



# ENERGY4ALL

## Trikala's City Climate Neutrality Hub with intelligent energy management

### TRIKALA, GREECE

#### Emissions domains addressed by the Pilot Activity



Consumption of electricity generated for buildings, facilities & infrastructure

#### Key Terms

Energy democracy | Energy Service Office | Energy Community | GHG emissions monitoring | Climate Neutrality Observatory | Smart grid | Digital Twin | Intelligent energy management | Citizen engagement | Renewable energy

#### Levers of Change

Data and Digitalisation | Democracy and participation | Governance and policy | Learning and capabilities | Technology/infrastructure

#### Description of the Pilot Activity

ENERGY4ALL is establishing Trikala as a model for energy democracy and climate neutrality through an integrated Climate Neutrality Hub — combining an Energy Service Office, an open Energy Community, a GHG Emissions Monitoring Platform, and a Climate Neutrality Observatory. The project deploys smart grid infrastructure with intelligent energy management powered by Digital Twin technology.

#### Year One Highlights

The Energy Service Office's core services were defined through co-creation: tailored renovation advice, energy profiling, matchmaking with funding schemes, guidance on joining energy communities, and an AI-powered chatbot for citizen support. The Energy Community held an open event attracting 40+ participants, with 16 formal membership applications submitted by August. The municipality gained European accreditation under the Community Energy Accreditation Scheme. GHG monitoring equipment entered pilot testing, with public access planned for Year 2. Smart grid infrastructure mapping was completed using GIS analysis, and a modular five-layer Digital Twin architecture was developed covering data acquisition, modelling, AI analytics, and visualisation.

Several delays required timeline adjustments: smart grid equipment installation shifted from Month 9 to Month 15 due to compatibility coordination; the GHG Emissions Platform was integrated with the Climate Neutrality Observatory rather than delivered separately; and Energy Community uptake was slower than expected, addressed through additional awareness sessions. A key sustainability question emerged early: the Energy Service Office's ongoing cost is primarily staffing, and the municipality is already seeking external funding to maintain it beyond the project period.

#### Innovation Highlights

The Energy Service Office operates as a permanent one-stop-shop for citizen energy literacy — supported by an AI chatbot and digital training platform rather than relying solely on staff capacity. The open Energy Community model provides a replicable framework for collective energy production and savings. The five-layer Digital Twin integrating physics-based and AI models enables predictive analytics and anomaly detection for municipal energy management. The Climate Neutrality Observatory will provide real-time transparent emissions tracking for both policy decisions and public awareness.

#### Twinning with Treviso (Italy)

Trikala shared its smart city approach and community-driven climate model. Treviso contributed experience in urban regeneration, urban forestry, and renewable energy. A return visit to Treviso is planned to examine nature-based solutions and green infrastructure integration.

