a high-temperature solar tower integrated system power a petrochemical refinery?

Green hydrogen and power production using a high-temperature solar tower integrated system have been previously investigated but not in the context of a petrochemical refinery. Hydrogen is a significant raw material in petrochemical hydrogenation process (e.g., hydrocracking, hydrotreating), whereas steam has multiple uses within a refinery.

Can solar energy support the decarbonization of crude oil refineries?

Solar energy has great potential to support the decarbonization of crude oil refineries in different pathways. As is well known, the methods and industries of exploiting, refining, transporting, and trading crude oil are well established.



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