

Integration of a Building Energy Model with a Regional Planning Tool for Energy Communities Analysis

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Model Integration Framework

BuEM
Building Energy Model

DETACHED HOUSE
MULTI-FAMILY BUILDING (small)
TERRACED HOUSE
Apartment Block (small)

EnerPlanET
Regional Planning Tool



API Connector

- Ontological alignment**
Harmonize building-taxonomies, energy-system definitions, and shared vocabulary across models
- Data exchange structure**
Standardized JSON/API schema bridging internal and external data interfaces
- Common database**
Shared PostgreSQL repository for building stock, weather, and energy system parameters
- Systemic workflow**
Automated pipeline from data ingestion through simulation to community-level aggregation

- Bottom-up physics-based approach
- High-resolution building-level analysis
- Hourly demand profiles (8760 h/yr)
- Building archetype classification

- Bottom-up regional planning approach
- Community-level optimization
- Energy system decision support
- Cost-benefit & scenario analysis

INTEGRATION CYCLE

