

2nd Aalto Event on Science and Technology Studies, Energy in Society, Helsinki, Finland, 5-6 November 2012

### **Urban Planners with Renewable Energy Skills**

Authors:

Arto Nuorkivi, Aalto PRO, Email: energy@nuorkivi.fi

Anna-Maija Ahonen, Aalto PRO, Email: anna-maija.ahonen@aalto.fi

Hanna Mattila, Aalto University, Espoo, Finland, Email: hanna.mattila@aalto.fi

Timo Heikkinen, Aalto University, Espoo, Finland, Email: timo.heikkinen@aalto.fi

Abstract text:

In very few planning schools in the world, the urban and regional planners are educated with understanding on energy, and on renewable energy sources (RES) and energy efficiency (EE) in particular. Such combined skills of energy and urban planning have become vital while fighting the Climate Change: the urban planner is the first actor in the planning process, the plans of whom will either restrict or enable optimal RES and EE implementation later on.

Therefore, training of urban planners with energy skills has started as pilot training in five countries such as Germany, Hungary, Spain, U.K. and in Finland, the latter country to cover the coordination responsibility as the project with the acronym UP-RES (Urban Planners with Renewable Energy Skills).

The traditional way is that a municipality creates a general location plan in which the buildings can be easily built and connected to roads, and defines the physical dimensions of the buildings. The building code ensures the new buildings meet the EE norms. Thereafter, the energy and water utilities connect the buildings to their infrastructure in the best way still possible. In such way, however, it may be too late to optimize the RES and EE!

In the new way, the energy experts and the urban planners start working together in the general plan stage already. The impacts of various plans will be quantified in terms of energy consumption, investment and operation costs as well as emissions. The particular plan will be chosen for implementation which offers the lowest lifecycle costs and emissions. In city of Porvoo case in Finland, for instance, the new urban plan that was based on maximizing the share biomass fuelled CHP and DH appeared to be the best choice from environmental point of view, and moreover, with the overall life-cycle costs much lower than the traditional plan would have caused. In other words, the new combined energy and urban planning was a win win approach from both the reduced emission and the lowest cost point of view that was highly appreciated by the local decision makers.

From Fall 2013 on, the training is planned to expand to other countries and universities in Europe as a measure to produce more sustainable communities. In order to facilitate such expansion, about ten other universities elsewhere in Europe have already expressed their interest in adopting combined education of energy and urban planning in their curricula. To support such adoption, UP-RES project will provide the key lessons and the material, about 300 slides and related text, translated into 10 European languages. The European universities and planning schools will be encouraged to use the material in their training free of charge.

In parallel to the urban planner training the elements of EE and RES will be adopted in master and candidate courses as well.

The pilot training is a part of Intelligent Energy Europe (EACI) research program that promotes RES access on the energy market.

The full paper will explain the results of the training needs analysis, the modularized pilot training scheme, examples of the training material that link energy and urban planning, as well as the early feed back of the pilot course implementation.