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Energy site layout optimization





Overview

How does spatial layout optimization work?

Our spatial layout optimization depends on accurate PV generation estimation, which is based on several key assumptions, e.g. constant PV installation density and linear correlation between settlement area and roof area. These assumptions vary across different regions or scales.

What is wind plant layout optimization?

In particular, wind plant layout optimization has been addressed in recent literature to maximize the power output, minimize levelized cost of energy, or maximize expected profit (Herbert-Acero et al., 2014; Chen and MacDonald, 2014; Padrón et al., 2019; Nagpal et al., 2021; Croonen-broeck and Hennecke, 2021).

Does solar power plant layout optimization reduce problem dimensionality?

Layout optimization only becomes more difficult with the addition of solar generation. In this paper, we propose a parameterized approach to wind and solar hybrid power plant layout optimization that greatly reduces problem dimensionality while guaranteeing that the generated layouts have a desirable regular structure.

Does spatial layout promote the consumption of PV generation?

The objective of this study is to explore the spatial layout that promotes the consumption of PV generation, with a focus on the actual consumption process after PV electricity is delivered to the electric grid. This requires trans-regional supply and demand analysis based on spatiotemporal power generation simulations.



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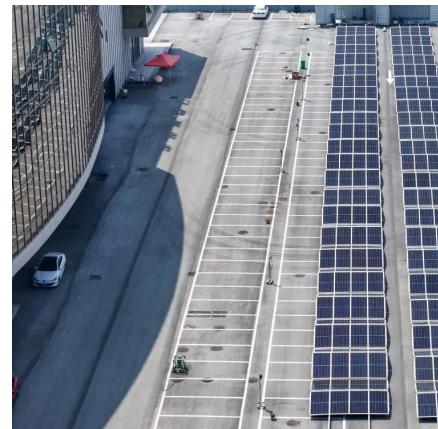
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