# IntegrCiTy Project

## Decision-support environment for planning and integrating multi-energy networks and low-carbon resources in cities

### Background

Nowadays, energy supply networks in cities – natural gas, electricity and heating/cooling - are almost always planned and operated separately from each other. The main issues to be faced are related, on one hand, to resources and needs spatial disparity and, on the other hand, to non-simultaneous demand and production. The impact will be even larger due to the increasing number of decentralized (mostly non-dispatchable) production systems and the foreseen changes in consumers' behavior. The challenge and a part of the solution lie in the combination of storage and multi-energy conversion systems. This combination allows energy systems to adapt to an increasingly decentralized energy production, interacting with existing networks (natural gas, electricity, heating and cooling). These "smart integrated solutions" for energy management and conversion increase interoperability capabilities between different energy vectors, and open opportunities to develop additional, innovative services to the one based on existing infrastructures and related supply structures.

### Objectives

1. Developing an **integrated decision-support environment for city planners and energy providers** to improve efficiency and resilience of energy supply infrastructures, focusing on deployment, extension and retrofitting;
2. **Implementing the decision-support platform and embedded tools in selected cities**, for local utilities and city administrations, focusing on thermal and electrical networks linked to low-carbon resources.

### Project description

**IntegrCiTy project aims at developing and implementing a modular decision-support platform** focusing on planning and designing integrated energy networks and further infrastructure developments (extensions, new deployments, retrofitting) through multi-energy/networks co-simulation. The project is organized along two parallel and interdependent axes:

- Axe I - Decision-support platform development
    - Develop the appropriate IT and data structure/management
    - Characterize the urban system at both energy demand and supply infrastructure levels by adapting existing or developing simulation models
    - Develop decision-support environment based on scenarios
    - Co-simulation process
- Axe II - Implementation test-cases in collaboration with local authorities and utilities
    - Vevey (Switzerland)
    - Geneva (Switzerland)
    - Hammarby Sjöstad (Stockholm, Sweden)

## Duration of the project

Expected start: 03-2016
Expected end:  12-2018

## Consortium

The consortium created for the realization of the IntegrCiTy project covers a wide range of different expertise fields: it counts both renowned academic partners, as well as research institutes with long-standing and recognized activities in the domain of sustainable urban energy systems, along with emblematic Swiss and Swedish cities, regions and local energy utilities. Main partners:

- EPFL Energy Center (Project coordinator)
- EPFL IPESE
- ROMANDE ENERGIE
- CITY OF VEVEY
- CREM (Centre de Recheches Energétiques et Municipales)
- HES-SO (Haute Spécialisée de Suisse Occidentale Valais-Wallis)
- AIT (Austrian Institute of Technology)
- AEE INTEC (Institute for Sustainable Technologies)
- KTH (Royal Institute of Technology)
- HOVAL AT (Hoval Austria)
- CT GE (République et Canton de Genève)
- SIG (Services Industriels de Genève)
- EPS (Europé Power Solution)
- VS (Veolia Sverige)
- HSA (Holdigaz SA)
- EC (ElectriCITY)
- RB (Riksbyggen)
- City of Stockholm

## Framework





Project no. 646453

## Reference

ERA-NET Cofund Smart Cities and Communities Joint Call for Proposals – Full Proposal: Consortium, General and Finantial Information – 2015 (Not disclosed)