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ENERGY EFFICIENT COMMUNITIES: CASE STUDIES AND STRATEGIC GUIDANCE FOR URBAN DECISION MAKERS

Annual Rapport 2009

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RÉSUMÉ

This project, who's aim is to promote Swiss advances in sustainable urban planning and design and associated modelling support tools, started on the 1st October 2009. During the first three months of this four year project we have: (i) established clearly the roles of the LESO within the IEA Annex 51 project, (ii) disseminated to partners a methodology for the documentation and evaluation of 'sustainable community' case study projects, (iii) started to document an existing 'sustainable community' case study project in Neuchâtel, (iv) presented a review of advances in urban energy modelling, and (v) prepared a draft questionnaire with which to better understand users' requirements for the ideal urban energy planning tool.

Work in 2010 will build upon this progress by further advancing the work on a review of urban energy models and understanding users' requirements of them as well as in the preparation of case study material for both existing and forthcoming projects.

Aims of the project

This project supports the Swiss participation in the new IEA Annex 51 "Energy efficient communities: case studies and strategic guidance for urban decision makers". Our main aim in this is to disseminate the advances that have and are being made in Switzerland with respect to the planning, design and construction of relatively sustainable urban communities as well as planning and design tools to support these efforts.

In this IEA Annex there are four sub-tasks:

- A. Existing organisational models, implementation instruments and planning tools.
- B. Case studies on energy planning and implementation strategies for neighbourhoods, quarters and municipal areas.
- C. Case studies on the preparation of integrated energy and CO2-abatement concepts for towns and cities and corresponding implementation strategies.
- D. Instruments for a successful community energy policy.

Our objective for 2009 was to establish more clearly the form of the Swiss participation in this IEA Annex as well as to advise the consortium on methodological issues relating in particular to the first task, based on previous work conducted by the PI and his group.

Work done and results acquired

This contract started officially on 1st October 2009. As noted above, our first priority was to clarify the nature of the Swiss participation in the IEA Annex to which this project related. Following from a meeting held in Bad Aibling in Germany from 14th to 16th October, in which we were confirmed as full participants of the Annex, this is now to be as follows with respect to each sub-task:

- A. Advise on methodologies for documenting existing case studies. Contribute case study material based on an already completed project within Switzerland. Advise on existing urban energy models. Prepare, disseminate and analyse a questionnaire related to the requirements of an ideal urban energy modelling tool.
- B. Contribute case study material based on one of the towns being studies within the context of the project MEU. This will be based on the town of Neuchâtel.
- C. Contribute case study material based on the Town of Zurich, as part of the SNSF project.
- D. The work on the Annex will culminate in the preparation of a book. Robinson is to lead the preparation of the chapter relating to urban energy modelling. Building on the outcomes of sub-task A this is expected to highlight the advances made in the development and application of the group's software CitySim. Robinson will also comment on drafts of other chapters.

In compliance with the objectives of sub-task A we have:

- Disseminated to partners a methodology for the documentation and evaluation of 'sustainable community' case study projects that was successfully implemented during Robinson's tour of 2008 [1].
- Negotiated the support of "EcoParc" in Neuchâtel – an organisation for the dissemination of best practice in sustainable urban planning, design and living – for the preparation of case study material based on the exemplary district for which the organisation was established to promote: EcoParc
- Presented a review of advances in urban energy modelling.
- Prepared a draft questionnaire, which is to be further refined before being distributed to partners for their comments.

We have also made good progress, in the context of the project MEU, with the application of CitySim to the modelling of a district of Neuchâtel.

National collaboration

As part of the OPEN project MEU we have established collaborations both within EPFL (the Energy Centre and the Industrial Energy Laboratory) as well as with the HES-SO in Martigny. We have also established contacts with representatives of the Towns of Lausanne, Martigny, Neuchâtel and Chaux-de-Fonds.

Within the context of the SNSF project “An investigation of strategies leading to a 2000W city using a bottom-up model of urban energy metabolism” we are also collaborating with Institute for Transport Planning at ETHZ as well as with the Town of Zurich.

Our work in relation to the towns of Neuchâtel and Zurich in particular will be promoted in the IEA Annex.

Evaluation of the year 2009 and perspectives for 2010

The work that has already been conducted in 2009 matches well the established objectives, so that there are no significant discrepancies. Having said this, the work that has been agreed with the Annex Operating Agent (Dr. Reinhard Jank) to be conducted by the PI represents an increase with respect to that which was agreed within the contract on which this project is based. The PI accepts the responsibility to undertake this extra work using his own means, since he sees this as being in the best overall interests of promoting the advances that are being made both within and beyond his research group.

It is expected that the work of sub-task A will essentially be completed during 2010. Progress is also expected to be made with respect to the documentation of the case studies of sub-tasks B and C.

References

- [1] Robinson, D., Quiroga, C., Sustainable masterplanning in practice: evaluation and synthesis, Proc. CISBAT 2009, Lausanne, Switzerland.