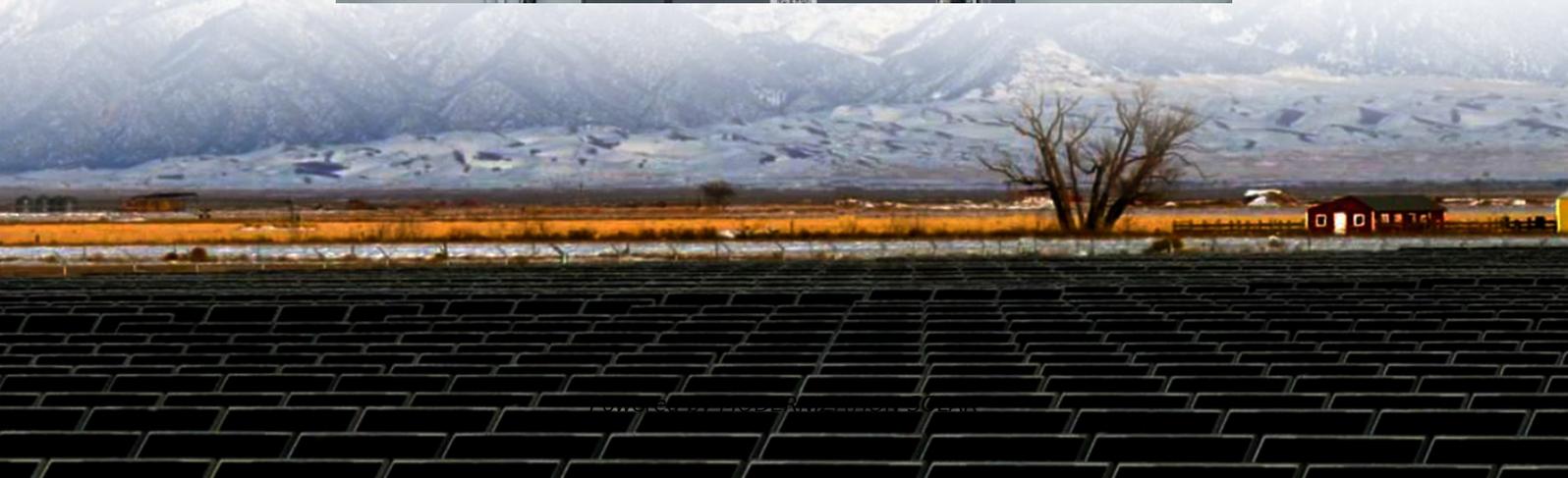
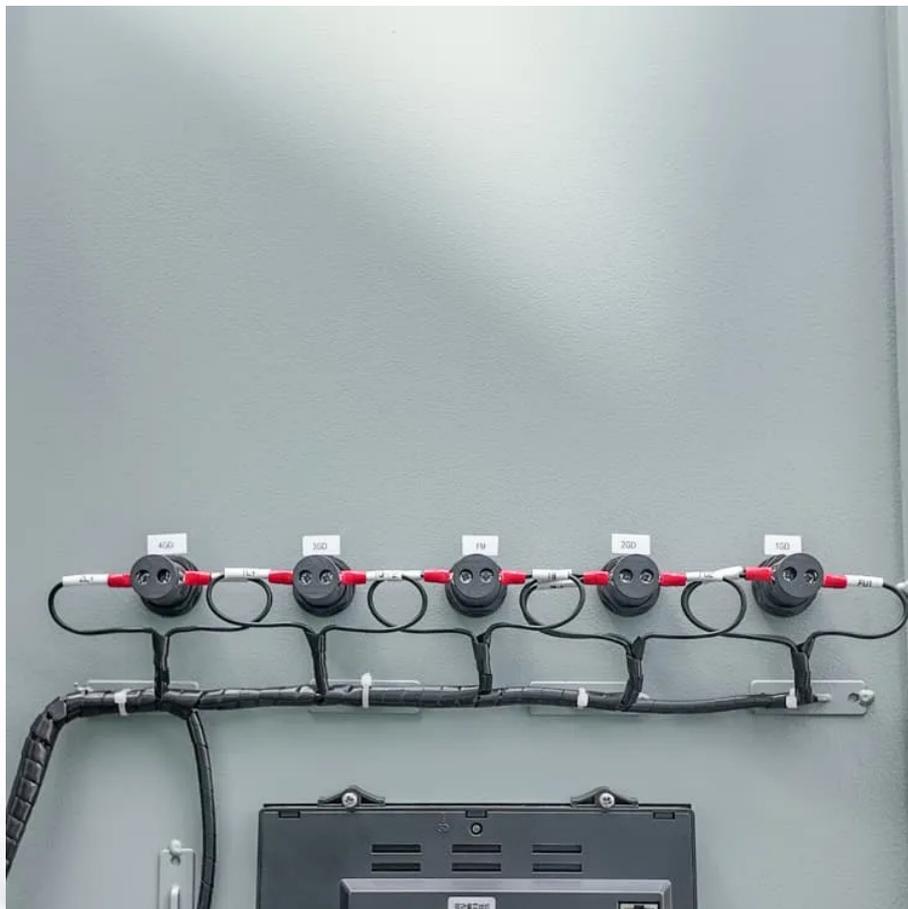


# **Bidirectional charging of energy storage containers for drone stations**





## Overview

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The introduction of Unmanned Aerial Vehicles (UAVs) in smart city operations is considered a sustainable technological solution due to the promised significant greenhouse gas emission reductions. This study.

What is a drone charging dock?

Drone charging docks are specialized stations where drones can land to recharge, undergo maintenance, or be inspected as needed. These stations are equipped with navigation systems that enable drones to connect, either physically or wirelessly, to the charging infrastructure.

How do drone charging stations work?

These stations are equipped with navigation systems that enable drones to connect, either physically or wirelessly, to the charging infrastructure. This process is both convenient and efficient, as it eliminates the need for human intervention.

Why is drone charging replenishment important?

This introduces a critical challenge of drone charging replenishment, which must be addressed to ensure the continuous and optimal operation of the service. The primary issue arises from the fact that drones are themselves electric vehicles, dependent on their own battery power for flight and operation.

Are UAVs fully charged when they leave the charging station?

UAVs are assumed fully charged when they leave the charging station (SoC=100%). The UAV's flight range is estimated according to the UAV 3D minimal energy trajectory model. As the energy consumption rate varies for loaded and unloaded UAVs, two different flight scenarios are implemented.



## Bidirectional charging of energy storage containers for drone station

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UAV ...



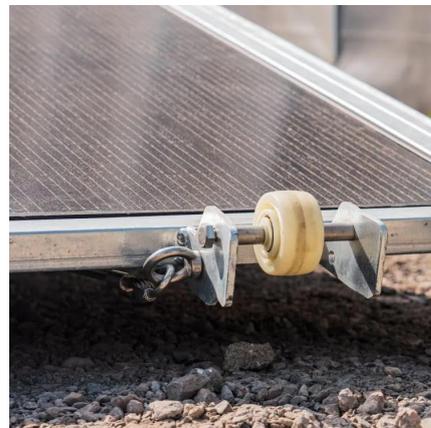
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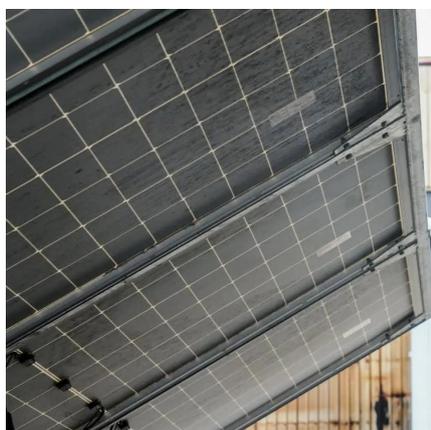
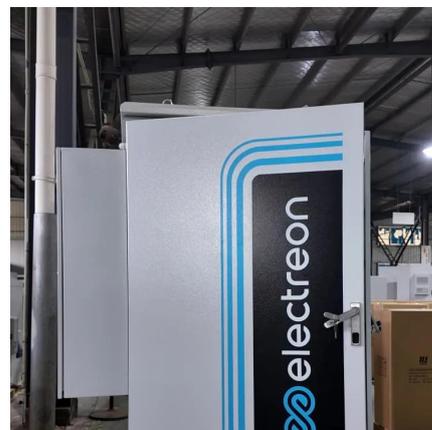


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