ROUNDTABLE ON FINANCE FOR ENERGY EFFICIENCY IN DENMARK

16 Nov 2017

Copenhagen, Denmark

Event organised in the frame of the Sustainable Energy Investment Forums contract funded by the Horizon 2020 programme of the European Union and European Regional Development Fund

Table of Contents

EXECUTIVE SUMMARY

The European Commission, in partnership with the Danish Energy Saving Council and the UN Environment Finance Initiative, organized a round table in Copenhagen on 16 November 2017 on financing energy efficiency with an emphasis on the use and development of financial instruments. The event was attended by 64 experts from both Denmark and abroad who are engaged in financing energy efficiency in the sector of national governments, the financial sector, project developers, the renovation supply chain and local and regional partners.

The aim of the National Roundtable was a detailed dialogue on energy efficiency financing with key stakeholders in Denmark in order to identify common goals and possible improvements in the national political framework.

In the introductory plenary session Niels Ladefoged, Policy Officer, Energy Efficiency Unit of EU Commission, and Peter Bach, Chief Advisor at Danish Energy Agency, made clear the policy aspects of the energy efficiency financing framework at respectively EU and national level. The new financing pillars on 1) More effective use of public funds, 2) Assistance and aggregation and 3) De-risking and how to adopt those in the Danish context served a key starting point for the National Roundtable.

Claus Bugge Garn, Chairman of the Danish Energy Saving Council and Vice President of the company Rockwool, followed by expressing the perspective of the Danish energy efficiency sector. He made clear that there is a need to better adopt financing instruments like one-stop-shop concepts and find the practical ways to make these work.

Niels Arne Dam, Executive Director at Finance Denmark, said the Danish financial sector is willing to integrate environmental, social and governance (ESG) factors into financial decisions and that the sector is aware that green investments will often improve the value of the property as one important driver in the process.

The outputs from the four topic groups are summarized as:

Home renovation

There are, by now, prosperous initiatives to build on, both nationally and EU wide. The session entailed a review of selected initiatives and what can be learned in terms of designing future efforts. A core discussion point was how to convince the home-owners and engaging the financial sector and associated tools/ instruments in home renovations. It was agreed that a key issue is to keep it simple and at the same time building a structure around the offers given to house-owners. Especially, it is important to look on the energy aspects in relation to change of ownership. The banks can help to motivate the house-owners and follow the process all way through.

<u>Recommendations for actions</u>:

- To put a benchmark of energy consumption in single family houses of 80 kWh/m2 until 2025. At sales houses are to be upgraded by a certain number of energy classes.

- To adopt the PACE financing in Denmark, for instance starting with a pilot initiative on Funen. Craftsmen can serve entry point for the entire process of screening and realisation incl. financing
- Provide increased subsidies for energy advice and financing as a key element in accelerating home renovations
- Provide financial instruments for loans in the property that do not distort other priority positions and that the loans can be settled in relation to savings.
- To develop a digital solution of the energy labelling
- To make energy advice a permanent item on energy consultancy meetings
- To provide a stable and long-term framework, incl. fewer fixed taxes and incentives for having a good energy standard.

Social housing sector

The focus of the session was how to create sufficient incentives for tenants, including tackling economic uncertainties relating to comprehensive energy renovation projects. And how to ensure financing for projects that is not necessarily a part of comprehensive renovation projects that are eligible for financing from e.g. the National Building Fund.

Recommendations for actions:

- Improve visualization of potentials and savings: Visualizing energy saving potential through benchmarking and digital billing. This would support training of residents and their local associations to identify and understand benefits of energy savings.
- Focus on indoor climate (wellbeing and health): There should not only be a focus on energy savings, but also on the associated effects such as improved indoor climate influencing wellbeing and health (and thus the quality of living). Comfort could be capitalised / visualised through an extended energy rating.
- Financing: It is necessary to define new financing models for the energy part of the building renovations, e.g. through guarantee schemes. Housing Associations was mentioned as possible provider of the fund/ the guarantee. Further that the overall responsibility could be placed at the technical advisor through a guarantee scheme
- Rules and policy: Each individual association should establish a policy for renovations, including energy renovations supported by training and benchmarking. These policies should be supported by national and municipal targets (e.g. through local energy and spatial planning)
- Dynamic Heat Accounting: The National Building Fund highlighted a current initiative supported by the fund, and which was intensively discussed: "Model for the insurance/guarantee of energy savings in social housing. The model assumes a "deep renovation" and use of "Dynamic Heat Accounting" as the settlement method. Rather than distributing the cost according to consumed heat the costs are distributed according to the measured indoor climate in each apartment. Residents obtain a low heat bill if they can keep the indoor temperature and moisture and CO2 levels within the intervals that provide a good indoor climate. Conversely, residents will pay more if they want a different indoor temperature or fail to adequately ventilate the housing area.

Industry/SME sector

The focus of the session was to overcome prevailing barriers such as lack of prioritisation of long term investments in energy efficiency measures.

Recommendations for actions:

- Business Guarantee Fund: It was proposed that such a fund should be adapted for both large and small companies (industries and SMEs). Further that financing institutions should be geared to work with both industries and SMEs either through in-house capacity or outsourcing.

  The fund should be combined with the EPC concept. The advantage of the EPC concept was acknowledged, e.g. it is cost neutral for the owner and it allows the owner to engage with just one contractor, who will in turn manage all the relationships with subcontractors.

  The discussion was rather quickly turned towards the particular needs of the SMEs, where energy efficiency improvements is lagging most behind, because of a lack of information, resources, technical expertise and funding.

  The need to create a one-stop-shop facility to boost EE investments in SMEs was stressed. Particularly for SMEs there's a need to visit them regularly and guide them through the process of identifying, deciding, implementing and monitoring EE investments (in the discussion mentioned as "boots on the ground"). Funds should exist to finance such assistance. It could be done at various levels, e.g. a group of municipalities could share resources for such assistance to SMEs. When dealing with SMEs it is important to take into account that they vary in size and thus represents various needs.

  Participants were informed by various EU funding opportunities in relation to this, e.g. PDA assistance and ELENA funding, and there was an interest to pursue this further.
- Improving energy audtis: As to Energy Audits the option of creating a certification scheme was discussed, which should provide the audited companies to an easier access to grants based on the carried out energy audits. It was further discussed how energy audits could contribute to increase the knowledge level within SMEs, for example energy management could be promoted through internal energy audits.
- Non-energy benefits: The NEBs were acknowledged as important factors to consider when developing business cases for EE investments, and would be most difficult to introduce for SMEs.

  There is a need to promote knowledge about NEBs. Industries and SMEs have to consider the EE projects as investments rather than "energy saving costs" (a shift in paradigm from energy savings to investment opportunities). Standardization of methodologies for including NEBs in business model could be an asset, including how to value these.

Financing Energy Efficiency actions of municipalities

Many Danish municipalities have in recent years undertaken Strategic Energy Planning (SEP) projects to realise the Danish vision of a CO2 neutral society by year 2050, of which energy efficiency actions in Danish municipalities play a considerable role. Against that background, the focus of the session was how the municipalities can serve facilitators for identifying and processing investments beyond own buildings within their territories. This requires a new role, incl. building the appropriate public-private partnership to bring momentum of the desired type of investments.

Recommendations for actions:

- To explore how municipalities can better enable EE investments. Part of this is to overcome ‚infrastructural' barriers like investment ceilings, others are new ways in which to put in place local financing instruments. In this regard it is advisable to learn from international examples
- Part of this can be to seek blending of public and private financing. There are to be find appropriate models for the organisation, incl. how to deal with the issue of de-risking. This is in particular relevant for investments beyond the municipalities' own buildings
- The ELENA projects in Denmark have shown the benefits of aggregation of investments. The experience of these projects could be used to better exploit the prospects of aggregation, incl. limiting the single municipality's burden in processing EE investments
- The session also showed how dynamics can be brought in place via public-private partnership constellations. House of Energy and Gate 21 operating in resp. Jutland and Capital Region & Zealand are pioneers on what can be gained in this respect for further exploitation
- Targeting the SME sector was pointed out as a potential area of intervention. This could interact with EU (ERDF) funding and eventual EPC/ESCO models
- Enabling better access to data and motoring of the energy use in buildings were shown as important steps to enable the most rational selection and undertaking of the EE measures
- Lastly, the discussion revealed the option of transforming city areas (city development) as a broad concept to mobilise new capita. This could go hand in hand with developing the public-private partnership constellations

BACKGROUND TO THE EVENT

As part of the "Smart Finance for Smart Buildings" initiative, the European Commission is organising a series of “Sustainable Energy Investment Forums” to enhance the capacity of and co-operation between public and private stakeholders to develop large-scale investment programmes and financing schemes. The SEI Forums will consist of more than 30 events in up to 15 Member States in 2016-2019; information on past and upcoming events can be found on the SEI Forums webpage.

An initial public conference on Financing Energy Efficiency in Nordic countries took place in Copenhagen on 19 May 2017. This event gathered 103 participants working on energy efficiency finance from the financial sector, national Governments, project developers, the renovation supply chain and local and regional agencies. Taking place over one day, the event had opening and closing plenaries and breakout sessions.

The objective of the National Roundtable is to initiate a dialogue on energy efficiency finance with key stakeholders in Denmark, in order to identify common objectives and potential improvements to be made in the policy framework within the country.

INTRODUCTORY PLENARY

Session chaired by Claus Bugge Garn, Chairman of the Danish Energy Saving Council

Welcome

Claus Bugge Garn welcomed participants on behalf of the EU Commission and the event partners the UN Environment Finance Initiative and Danish Energy Saving Council. The Roundtable had good timing as there is to be made a new Energy Agreement in Denmark and he encouraged good discussion and shaping of ideas for this process.

Perspective

Niels Ladefoged, Policy Officer, Energy Efficiency Unit of EU Commission

Energy Efficiency is the most cost-effective way of achieving Energy Union objectives and provide positive contribution on several levels, incl. security of supply, decarbonization as well as promoting growth, jobs and investments. These merits are addressed in the ongoing revision of relevant EU regulation, the EPBD and the EED, and in the "Smart Finance for Smart Buildings" initiative. There will be a voting at the EU Parliament early 2018 regarding the setting of a 30% Energy Efficiency target in relation to the EED, whilst the revision of the EPBD is in more rapid progress.

The "Smart Finance for Smart Buildings" initiative entails three pillars. *The first* is to enable more effective use of public funds. This includes efforts like making more use of financial instruments to achieve high leverage ratios and to make Energy Performance Contracting more accessible to the public sector. *The second* is to put in place aggregation and assistance for project development, incl. Project Development Assistance (PDA) facilities to help project promoters bring their ideas to reality. *The third* pillar concerns de-risking of energy efficiency investments developed in collaboration with the Energy Efficiency Financial Institutions Group (EEFIG). This includes the De-risking Energy Efficiency Platform (DEEP), a large database with real performance data of energy efficiency projects http://deep.eefig.eu as well as an Underwriting toolkit on the value and risk appraisal of energy efficiency investments http://valueandrisk.eefig.eu

Perspectives in view of the Energy Efficiency Finance Framework

Peter Bach, Chief Advisor at Danish Energy Agency

Started quoting the IEA Energy Efficiency Market Report 2016 that "public policy has been the key driver of efficiency improvement - but much more is possible and much more is needed"

Measures are required to overcome barriers like lack of information and knowledge, split incentives and complexity of energy efficiency projects. Although there are already strong measures in place – such as taxes and demands of the building code – but this is not sufficient to fulfil the cost-effective potential.

Peter Bach raised the question whether financing is the key barrier as many building owners have available equity and low interest levels. It seems that the most crucial is to convince the project owners in both the building and industry/SME sector on the multiple values of the energy efficiency project and this way let financing be part of the solution. Here the credit institutions might have a role in passing the message.

Perspectives seen from the Energy Efficiency Finance Framework

Claus Bugge Garn, Vice President Rockwool, Chairman of the Danish Energy Saving Council

The energy efficiency effort currently stands on three legs: 1) Regulation, incl. building codes and eco-design, 2) incentives and 3) information. Most successes so far are within new build and electrical equipment, whilst there are yet significant untapped economical savings opportunities within existing buildings. A key barrier is the requirement of pay-back, especially in the industry/SME where pay-back times above 3 years are generally not interesting. The Danish scheme for Energy Efficiency Obligations has come in doubt as a report has shown insufficient control and little additionality of the scheme. This calls for new ideas and practices onwards.

Could financing be a needed fourth leg to make energy efficiency roll in the existing buildings? Yes, probably. There is lot of financing available, but the trick is how to bridge the 'two worlds'. Initiating one stop shops for housing renovation could be key in such effort.

Perspectives seen from the Financial Sector

Niels Arne Dam, Executive Director at Finance Denmark

The Danish financial sector is willing to integrate environmental, social and governance (ESG) factors into financial decisions. Hence the sector aims to contribute actively to a more sustainable economy, incl. the goals agreed on EU and global level. The Danish banks are robust and have high equity and capacity to fund viable projects. Part of this is to conduct a comprehensive and unbiased risk assessment of the credit policies, thereby increasing the transparency of investments. It is important that framework conditions are trustworthy, or the risk will increase.

Green investments will often improve the value of the property and therefore the Danish banks and mortgage institutions do focus on the area. There is no specific definition of ”green mortgages”, but the Danish mortgage system provide good opportunities for giving loans to green investments in the form of energy- and climate oriented investments.

TOPIC GROUP ON HOME RENOVATION

Session chaired by Tommy Olsen, Gate 21

Purpose:

In recent years there have been different initiatives to promote energy renovation of single family houses in Denmark. Despite partial success in involving financial institutions in these initiatives, it has remained difficult to convince house owners to take action on saving measures.

The session provided an opportunity to review the initiatives so far in order to learn for the design of future efforts in the field. Part of this was to present examples from other places in Europe that could inspire the Danish process.

Key questions:

1. What can be learned from the existing initiatives in view of improving the future efforts?
2. How could the financing part of the offer to house-owners be improved and what other elements are to be included in order to boost the impact?
3. What would an improved set-up require in terms of financing instruments and stakeholder constellations?
4. How could it be ensured that such improved set-up (might be in form of separate initiatives supplementing each other) would be as sustainable and long-lasting as possible?

Agenda:

11:00 Introduction by moderator

11:05 Tour de table of the session participants

11:10 Presentation of the SPEE Picardie initiative - by Alice Morcrette

11:25 Presentation of the PACE initiative - by Kristina Klimovich

11:50 Experience from Better Housing and activities in the Capital Region – by Gate 21

12:05 Experience from initiatives in Frederikshavn – by Bahram Dehghan

12:25 Summary by moderator

12:30 Lunch

13:30 Experience from the REFURB project – by Lotte Lindgaard Andersen

13:50 Introduction to interactive discussion by moderator

14:00 Discussion on how to convince the home owners - kickstart by Gate 21

14:15 Discussion on engaging the financial sector and associated tools/instruments
– stimulus by Kim Tobiasen, Sparekassen Kronjylland

14:30 Discussion on how to design a ”package” for home renovations

14:50 Summary incl. consolidating report for plenum by rapporteur and moderator

International speaker: Alice Morcrette, SPEE Picardie

SPEE Picardie (Picardie Pass Renovation) is a comprehensive 'one shop' initiative for home renovation in the region of Picardie in France. It is a 4 years project, running 2014-2018. The initiative provides a full technical and financial package to help the house-owner through a renovation process. A key element in this is to provide a free energy audit and to help guiding the renovation works adapted to the house-owners' needs. Alice reviewed the financial model that comprises a third-party financing operator and a guarantee fund. The financial set-up is put in place by EIB vis the ELENA Programme managed by the regional council of Picardie. The financial offer entails 13% subsidy to the house-owner.

The current state of progress is that the initiative has led to 2,270 energy audits and 1,508 planned renovations, corresponding to an investment level of 34 MEUR. In average the home renovations lead to 54% energy savings per house.

www.pass-renovation.picardie.fr

Q&A

Are there given guarantees for the house-owners? No, but the 5-year plan for follow-up and monitoring of the performance has a similar effect.

International speaker: Kristina Klimovich, GNE finance, on the PACE initiative

Typically, retrofitting is complicated, difficult and stressful. To overcome this PACE is both investor friendly and people centric:

- Investor friendly
    - 100 % up-front financing
    - Long-term financing that stays with the property (collection of taxes made easy)
    - Security and Repayment mechanism
- People-Centric Deplayment
    - Simple and easy, digital platform
    - Fast Approval
    - Use of trusted PACE contractors

The PACE approach has given good results in the USA, notably California and Florida. It experiences a huge growth and 40.000 local jobs have been created. At this stage the investments amount to 4,7 billion Dollars.

A new project, EuroPACE, supported by H2020 project, is to start and bring PACE to Europe. There is a pilot in Spain through existing legal framework and by 2020 the intention is to have 4 cities in Europe

that are ready to implement PACE. Webinars are open to find out which cities are most attractive to roll out.

www.pace-equity.com

Q&A

Who are the behind PACE? There are a number of actors behind comprising specialist funds, institutional investors and green bonds. It originated in Berkeley California. 3 major private companies are now PACE providers in the US – *for* profit.

Speaker: Tommy Olsen, Gate 21, on experience from Better Housing and activities in the Capital Region

Better Housing (BedreBolig) is a national Danish initiative for home renovations. A key element is to provide advice to ease the process for the house-owners and subsequently for the involved craftsmen due to the philosophy that 'it is a really good idea to consider the energy dimension when I am going to renovate my house'.

It has been a success with the screenings of homes, whilst the holistic renovation management has not experienced break-through in the private housing sector. The real estate agents did never fully engage, though momentum was approaching. Onwards the energy label could interact with a Better Housing plan.

Growth via energy renovation (Vækst via Energirenovering) aims to promote home renovations in the Capital Region of Denmark, where the municipalities play a key role in reaching out to the house-owners. The aim is to generate 300 renovations per year in a municipality of 50.000 inhabitants.

The experience is that the involved craftsmen and advisors are fully empolyed and dont need to look for new business areas. It would help if the financing institutions better understood energy improvements as part of the investment. It is recommended to ensure free energy advice in the set-up as well as merging Better Housing plans with the energy label of houses.

Speaker: Bahram Dehghan, Energy City Frederikshavn, and Henrik Christensen, Jyske Bank, on home renovation efforts in Frederikshavn

Bahram Dehghan works in 'Energy City Frederikshavn' including the initiative on promoting home renovations. Henrik Christensen works in Jyske Bank and has been involved in the associated financial instruments.

While awaiting a 'miracle cure' Energy City Frederikshavn' has established a tailor-made model for home renovations as an element in the city's goal of a fossil free city by 2030 as well as an attractive city to live in. Frederikshavn is member of the Covenant of Mayors and got support from EU projects lastly a H2020 project, to undertake these activities.

It started with an in-depth market analysis like analysis of the financial market, dialogue meetings for banks, artisans, energy advisors, real estate agents and training sessions for bank advisors in each local bank. This was followed by an effort to also engage craftsmen, (independent) advisors as part of gaining common momentum towards the house-owners. The biggest challenge has been to motivate the house-owners and, despite the hard efforts, this has not yet been properly fulfilled.

Henrik Christenen supplemented that Jyske Bank fully backs the initiative as it is a good business model differentiated according to relevant groupings of house-owners. Hence the bank has encouraged its own customers to engage in home renovations.

With support from a H2020 project Frederikshavn is taking steps to expand its outreach to apartments. There is need for improved ways to motivate the house/owners across all building segments.

http://energycity.dk

Q&A

A comment was it is important to continuously follow-up when you have initiated a good and holistic scheme. It was asked about the use of ESCO. It was responded that the ESCO model is only used in public buildings in Frederikshavn.

Another question was where media effort had most effect. It was responded that the most efficient was the public meetings and face to face med homeowners. Overall, Bahram has not been satisfied with the impact of media launch, the impact has been too little in comparison with the effort. Moreover, he would like to change the mindset of SMEs: why aren't they interested in increasing their business. He called for the SME association to intervene in this respect.

Speaker: Lotte Lindgaard Andersen, CLEAN, on REFURB project

The purpose of REFURB is to create strong offers for house/owners in terms of deep renovations of single family houses. The project is supported by H2020 and runs in the period 2015-2018.

The offer is to be designed based on analysis of demand and supply and will comprise local testing, plan for roll-out and replication and exploring the transferability potential.

The offer entails:

1. Focus on market segments (for instance young families)
2. Customer journey (conducted by a public-private partnership)
3. Value creation and quality of the different package deals
4. Business model
5. Subsides (as needed)
6. Single point of contact (as needed)

According to the Business Model Canvas it is then up for the house-owners to choose the most suited package like indoor climate, energy comfort or a la Carte. The packages are designed with a view to bringing most value for money and due the argument that you lose money by not maintaining and renovating the house.

Among the key issues to be addressed:

- Are the society or house-owners demands to be satisfied?
- Who can support the critial initial phasesof the customer journey?
- Ensure security for the investment via performance guarantee

Whether the initiative will become a success depends on a complex of factors, ranging from communication/arguments, financial aspects and the perception by the house-owners. The design of the packages is then to be adjusted in the course of the process.

Policy oriented recommendations of REFURB (at this stage):

- Energy taxes that animate energy savings
- Same focus on energy savings as green energy
- Provide the bank sector with financial instruments to require an energy investment-plan when giving loans
- Provide attractive mortgage loans to deep renovations
- A new energy agreement in Denmark that reward home-owners for a good energy standard
- To make it mandatory for municipalities to prepare energy saving plans in this field, incl. organisation
- Updated legislation on valuation of houses, which includes energy label

http://go-refurb.eu

Speaker: Niels Kåre Bruun, CEO, on the Better Home initiative

Better Home is a one-stop initiative for home renovations that last year reached 100 million DKK in turnover. It is established by the founding companies Danfoss, Grundfos, Rockwool, Velux from the industry sector. The packages developed under Better Home function as pre-inspiration and all solutions are customized. The approach is to make access simple in form of a centric renovation journey and the offer to home-owners is to build on transparency and reliability. Moreover, it is digital-driven with a view to optimizing the user experience. 80 % of the projects can be completed by the installer without use of advisors. The installers are partners and have the skills to fulfil this. The home renovations to be processed generate 30-70% energy savings and 93 % of the cases proposals are converted into orders.

Q&A

It was asked when BetterHome comes with a financial offer that can match the demand of the house-owners. It was responded that BetterHome works closely together with banks to get insight in the situation of the customers, showing that only 20 % of the customers need extra loans for their projects.

www.betterhome.today

Summary by moderator:

- The presentations and discussions are in favour of a holistic approach for home renovations
- The approaches should not focus too much on pay-back times, but rather the multiple benefits that the home renovations can bring about
- A key is to find the right messages to the house-owners (good communication) along well-designed offers in view of the house-owners' needs and interest
- Trust and confidence is important as for instance the example from Picardie shows

Discussion – how to make house-owners act on energy renovations?

Stimulus by Kim Tobiasen, Sparekassen Kronjylland

Kim Tobiasen is dept. manager at the regional bank Sparekassen Kronjylland and has considerable experience with promotion and financing of home renovations. Part of this has consisted in numerous 20-30 meetings on this agenda, alt together with participation of 2000 people.

A key issue is to keep it simple and at the same time building a structure around the offers given to house-owners. Especially, it is important to look on the energy aspects in relation to change of ownership. The banks can help to motivate the house-owners and follow the process all way through.

It was asked whether a guarantee fund could help to raise the motivation for taking loans. This is not considered to be the case for small loans, but could be a stimulating factor in areas where the houses have less value. Another question was if Kim Tobiasen had advise to unique selling propositions. He responded that a light education of bank staff might be a way forward, but that deciding on this is not easy to get through.

Proposed solutions:

- To put a benchmark of energy consumption in single family houses of 80 kWh/m2 until 2025. At sales houses are to be upgraded by a certain number of energy classes.
- To adopt the PACE financing in Denmark, for instance starting with a pilot initiative on Funen. Craftsmen can serve entry point for the entire process of screening, project realisation incl. financing
- Provide increased subsidies for energy advice and financing as a key element in accelerating home renovations
- Provide financial instruments for loans in the property that do not distort other priority positions and that the loans can be settled in relation to savings.
- Digital solution of the energy labelling
- To make energy advice a permanent item on energy consultancy meetings
- To provide a stable and long-term framework, incl. fewer fixed taxes and incentives for having a good energy standard.

TOPIC GROUP ON SOCIAL HOUSING

Session chaired by Leo Pedersen, Aarhus University

Purpose:

The social housing sector in Denmark has about 550,000 homes, making up approx. 20 percent - of the total Danish housing stock. Renovations are based on grants, loans and small rent increases (plus investment funds). Grants are coming from the National Building Fund (favourable loans). It is a private fund that is financed by the tenants through the rent in dwellings. It is revolving and solidary meaning that it generates saving for the entire sector. Due to ongoing and planned massive housing renovation efforts the sector plays a significant role in relation to energy efficient buildings and to Danish national goals of reducing energy consumption in buildings. Since 2007 the National Renovation Fund has provided support for renovation of public housing for over 34.5 billion DKK. There are plans for further rather big scale renovations in the next years and the challenge is to find ways to optimize the energy efficiency dimension of this effort.

The National Building Fund, does not possess broad potential to support energy renovations, which can only be supported as part of an overall building renovation process. The energy efficiency initiatives must therefore primarily come from the sector itself.

Further, there are some general barriers related to uncertainties on the amount of energy savings realised at the renovation projects, and thus also the future energy costs. In the end, tenants are going to approve the renovation through the housing democracy and in relation to the consequences for the rent (often creating split incentives between the housing association and the tenants).

As to retrofit of public buildings it is obligatory to base this on a "total economy" approach (holistic approach), and efforts are ongoing to transfer this approach to the private sector to ensure deep renovation and well documented and economic viable projects (bankable refurbishment projects).

Key questions:

2.1. How do we create sufficient incentives for tenants, including tackling economic uncertainties relating to comprehensive energy renovation projects (in relation to financing schemes/business models)?
2.2. How do we ensure financing for projects that is not necessarily a part of comprehensive renovation projects that are eligible for financing from e.g. the National Building Fund?
2.3. How do we ensure continuous financing in relation to the various funds and business models available (attracting outside capital)? Which are the benefits/differences of the various options?

Agenda:

11:00 Introduction by the moderator, Leo Pedersen

11:05 Tour de table of the session participants

11:10 State of the play in the Sector, Danish Housing, Mikkel Jungshoved

11:20 Clarification of questions direct to the presenter

11:30 Presentation of experience from Project Zero (H2020 SmartEnCity project, H2020 HAPPI project): Energy retrofit in social housing through project bundling and close interaction with tenants, Henrik Bielefeldt

11:40 Clarification of questions direct to the presenter (not wider discussions)

11:50 Climate KIC – Finance of social housing Energy Efficiency in the Netherlands: "Energy Performance Compensation", Sybren Steensma

12:00 Clarification of questions direct to the presenter

12:05 RentalCal - improving market transparency for energy efficiency investments in the rental housing industry, Elsebeth Terkelsen

12:15 Clarification of questions direct to the presenter (not wider discussions)

12:20 Wrap up comments by moderator

12:30 Lunch

13:30 Introduction by the moderator.

13:35 Presentation from Climate KIC about split incentives (stimulus introduction), Sybren Steensma

13:40 Presentation from Project Zero about user involvement (stimulus introduction), Henrik Bielefeldt

13:50 Presentation from RentalCal - creating incentives (stimulus introduction), Frede Hvelplund

14:00 Question 1, Incentives

- Following discussion based on participants views and ideas (responses/ideas to the questions) – open round
- Moderator/Rapporteur agrees with the group the key messages to feed back in plenary

14:30 Question 2/3, Financing instruments

- As for Question 1 above

Danish speaker: State of the play in the Sector, Danish Housing, *Mikkel Jungshoved*

Danish Social Housing is a branch organization with 5030 members, and 7,000 departments distributed throughout the country. The organization represents approx. 1 million residents.

The resident democracy is represented throughout the organization. This is the DNA in the organization, involving both advantages and disadvantages, as not everyone is interested in environment and energy.

The public housing must accommodate all social classes, and since any renovation influences the rent and thus the individual's economy, it is essential to have the financial aspect in mind when considering energy solutions. This is considered a key barrier by the organization.

Renovations typically reduce energy consumption by approx. 30 percent, and in some innovative projects much more. Looking ahead, the potential is even bigger as much of the future renovations will be carried out in housing stock typically built in the 60s or 70s, and thus with a poorer energy standard.

Mikkel Jungshoved mentioned that during a major renovation, it is important also to take the energy requirements into account. Here the National Building Fund seeks to meet energy requirements and goals, but it is not always possible to complete in a sufficient way. In most cases the starting point is not energy savings. The purpose is overall to construct and maintain residential buildings for everyone at a reasonable price and quality, for example kitchen and bathing facilities of high quality.

International/ Danish speaker: Project Zero - H2020 HAPPI project, *Henrik Bielefeldt*

The overall objective of the project "Social **H**ousing **A**ssociation Energy Efficiency **P**rocess **P**lanning and **I**nvestments" (**HAPPI**) is to Increase the energy renovation rate within the social housing sector via an exemplary action bringing together six social housing organizations in the Danish Municipality of Sonderborg.

Specifically, the project will demonstrate how cooperation between the six participating social housing associations fosters organizational innovation to create synergies in terms of bundling of smaller investment projects into a large scale cost-efficient investment program for sustainable energy measures in the social housing sector. The project activities will be done in close interaction with tenants through information meetings and indirect communication channels.

The project will lead to an aggregated 15,2 MEUR investment programme for sustainable energy measures in the existing residential building stock. It will launch in March 2018 and run over a period of three years.

Henrik Bielfeldt stressed that the project will focus on creating a bottom-up effect by involving residents through a democratic process and qualifying their associations through targeted training programmes. The project will implement an Energy training programme for 50-100 persons, including CEOs, CFOs, technical/administrative staff, caretakers and service staff and central and department board members.

International Speaker: Climate KIC – Finance of social housing Energy Efficiency in the Netherlands: "Energy Performance Compensation", *Sybren Steensma*

Sybren Steensma initially pointed out that regular retrofits (business as usual) are not enough to reach the Paris-goals. The pace is too slow. Instead, cities and real estate owners need Deep Retrofit bringing buildings to the "(near) zero energy level" with a scalable approach.

For affordable, scalable Deep Retrofit projects, it is needed to balance between supply and demand. The supply side must deliver integrated solutions instead of fragmented solutions. The **Demand side** needs to challenge the market to deliver integrated solutions instead of procuring individual technologies.

He mentioned a list of non-technical barriers, a.o. the lack of a clear legal/regulatory framework (European / national / local) and that current modes for financial arrangements are insufficiently based on longer term benefits for various stakeholders (split incentives dilemma).

He further presented a case study from the Netherlands (National programme for **Zero Energy Renovation** (Energiesprong) 2013-2016, involving many building companies and housing corporations). It comprised state owned buildings where it was not possible to legally increase rents in relation to energy renovation projects. Hence the so callled –"Energieprestatievergoeding (EPV)" –Energy Performance Compensation - was introduced. The EPV is an amount that the renter pays to the owner (the social cooperative) because of the energy neutrality of the house. Thus, housing corporations can now legally charge for energy delivery, if the project is certified "Zero on the Meter" (energy neutral building)

For the occupants, the financial net effect is zero: energy bill drops, but they now pay the EPV instead (EUR 1,40/m2/month). At the same the quality of living is improved. Sybreen Steensma further mentioned that the financial incentive should not be the focal point, instead the quality of the green energy house should be stressed.

International/Danish Speaker: RentalCal - Improving market transparency for energy efficiency investments in the rental housing industry, *Elsebeth Terkelsen*

The RentalCal project focuses on the current level of energy efficiency investments in the rented housing sector, which is in danger of missing EU policy targets. RentalCal will show a clear road map towards a sustainable housing stock and is developing models and tools for assessing the commercial viability of energy efficiency retrofitting in rental properties. This will reduce split incentive barriers - translating the positive effects of energy efficient and sustainable construction into real value and financially feasible investments for the real estate industry

Elsebeth Terkelsen introduced the RentalCal web tool, which aims at providing an open and objective comparison of the retrofit opportunities available to investors in the residential rental market. The tool will be a Microsoft Excel-based tool, and it will adopt established methodologies and valid input parameters to evaluate various energy retrofits and costs of such investment opportunities.

As such the tool is expected to contribute to provide transparency on the profitability of individual energy efficiency retrofits and particularly in relation to private financing.

The tool is expected to be available at the beginning of 2018.

Question: It was asked whether the models takes operations costs into account. It should do, because it includes various cost categories for construction works and operation costs.

The model further can be adopted to country specific conditions by entering data into the manual part of the model.

http://www.rentalcal.eu

Discussion

Stimulus introdution from Sybren Steensma (split incentives)

Sybren Steensma mentioned a list of barriers for deep retrofit related to the split incentives dilemma:

- Investments into Deep Retrofit need to be earned back from energy bill savings
- Deep Retrofit is expensive, thus require long payback periods (20, 30 years, depending on technical measures taken)
- In rental markets, the investor is not always the one who benefits from the investment
- Especially in social housing, rental rates are highly regulated in many European countries, making it difficult to earn back investment costs.
- We need everything to interface better. Health and wellbeing should also be taken into account when optimising energy efficiency

Stimulus Frede Hvelplund, RentalCal

Frede Hvelplund questioned whether it pays off for a land owner of apartment buildings to invest in heat conversation.

He highlighted the **"Total economy neutrality"** situation. First of all, any landlord has the right to increase the rent in any rented house equivalent to the reduction in the energy bill caused by a given investment in energy conservation. Further "The **free rent** situation": In houses build after 1991 the rent is set in a free process between landlord and the tenant. Here the landlord is free to set the rent, but may lose competitiveness due to the present bad energy conservation incentive structure. **Conclusion: it does not pay for the landlord to invest in heat conservation.**

Further he through various figures highlighted that the subsidy element is insignificant and does not change the incentive situation.

Based on preliminary analysis within RentalCal he concluded that the building code implementation linked to renovation, due to lack of economic incentives, will have low impact, as renovation may be replaced by repair. The effects on energy conservation of the building code requirements therefore may come too late and be far below 20-30% of heat and hot water conservation. This has to be analysed and discussed in depth.

Plenum discussion

Following the discussion was focused on whether to establish guarantee schemes rather than subsidy schemes. A guarantee can be given to anyone based on risk scenario. If the energy renovations do not turn out as agreed, the deficit can be covered through e.g. a guarantee fund.

It was mentioned that several trials with ESCO in the sector have shown that energy optimization of housing has difficult conditions if funding is to be obtained outside of the known financial structure, where housing departments renovate their buildings with cheap state and municipal guaranteed mortgage loans.

Proposed solutions – generation of ideas

Improve visualization of potentials and savings

Energy saving potentials should be visualized through benchmarking, and for this purpose the energy consumption figures should be public available for example for groups of minimum 50 residential houses / apartments. This could be used as a basis to train resident and their associations in relation to identify and understand benefits of energy savings.

Savings would be more visible for each resident through digital consumption billing (based on variable tariffs)

Focus on indoor climate (wellbeing and health)

When carrying out energy renovations it is important to not only focus on savings, but also on the associated effects such as improved indoor climate influencing wellbeing and health (and thus the quality of living). Comfort could be capitalised / visualised through an extended energy rating.

Financing

It is necessary to define new financing models for the energy part of the building renovations, e.g. through guarantee schemes. Housing Associations was mentioned as possible provider of the fund/ the guarantee. Further that the overall responsibility could be placed at the technical advisor through a guarantee scheme

It is necessary to provide trustworthy support and calculation models (technical as well as financial transparency).

Long term loans should be available for deep renovation (30 – 50 years maturity time).

Rules and policy

The individual Housing associations managing the operation and renovation of the social housing properties do not in general possess the needed expertise in energy renovation matters, but purchase professional external advice when needed

This gives some challenges in relation to provide a sufficient overview of potentially profitable energy savings and to decide on implementation of profitable measures within the housing democracy. The primary focus in this process is the directly derived rent effect.

In this context, questions in relation to the housing democracy process are

- How can a sufficient baseline be established to quantify the residents expenses?
- How can savings be guaranteed in a 1 to 1 scale?

Further to this aspect the following was proposed:

- Each individual association should establish a policy for renovations, including energy renovations
- Benchmarking would qualify the decision process
- Resident and their housing associations (decision makers) should be trained in relation to understand technical, economic and financial apects of energy renovations.
- Energu renovations should be supported by national and municipal targets (e.g. through local energy and spatial planning)

Dynamic Heat Accounting

An initiative currently supported by The National Building Fund was intensively discussed: "Model for the insurance/guarantee of energy savings in social housing. The model assumes that a "deep renovation" is carried out and that a "Dynamic Heat Accounting" is introduced as the settlement method. The coverage period is proposed, for example, 8 to 10 years, corresponding to the average renting period.

Rather than distributing the cost according to consumed heat the costs are distributed according to the measured indoor climate in each apartment. Residents obtain a low heat bill if they can keep the indoor temperature and moisture and CO2 levels within the intervals that provide a good indoor climate. Conversely, residents will pay more if they want a different indoor temperature or fail to adequately ventilate the housing area.

As such the model basically aims at graduating the risk that energy savings does not occur, and particularly seen in relation to user behavior. The model is considered potentially attractive for e.g pension funds, municipalities, the state or others who, as an alternative to grants for energy projects, could establish a guarantee fund for energy renovations.

The model assumes that a capable player acts as "energy auditor", to quality assure consumer savings and to ensure a correct and standardized calculation and definition of the baseline consumption.

TOPIC GROUP ON INDUSTRY/SME SECTOR

Session chaired by Erik Gudbjerg, YourEnergy

Purpose:

One of the prevailing barriers is missing prioritisation of long term investments in energy efficiency measures. Industry enterprises typically focus on energy savings with a payback period of up to 2 years, unless the energy saving project takes place as part of a prioritized effort within the company. Often core business investments are prioritised rather than energy efficiency projects with a favourable economy.

The energy companies' energy-saving efforts (EEOs) require the repayment period to be over one year to receive subsidies. This is to ensure that no grants are granted for energy savings which would have been made also without subsidies. However, it is essential to provide enterprises with better incentives to implement energy efficiency measures with a longer (1 year or more) payback time as these face difficulties in competing with investments in the core business areas. One way to give companies such incentives is to make it easy and cheap to provide outside capital for energy saving projects, for example in the form of pension funds or the like.

For private actors who finance energy savings (financial institutions / ESCOs), the primary barrier is the risk that a given company will end before the financing is repaid. The barrier concerns both the company's ability to commit itself for a longer period as well as the investor's security for repayment of the invested capital.

Therefore, one of the initiatives discussed is a business guarantee fund that could lift part of the risk from companies and financing actors in ESCO models or the like. A guarantee fund may also help to make it easier to bundle (pool) energy saving projects to make the portfolio more attractive to investors while at the same time making it easier for administrators. The intention is primarily to facilitate energy savings with longer payback times. As the risk increases with the length of the repayment period, the Fund's guarantees are expected to be particularly attractive for long-term projects.

Synergy with mandatory energy audits: Energy efficiency measures identified through energy audits represent a relatively high potential. There is a big difference in how companies are following up in relation to these suggested measures, but generally more could be done. Supporting the implementation of identified profitable energy savings could be based on a combination of advisory services and funding, for example by supporting energy audits being continued towards financing (business plans). Further, the mandatory energy audits of large companies may benefit from the use of a guarantee fund.

SMEs: The SME segment is currently served mainly by craftsmen. Various actions have been taken, but generally measures have not generated attractive business opportunities for craftsmen.
A technology approach, in the form of a catalogue with standard solutions and standard values, could reduce transaction costs for energy savings. However, an option for specific inventories must continue to exist for non-standard processes.

To engage new private actors in the SME segment, there is a need to create volume, for example by bundling (pool) based on technology, geography or sectors/measures. In addition, the municipalities, regional clusters, etc., can be used with advantage in communicating contacts with SMEs (ongoing to some extent). For example, a system of "rolling technology access" could be established in the form of campaigns in collaboration between actors / suppliers, professional organizations, municipalities and state organisations.

Key questions:

3.1 What opportunities are needed to ensure that industrial enterprises priorities long term EFF investments, could it be Business guarantee fund, EPC concept or Tender model for EFF

- *To be considered in relation to possibilities within existing funding schemes and their requirements to project bankability*

3.2 How do we ensure effectiveness of energy management schemes and audit schemes to make sure relevant EEF measures are identified, documented, implemented and monitored in all segments incl. SMEs.

3.3 Do we look at energy efficiency investment the right way ex. do we include the value of non-energy benefits in calculations, is simple payback a relevant assessment tool.

Agenda:

11.00 Introduction by the moderator, Erik Gudbjerg

11.05 Tour de table of the session participants (needs and opportunities in terms of financing instruments)

11.25 Presentation of the H2020 Steam-up project – in particular the participatory approach in the energy audits, inclusion of financial elements and involvement of CEOs in the early stages of the energy audit, Erik Gudbjerg

11.40 Clarification of questions direct to the presenter

11.50 Presentation of EPC / ESCO experience from Siemens, Lars Nielsen

12.05 Clarification of questions direct to the presenter

12.20 Wrap up comments by moderator

12.30 Lunch

13.30 Introduction by the moderator.

13.35 Question 1, Incentives (focused on guarantee fund and application of the EPC concept)

- Stimulus introduction by moderatorollowing discussion based on participants views and ideas (responses/ideas to the questions) – open round
- Moderator/Rapporteur agrees with the group the key messages to feed back in plenary

14.05 Question 2, Follow-up on energy audits

- As above

14.35 20 minutes Question 3, Creating incentives by a holistic approach also taking external factors into account

Speaker: Erik Gudbjerg, Steam-up

Steam Up aims specifically at the efficiency potential in steam systems. The project is designed to bridge the significant gap between promising audit results on the one hand, and implementation of cost-effective and easy to implement measures on the other.

Barriers towards this includes: No obvious business case, insufficient technical expertise on energy efficiency through-out the value chain and no supporting organizational structure with the companies.

Steam Up addresses these barriers by building a business case on the basis of 75 in-depth steam audits that cover state of the art steam technology and expertise, include non-energy benefits and reduce the organizational costs by providing integrated solutions for implementation and reporting.

Further by capacity building program that includes training and coaching-on-the-job of over 500 energy auditors, ESCOs, internal energy managers and energy management training providers and by changing the behavior of decision makers in the enterprises towards incorporating energy efficiency in the management structure.

Erik Gudbjerg stressed the importance of involving all the right persons in the decision process on energy projects within the industries. This should not only include the Technical Director, but also the overall management of the company CEO) as well as managers dealing with operation and maintenance and QESH (Quality, Environment, Safety & Health).

This reflects that a good business case also takes non-energy benefits into account such as e.g. reduced waste products, reduced emissions, improved production cycles, improved operation and maintenance, improved working environment, improved public image, improved working morale etc.

He further stressed the importance to assess project out from the right key values. These are often based on simple pay back calculated from the energy savings. The disadvantage of this is that there is no discounting on the time value of money and other benefits.

https://steam-up.eu/en

Speaker: Lars Nielsen, Siemens, ESCO/EPC experience

In Denmark, the ESCO/EPC concept has been mostly used for municipal and governmental entities. However, the pension fund Danica is among those entering the stage for the private sector with an energy optimization of the Frederiksberg Shopping Center.

Thus, the Frederiksberg Center and its owner Danica has made an agreement with Siemens to renew energy-efficient ventilation systems, CTS, pumps and escalators.

The project is focusing on common areas and facilities, and therefore independent from actions by the renters of shops, offices etc.

According to Lars Nielsen, the main driver for the Center to enter into this agreement was the possible increase in the property value from the implementation of the project and lack of resources and time to implement such a project by own means.

The project is implemented by the EPC concept where Siemens guarantees the savings, and which finances the project measures. In this way the project is cost neutral for the centre.

The project has resulted in 33% energy savings and an annual economic savings of approx. 1 mill DKK. In addition, the project has resulted in CO2 savings, an improved indoor climate and reduced maintenance costs. The increased value of the Center is estimated at approx. 20 Mill. DKK.

Lars Nielsen stressed that if Denmark is to reach its green targets it is important also to focus on the private sector. With the EPC/ESCO concept the costs are neutral for the companies, operation costs are reduced, buildings are improved and also the global climate is improved.

Discussion: What opportunities are needed to ensure that industrial enterprises priorities long term EFF investments

Business Guarantee Fund

Initially the Business guarantee fund was discussed. It was stated that such a fund should be adapted for both large and small companies (industries and SMEs). Further that financing institutions should be geared to work with both industries and SMEs either through in-house capacity or outsourcing.

The fund should be combined with the EPC concept. The advantage of the EPC concept was acknowledged, e.g. it is cost neutral for the owner and it allows the owner to engage with just one contractor, who will in turn manage all the relationships with subcontractors.

The discussion was rather quickly turned towards the particular needs of the SMEs, where energy efficiency improvements is lagging most behind, because of a lack of information, resources, technical expertise and funding.

The need to create a one-stop-shop facility to boost EE investments in SMEs was stressed. Particularly for SMEs there's a need to visit them regularly and guide them through the process of identifying, deciding, implementing and monitoring EE investments (in the discussion mentioned as "boots on the ground"). Funds should exist to finance such assistance. It could be done at various levels, e.g. a group of municipalities could share resources for such assistance to SMEs. When dealing with SMEs it is important to take into account that they vary in size and thus represents various needs.

It was discussed whether there is a financing problem in relation to implementing EE investments in industries and SMEs. It was concluded that the problem is to bring forward well-documented business cases to the financing institutions enabling them to evaluate the projects and assess the risks. To facilitate

this the industries and SMEs needs to be supported through a one-stop-shop facility, which could be combined with the guaranteed fund.

Participants were informed by various EU funding opportunities in relation to this, e.g. PDA assistance and ELENA funding, and there was an interest to pursue this further.

Improving energy audtis

As to Energy Audits the option of creating a certification scheme was discussed, which should provide the audited companies to an easier access to grants based on the carried-out energy audits.

It was further discussed how energy audits could contribute to increase the knowledge level within SMEs, for example energy management could be promoted through internal energy audits.

Non-energy benefits

The NEBs were acknowledged as important factors to consider when developing business cases for EE investments, and would be most difficult to introduce for SMEs.

There is a need to promote knowledge about NEBs. Industries and SMEs have to consider the EE projects as investments rather than "energy saving costs" (a shift in paradigm from energy savings to investment opportunities).

Standardization of methodologies for including NEBs in business model could be an asset, including how to value these.

TOPIC GROUP ON FINANCING EE ACTIONS OF MUNICIPALITIES

Session chaired by Pelle Bournonville, RealDania

Purpose:
Many Danish municipalities have in recent years undertaken Strategic Energy Planning (SEP) projects to realise the Danish vision of a CO2 neutral society by year 2050, of which energy efficiency actions in Danish municipalities play a considerable role.

As the financing conditions for energy efficiency investments in the municipalities' own buildings are quite good in Denmark the focus of the session was how the municipalities can serve facilitators for identifying and processing investments beyond own buildings within their territories. This requires a new role, incl. building the appropriate public-private partnership to bring momentum of the desired type of investments.

Key questions:

1. What are the key challenges for Danish municipalities in financing energy efficiency actions and which of the presented good practice examples could be of inspiration?
2. What specific initiatives could be taken in terms of financing instruments or other ways to improve EE financing with municipalities as facilitator?
3. What are the organisational structures to be put in place to ensure the needed momentum for energy efficient building renovations, incl. upscaling strategies?

Agenda:

11:00 Introduction by moderator

11:05 Tour de table of the session participants

11:10 Presentation of the Re:fit initiative - by Chris Spicer

11:35 Financing instruments around EU - by Jeppe Mikel Jensen

12:05 Tour de table of the representatives of the Danish regions and municipalities in terms of need and opportunities for financing instruments

12:25 Summary by moderator

12:30 Lunch

13:30 Introduction to interactive discussion around financing instruments by moderator

13:35 Brainstorming by the participants

13:50 Prioritising the ideas

14:00 Public-private partnerships (PPP) and upscaling strategies - by House of Energy

14:15 Other stimulus by participants – by Central DK (CEDIPI) and Copenhagen/Capital Region

14:50 Summary incl. consolidating report for plenum by rapporteur and moderator

International speaker: Chris Spicer, Re:fit of London

Re:fit is a major initiative by the Mayor of London to help with energy savings and reducing CO2 in the public sector as part of the city's overall climate plans and goals. It entails free services to public bodies in Greater London, managed by a programme delivery unit, on how to generate energy saving projects. The funding of the initiative is divided 50/50% between from ERDF and the Mayor of London.

The concept entails a simple 7 step process, comprising the technical and financial aspects of the energy saving measures as well as monitoring. Re:fit draw upon a group of pre-qualified ESCOs to undertake the energy saving measures due to a performance guarantee.

Re:fit has so far gained participation of more than 200 public sector organisations, including the energy renovation of 700 schools, and processed investments of more than 100 million GBP. There is seen more and more off-balance sheet funding in the scheme.

The funding of Re:fit runs until 2019 and the future funding is not yet ensured.

http://localpartnerships.org.uk/our-expertise/refit

Q&A

There was put a question on how to handle the issue of baseline when the conditions change in the course of the investment project. The question originates from the situation that Copenhagen Municipality has not found EPC viable due to the complexity with baseline corrections. This was followed by a discussion as how the implemented EE measures are 'isolated' in the Re:fit set-up, incl. the M&V plan

International speaker: Jeppe Mikel Jensen

First, Jeppe Mikel Jensen provided an overview of development under the Covenant of Mayors (CoM). The initiative has been highly successful in that more than 7,000 cities have joined, of which 5,900 have prepared action plans (SEAP) aiming to realise an average of 27% CO2 reduction and onwards the reduction targets will be even more ambitious.

While the CoM is developing into a mainstream instrument for cities there is need for support and innovation to release the potentials, not least in terms of taking the step from energy plan to implementation. In reflection to this the CoM Office is working on an interactive financing guide as one initiative to support the implementation of SEAP.

Jeppe showed some financing initiatives around Europe, incl. revolving funds in the Netherlands and Portugal, a cooperative financing initiative in Belgium as well as a green bond financing initiative in Bulgaria. Moreover, he made aware of recommendations of the CityInvest project.

www.covenantofmayors.eu

http://citynvest.eu

Tour de table in terms of need and opportunities for financing instruments

A first discussion point was around the barrier set by the ceiling set for public purchase by municipalities. It was noted there is a need to integrate more issues than the core energy dimension – energy efficiency projects should be promoted with the full package of associated benefits. This is to be accompanied by improved marketing efforts to convince the building owners. There was called for models for holistic renovations (incl. building envelope), incl. overcoming 'silo' thinking.

It was added that there tends to be a fight about the municipal budget and the trend shows less and less allocations to buildings. Energy savings appear not being sufficient arguments, but rather to argue with maintenance backlogs. At the same time was called for increased use of ESCO at municipal level, incl. the option of the municipalities to provide guarantee for the investments.

Another participant argued that the municipalities have little interest in taking investment risk and that financing in general is not the biggest barrier, but EE efforts must happen in a package of measures to gain momentum.

Another viewpoint was that financing instruments must be better designed to facilitate investments and, as part of that, to differentiate between municipal and non-municipal investments. Structured finance could be a means to help overcoming the flexibility of EE investments, incl. many customers. The associated risk sharing can be done in different ways, as part of this it is essential to the assess the creditworthiness of the intermediate.

KommuneKredit is underway with a new initiative for EE financing via green bonds, an initiative that is in first hand oriented towards attracting more involvement of investors. Moreover, it was noted that the development of PPP models tends to take too long time, thereby the concept isn't too attractive at this stage.

Last part of the discussion focused on the option of transforming city areas (city development) as a broad concept to mobilise new capital. Privates will not cover the transaction costs, so it is essential to find models that satisfy the motivation of investors.

It was mentioned as important to engage the Mayors in the efforts.

Public-private partnerships (PPP) and upscaling strategies - by House of Energy

Michael Stie Laugesen presented the prospect of gaining dynamics via public-private partnerships. House of Energy is such a PPP institution operating in Jutland, notably North Jutland, in a triple helix approach.

One initiative is a project supported by ERDF targeting 5800 SMEs, of which 5% have energy label. House of Energy leads an effort to launch a 'PDA' activity in form an EU ELENA project on how to process from grant to loans.

House of Energy is also involved in new city development in Aalborg and meeting the need for capacity building/training in this respect.

Central DK (CeDEPI)

Eva Støttrup Hancock followed by presenting Central Region of Denmark's project CeDEPI that has been running 2014-17 with the support from the EU ELENA programme. It has been organised as a framework procurement contract where a secretariat established in the regional authority has provided technical assistance to 11 municipalities in the region.

The project has succeeded expectations in that it triggered EE investments of around 65 MEUR compared to a target of 57 MEUR. Among the measures have been street lighting and leasing based ESCO projects at hospitals. The example is a good illustration of how aggregation can help accelerating and improving quality of EE investments.

Copenhagen/Capital Region

Heine Knudsen presented EE measures in the Capital Region of Denmark, targeting 2 mio 'complex' m2in the sense they represent various type of buildings. A general characteristic is that the effort is to make up for a big maintenance backlog, incl. bad energy management in the hospital buildings. There is an ELENA proposal ongoing aiming to process the potential into investments, a project that is planned to be split in several EPC projects.

Theis Petersen, representing Copenhagen City administration, followed by informing about EE measures in 9,000 properties in Copenhagen, representing 2.2 mio. m2. By now there has been approved business cases for an investment volume of around ½ billion DKK. A key element in this initiative has been to create the data basis for the most rational selection of the EE measures via an effective monitoring system.

Proposed solutions:

- To explore how municipalities can better enable EE investments. Part of this is to overcome ‚infrastructural' barriers like investment ceilings, others are new ways in which to put in place local financing instruments. In this regard it is advisable to learn from international examples
- Part of this can be to seek blending of public and private financing. There are to be find appropriate models for the organisation, incl. how to deal with the issue of de-risking. This is in particular relevant for investments beyond the municipalities' own buildings
- The ELENA projects in Denmark have shown the benefits of aggregation of investments. The experience of these projects could be used to better exploit the prospects of aggregation, incl. limiting the single municipality's burden in processing EE investments
- The session also showed how dynamics can be brought in place via public-private partnership constellations. House of Energy and Gate 21 operating in resp. Jutland and Capital Region & Zealand are pioneers on what can be gained in this respect for further exploitation
- Targeting the SME sector was pointed out as a potential area of intervention. This could interact with EU (ERDF) funding and eventual EPC/ESCO models
- Enabling better access to data and motoring of the energy use in buildings were shown as important steps to enable the most rational selection and undertaking of the EE measures
- Lastly, the discussion revealed the option of transforming city areas (city development) as a broad concept to mobilise new capita. This could go hand in hand with developing the public-private partnership constellations

CLOSING PLENARY

The discussion circled around the need for new ways of financing structures in Denmark and how to create the interest of the financiers. There was mentioned a need for 'holding hands', meaning enabling the sufficient structures for concepts like one-stop-shops and putting in place appropriate guarantee models in this regard. It was discussed whether there is need for geographical focus/fragmentations of EE financing instruments and specifically pointed at the need for risk willing capital in rural areas.

Another discussion point was how to motivate the home owners. It was mentioned that banks can have a key role when they speak to their clients, but also that initiatives in this segment must look internal and see how they could be better in advocating for EE home renovations. An accompanying discussion was how many home owners can actually afford to take loans for undertaking the measures.

Lastly, there was expressed a general wish for launching new initiatives to foster EE investments. It is essential that such initiatives are of the sufficient quality and adequate timing and that it would be helpful to integrate elements of guarantee.

CLOSING REMARKS

Closing remarks were made by Ms. Marie Hindhede, Head of Section at Danish Ministry of Energy, Utilities and Climate. She told that the Danish administration is currently working to prepare a new Energy Agreement on goals and measures for the Danish energy policy. She appreciated the lively discussion at the National Roundtable and said that good ideas and recommendations could be taken into consideration in the further process around the Energy Agreement.

LIST OF PARTICIPANTS

Only Plenum

Peter Bach – Chief Advisor at Danish Energy Agency
Niels Arne Dam - Executive Director at Finance Denmark
Marie Hindhede - Head of Section at Danish Ministry of Energy, Utilities and Climate

Parallel Session 1 – Home Renovation

Tommy Olsen, GATE 21 (Moderator)
Signe Poulsen, GATE 21 (Co-moderator, Rapporteur)
Claus Garn, Danish Energy Saving Council / Energisparerådet
Birgitte Ostertag, Danish Energy Agency / Energistyrelsen
Line Kold, Danish Energy Agency / Energistyrelsen
Nils Kåre Bruun, BetterHome
Peter Rathje, ProjectZero, Sønderborg
Emma Hach, Finans Danmark
Camilla Damsø Pedersen, Danish Construction Association
Eva Hancock, Central Denmark Region / Region Midtjylland
Lotte Lindgaard Andersen, CLEAN / H2020 Refurb
Allan Malskær, Parcelhusejernes Landsforening
Bahram Dehghan, Frederikshavn Municipality
Kim Northoff Jensen, Middelfart Sparekasse
Kim Tobiasen, Sparekassen Kronjylland
Viktoria Nilsson, Baltic Development Forum
Henrik Christensen, Jyske Bank
Kristina Klimovich, GNE Finance
Ivo Georgiev, COWI Economics & Management

Parallel Session 2 – Social Housing

Leo Pedersen, Aarhus University (Moderator)
Tanja Smith, EC Network (Rapporteur)
Celine Tougeron, EASME, European Commission
Mikkel Jungshoved, Social Housing Denmark / BL Danmarks Almene Boliger
Mads Gudmand-Høyer, National Building Fund / Landsbyggefonden
Henrik Bielefeldt, Project Zero / H2020 HAPPI
Sybren Steensma, Climate-KIC

Christian Niepoort, SustainSolutions
Susanne Dyrbøl, Rockwool
Nils Jakubiak Andersen, Krydsrum Arkitekter / Danish Association of Architectural Firms
Elsebeth Terkelsen, European Green Cities / H2020 RentalCal
Frede Hvelplund, Aalborg University / H2020 RentalCal

Parallel Session 3 – Industry / SME

Erik Gudbjerg, Yourenergy (Moderator)
Kaj Leonhart Petersen, EC Network (Co-moderator, Rapporteur)
Niels Ladefoged, Energy Efficiency Unit of European Commission
Anders Gerhard Jørgensen, Ministry of Energy, Utilities and Climate
Anne Lund Wilhelmsen, Dansk Industri
Mogens Michael Møller, MiljøForum Fyn
Lars Nielsen, Siemens
Kim Enevoldsen, Siemens
Henrik Lilja, SMVdanmark (tidligere Håndværksrådet)
Søren Büchmann Petersen, Danish Chamber of Commerce / Dansk Erhverv
Søren Dürr Grue, Central Denmark Region / Region Midtjylland
Nikolaj Rasmussen, Dansk Energi
Thorkild Thomsen, SEAS-NVE
Christian Jastrup, Danish Ecological Council / Økologisk Råd
Carsten Glenting, Viegand Maagøe

Parallel Session 4 – Financing EE Actions of Municipal SEAPs

Pelle Bournonville, Realdania
Nils Daugaard, EC Network (Co-moderator, Rapporteur)
Thomas Jensen, Municipality of Hjørring / Hjørring Kommune
Guri Weihe, KommuneKredit
Jeppe Mikel Jensen, Covenant of Mayors / Borgmesterpagten
Majbritt Juul, Foreningen af Rådgivende Ingeniører
Heine Knudsen, Capital Region of Denmark
Johan Vedel, Energicenteret i Fredensborg Kommune
Eva Støttrup Hancock, Central Region of Denmark
Theis Petersen, Københavns Ejendomme og Indkøb
Stephen Hart, European Investment Bank
Chris Spicer, RE:FIT Programme
Martin Dam Wied, Gate 21
Michael Stie Laugesen, House of Energy
Kurt Othendal Nielsen, Siemens A/S