

## **The social and economic consequences of Sustainable Energy Action Plans (SAEP)**

### **Abstract**

The repeated failures of global agreements for GHG emissions abatement call for a new strategy that involves local communities in implementing effective transitions to sustainability (the Warsaw Climate Change Conference in November 2013 is the last example). This paper investigates the environmental, social and economic consequences of Sustainable Energy Action Plans (SAEP) at the local community level. The SAEP is based on the Covenant of Mayors that is the mainstream European movement involving local and regional authorities, voluntarily committing to increasing energy efficiency and use of renewable energy sources on their territories. By their commitment, Covenant signatories aim to meet and exceed the European Union 20% CO<sub>2</sub> reduction objective by 2020. While the covenant only accounts the economic cost of the actions in order to meet the target of 20% emissions abatement, our study takes into account the effects of such policies on the socio-economic system. We provides a case study for Cascina, a small local administration close to Pisa (Italy). The model was built through two participation rounds of causal mapping with the local committee and officers of the administration. In the first round, we asked the following question: “how SAEP actions can influence the quality of life in the surrounding territory by meeting the objective of the 20% CO<sub>2</sub> reduction by 2020?”. Participants developed a qualitative causal map, which was the starting point of our research. We worked on the map trying to clarify the causal links and the emerging feedbacks loops and we propose a final map of the model, presented in the second round. After this meeting the group released a model, which was then simulated through system dynamics obtaining two main results. First, we provide a powerful tool to the local authority in order to evaluate the effects of the actions of the SAEP. In particular this tool, that was included in the immaterial actions of the plan, will help the local committee in the choice and in the temporal implementation of the actions. Second, the model shows the low budgeting cost that the local communities encounter in meeting the target.