

Maximizing Solar Electricity Yield

Computational Derivation of Configuration of Photovoltaic Panel Arrays on Buildings

Background and aim:

Early design decisions have great influence on final energy performance and comfort of buildings. The costs of installation, maintenance, and the eventual replacement of solar panels cannot be ignored in the financial outlook of a building. This project aims to develop procedures for including such financial considerations in addition to architectural factors in optimal configuration of solar panels.

Research question:

How to configure an optimal array of photovoltaic cells on a building envelope so as to maximize solar electricity yield subject to architectural and economic constraints?

Design objective:

To computationally configure an optimal array of photovoltaics on a building envelope.

Methods:

- Spatial Computing (Computational Geometry & Linear Algebra)
- Ladybug Recipes (environmental simulation workflows)
- Computer Programming (Python)

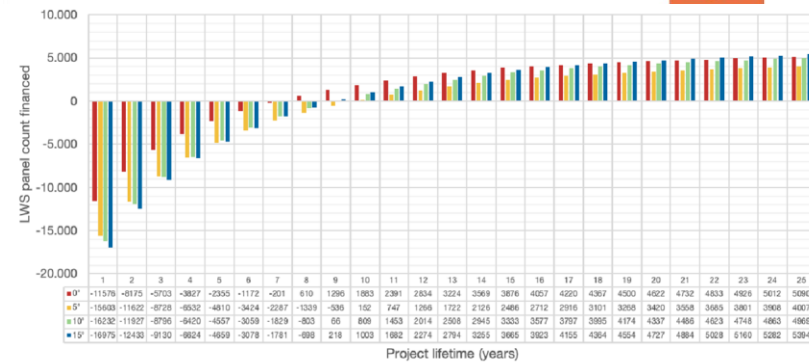
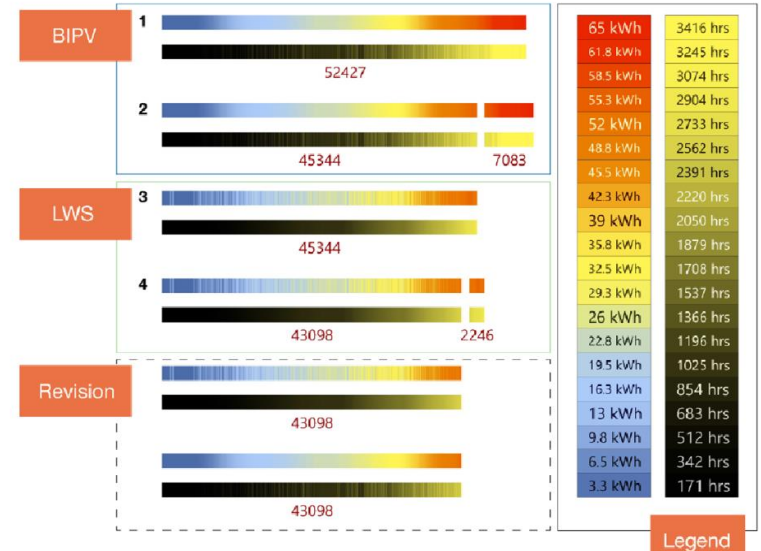
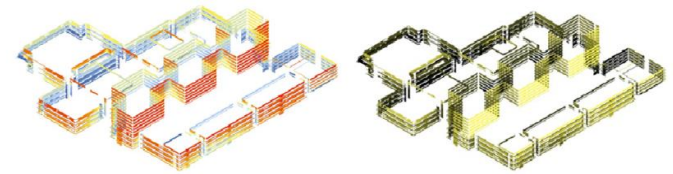


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