# The Illuminator – Digital Twinning for energy valleys

Scope: This project aims to transform energy-passive buildings into intelligent prosumers, and aggregate them into **sustainable energy valleys**. This requires a holistic approach to the energy needs of buildings and neighborhoods, including electricity generation and consumption, as well as heating and cooling demands. **The goal is to fully harness the available potential while ensuring demand fulfillment and comfort**.

To do so, **advanced control systems and digital models** are required that accurately capture physical reality. By updating the models with **real-time data**, **Digital Twins** are created that can be used for **analysis, scenario evaluation, optimization and controlling** energy valleys. To this end, the **Illuminator software platform** is being developed, an easy-to-use energy system integration development kit, specialized to facilitate **energy system integration and the development of Digital Twins at the neighborhood level.**
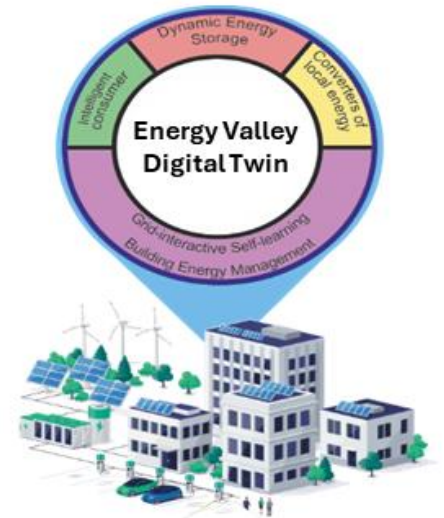
Challenge: Your project would focus on the further *development* of the **Illuminator v3** (https://github.com/Illuminator-team/Illuminator). Your project can be tailored to your interests. Some examples of what your project could focus on are:

- **Developing new energy system models**
- **Conducting case studies on energy management in neighborhoods**
- **Investigating demand-supply flexibility aggregation**
- **Designing an intuitive Graphical User Interface (GUI)**
- **Developing and improving coordination algorithms for distributed energy systems**
- **And much more!**

If you are excited about **smart energy systems and Digital Twins**, this thesis project offers a unique opportunity to work at the intersection of **software development, energy modeling, and real-world impact.**

Interested? Reach out to us to discuss how you can become part of the team!

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Come talk to us!