

Introduction to Panel 3

Local action

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Introduction

Local action is key to a sustainable society, and critical in creating a transformation to a sustainable energy system based on energy efficiency. It requires significant measures to be taken within all sectors of society including buildings, transport, industry and infrastructure. In order to realize the large existing cost-efficient energy efficiency potential, strong local governance is necessary as well as decisive actions from both private and public actors and stakeholders.

The papers and displays presented in this panel share experience and provide knowledge transfer of both what works and what doesn't work. They seek to answer questions like what is the urgency of a common agenda, the role of local government, how can end users be stimulated to reduce their energy demand, what new or improved business models are available for delivering a larger share of the cost-efficient energy efficiency potential, how can we best use the multiple benefits of energy efficiency to realise a larger share of the potential, etc.

The urgency of a common agenda

There is an overwhelming agreement around the necessity of improving energy efficiency on the demand side. Researchers, IEA and other policy makers points out that efficiency is the first fuel. Bångens and Nilsson (3-362-15) mean that despite this agreement the process leading up to the energy efficiency directive, and other situations where high-level negotiations are used, illustrates that the national states fail in dealing with the energy efficiency issues properly. In their paper, they plead for a Plan C (communities, commitments and cooperation) to be elaborated to deliver what national and intra-national actors fail to deliver. Plan A has failed and planet B does not

exist – time for plan C? A necessity for plan C to work is the establishment of a common agenda.

The role of local governance

No single actor has the full decision power. Solutions are to be found in a coordinated and harmonious combination of multi-level actions and of public and private initiatives. Rather than a one size fits all approach, solutions imply building trust among stakeholders and integrate as much as possible previous and competing initiatives. Success relies on legitimacy and leadership to federate all actors towards shared energy efficiency objectives. In a context of scarce financial resources for local authorities, innovative public interventions are to be developed that best trigger private investments and initiatives.

Killip et al. (3-253-15) are showing the importance of local governance when transforming into a low carbon economy. Their paper reports on a study designed to address these questions for the County of Oxfordshire in the UK. The results show that a shift to a low carbon economy is consistent with Oxfordshire's strengths as a knowledge economy and plans for economic growth, with key sectors for potentially positive impacts being building technologies, alternative fuels and vehicles, and renewable energy technologies, as well as related research and service sectors. These sectors correlate with needs for local infrastructure investment, potentially allowing local schemes to act as 'living laboratories' for innovation. The scale of investment required is large, across research, commercialization and deployment, and will require a coordinated approach from local political and economic decision-makers.

Gupta et al. (3-157-15) have investigated the effectiveness and impacts of six government-funded low carbon communities

(LCCs) in the UK. Their conclusion is that low carbon communities appear to play an important role in increasing individual agency, dispelling myths and mixed messages surrounding ‘new’ technologies, and providing much needed space for dialogue around demand reduction and local energy generation. Analysis of long term energy use in the six studied communities shows that the actions have led to an overall energy reduction.

Wagner and Berlo (3-191-15) argue that “recommunalizing” of energy networks and supply offers opportunities for implementing an independent energy policy at local level. Based on expert opinions, their paper analyses the German trend towards community ownership of local utilities since 2005, and assesses the performances of these newly founded local utilities in regards to 10 targets, notably in regards to an improved local added value, improved financial situation for the cities or the expansion of eco-efficient energy services.

In a quite different context, Price et al. (3-027-15) present how a dynamic decision-making tool can and has been used in China to provide local governments with strategies they can follow to reduce city-wide carbon emissions. The display shows an introduction to the tool as well as findings from its implementation in Jinan, the capital city of Shandong Province, which emits the most CO₂ of all of China’s provinces.

Stimulating end users to reduce demand

How do we spread and replicate successful local projects? And which innovative local interventions can reduce energy consumption of private households and businesses? These are recurrent questions, and some of this year’s Summer Study papers are looking more into detail to find answers to them. Löfström (3-442-15) maps and describes different “climate-centres” which promotes sustainable building and living in Europe. The included examples vary in form of organization, localization (urban or rural) as well as in size and activities involved. The paper discusses both possibilities and challenges for the “climate centres”, and concludes that success comes in many shapes and it seems that the ability to utilise available resources – financially, geographically and socially – is the most important lesson to convey to centres that want to promote sustainable building and living.

Children and young adults are important target groups in order to decrease the climate change effects and increase energy-efficient end use. Abramsson and Jidesjö (3-086-15) report on two successful projects aiming at increased knowledge and awareness in these target groups. The projects build on the notion that correlation between knowledge, awareness and behavioural change is central for improved energy efficiency in the society.

Small and medium-sized enterprises (SMEs) account for a large share of industrial energy use, and a major cost-efficient efficiency potential has been identified. Despite the cost-efficiency, a large share of this potential remains untapped. Carlén (3-085-15) shows how a significantly larger share of the cost-efficient measures is implemented with the help of networks led by local governments. An important lesson learned is, despite previous efforts, that there is still a need for an increased information dissemination regarding how to use networks for increased energy efficiency in SMEs.

Middle actors are important

Independent of which perspective you apply, a top down approach with local or regional governance or bottom up from the individual end users perspective, intermediaries play a key role in closing the energy-efficiency gap by making the energy-efficiency measures happen and the potential materialize. These middle actors play various direct or indirect roles, from information and advice to implementing the measures.

Yann Blumer et al. (3-372-15) describe, based on an ongoing Swiss study, how cities can foster local action in energy efficiency by utilizing middle actors. The project rely on a three step procedure aiming at closing the energy-efficiency gap with the help of intermediaries of various kinds, and the paper presents some of the project’s first insights.

Improvement and development of new business models

New business models are needed to overcome technical as well as financial barriers to energy efficiency. Di Santo et al. (3-322-15) report on an Italian study on what skills, business models and policies are available in order to overcome the barriers related to energy renovation of the public as well as the private sector’s building stock. The study shows that many new approaches are emerging to facilitate and permit the required market transformation.

Although energy service contracting has been discussed for a long time, and is implemented in several countries, it still hasn’t delivered the expected energy efficiency. So far energy service companies have mainly evolved strategies and methodologies for industry and large scale service buildings. But the ESCO market is changing.

Nolden and Sorrell (3-097-15) describe how several public procurement and delivery frameworks for energy service contracting have been established on the UK market in recent years, and how the concept goes from a niche market to an increasing popularity and acceptance of their capacity to deliver energy efficiency benefits at a local level. Their paper analyses the development and governance of these frameworks, their significance for local authorities, their success in encouraging the implementation of energy efficiency measures, their replicability and diffusion and their wider role in delivering energy services locally. The results indicate that energy service contracting and energy performance contracting in particular are rapidly gaining recognition in UK.

Brito et al. (3-278-15) think there is also a place for ESCOs in European historic city centres despite the fact that architectural constraints limit the installation of energy conservation measures like insulation and, in some sites, of renewable energies. By extrapolating the knowledge retrieved from a deep investigation of an ancient residential building in a historic city centre in Portugal, a UNESCO site and a highly constrained context, they apply an ESCO strategy to a neighbourhood to demonstrate what difference it would make in these contexts.

Comparing notes – the importance of benchmarking and cooperation

Cities and other local authorities have much to learn from one another, at a national as well as at an international level. Focusing on day to day local realities and issues is necessary to ef-

ficiently address those issues, but a broader view is sometimes helpful to produce qualitative leaps and shifts towards innovative solutions.

To this end, one of the most famous European movement involving local authorities is the Covenant of Mayors (CoM) initiative, launched in 2008 by the European Commission's Directorate General for Energy (DG ENER) to endorse and support the efforts deployed by local authorities in the implementation of sustainable energy policies. As of mid-May 2014, 5,296 local authorities signed the CoM, for a total of ca. 160 million inhabitants in the EU-28, and the initiative has already been extended to Eastern Europe and Central Asian countries. Kona et al. (3-364-15) analyse the CoM after 7 years of operation. The paper assesses the effectiveness of the CoM initiative in terms of estimated energy savings, clean energy production and emission reduction, and ultimately aims to emphasize the feature of CoM as a flexible common platform for achieving EU2020 Climate and Energy targets with a bottom-up approach.

Overseas, in the United States, leadership on energy and climate policy has largely shifted to state and local governments as many federal energy and climate efforts have languished. Some cities have adopted long-term energy goals and strategies by leveraging goal-setting frameworks from government agencies and networks of local governments, such as the U.S. Conference of Mayors Climate Protection Agreement (2005), while others have undertaken locally-led energy and climate planning processes. Ribeiro (3-252-15) provides a meta-analysis of the energy performance of 51 of the largest cities in the U.S., assesses current trends towards achieving their energy efficiency goals and highlights the policy drivers for city success.

The Covenant of Mayors includes a requirement to produce Strategic Energy Action Plans (SEAP). Both SEAPs and National Energy Action Plans (NEAP) which are required by the EU Energy Efficiency Directive should include measures for all sectors.

Multiple benefits

A number of papers present how the multiple benefits of energy efficiency, from a societal, as well as a business and individual perspective, can help speed up the realisation of energy-efficient measures.

In order to justify public intervention, and prove rigorous and efficient use of public expenditures, local authorities are compelled to anticipate how and to which extend their actions will produce results. Data is therefore precious when designing and implementing climate action plans. While national-level findings are useful, they are unable to identify local specific opportunities that take unique, local factors into account, and most cities do not have the budgets to fund costly local data collection and analysis. Ehrhardt-Martinez (3-483-15) proposes a low-cost methodology to estimate the scale of city-specific savings opportunities presents estimates for five specific U.S. cities and discusses ways that maximize behaviour-related energy and carbon savings.

Local adaptations of more global approaches are also made necessary by sector specific dynamics. Based on a statistical analysis on the building stock of Germany's major cities, Kockat and Rohde (3-233-15) show how the impact of local migration trends of the technical energy saving potential is tangible:

not every city can reach the same energy demand reduction by applying the same building refurbishment policies. The paper also argues that positive and negative migration effects can be diminished or even reverted by a "rebound effect" in space use intensity.

Brunner et al. (3-112-15) assess the results of the largest Austrian research and evaluation project on fuel poverty to date, which accompanied both local and nationwide implementation projects. The paper shows how counselling services can be developed to relate to the specific challenges, constraints, opportunities, and experiences of specific households. Following the principle of capacity building, the project notably demonstrated how selected residents (so-called "Neighbourhood Parents") can not only relay messages to their neighbours but also straighten their impact by understanding the lived-in world of their audience and acting as neighbours rather than professionals. What was especially relevant for the target group was the low-threshold outreach approach provided in different languages. Importantly, however, single, isolated measures against fuel poverty are likely to have only limited effects in the face of the multifaceted roots of fuel poverty and the range of household coping strategies. Fuel poverty is situated between the conflicting priorities of different areas of politics (energy and housing, environment, health, social affairs) and requires coordinated actions. As stated in the paper, "fuel poverty cannot be counselled away"!

The multiple benefits of energy efficiency are commonly argued with an implicit background of growing and thriving urban areas. But the multiple benefits are of course also valid in shrinking and aging cities, though the benefits may be different or at a different scale. Weinsziehr et al. (3-072-15) presents a contextual approach by assessing the macro-economic impacts on municipalities from energy-related renovation measures based on a case study of a German shrinking and aging middle-size city. The study concludes that municipalities confronted by difficult conditions can also expect considerable positive economic impacts when they provide incentives to carry out energy-efficiency renovation, and a central result of the research is that these benefits are not yet identified by decision makers of shrinking and aging middle size cities.

Modelling

Optimization models are commonly used tools when modelling urban energy systems. The models help deal with the complexity and importance of energy-political decisions and are vital tools for reducing and shaping the future energy demand. But the existing models have limitations when it comes to integration of measures. Mainzer et al. (3-427-15) propose a new method for the integration of residential efficiency measures in optimizing urban energy system models. In the paper, the results from the model is shown for a German municipality, and the authors discuss how the model can be used by policymakers when forming local energy efficiency roadmaps, tailored to the specific setting of individual municipalities.

Hou and Feng (3-184-15) focus on the large, rapidly growing commercial building stock in China. Though significant efforts have been made to moderate growth in its energy consumption, notably by implementing energy-efficiency standards for new buildings, moderating the consumption of existing build-

ings remains a challenge. The paper presents the pilot commercial-building energy-efficiency retrofit programs implemented in four selected cities – Tianjin, Chongqing, Shenzhen, and Shanghai – and recommendations for policy design based on the most relevant features of these pilot experiences.

The challenge for local authorities is to articulate – in theory and practice – energy transition and achievement of Factor 4, while reducing inequalities and fuel poverty, through land

planning and policies dedicated to habitat, mobility, and social and environmental issues. Poutrel (3-396-15) presents a software tool developed to help local communities test and monitor strategies for energy transition and climate action plans. Based on a case study in the Southeast of France, the display highlights the need to adopt a dynamic approach in the treatment of the territory's vulnerabilities, to reflect migration and residential mobility.