

Introduction to Panel 2

Policy: governance, design, implementation and evaluation challenges

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Introduction

The year 2017 will be a big year for European energy policy. The 'Clean Energy for all Europeans' package, which contains the legislative proposals framing future energy policy in the European Union, was released at the end of 2016 and is being negotiated in the European Council and European Parliament in 2017. Energy efficiency plays a fundamental role across the legislative files in the package, which include revisions to the Energy Efficiency Directive and Energy Performance of Buildings Directive, a new proposal for Governance of the Energy Union, and revisions to legislation driving the Internal Energy Market and delivering energy security. The package reminds us of the importance of energy efficiency in meeting climate and energy goals, and of a governance framework that incorporates energy efficiency across policy dossiers through a focus on "efficiency first".

All papers presented in this panel aim to provide insights on the lessons learnt with regard to governance, design, implementation and evaluation challenges of existing energy efficiency policies within Europe and outside. They not only focus on energy efficiency in a narrow sense but also encompass broader topics such as electricity market design, smart integration of climate and energy efficiency policies as well as a discussion on multiple benefits of energy efficiency policies.

Governance of energy efficiency within broader policy structures

The following papers are about how energy efficiency relates to other policy areas. Specifically, they focus on energy efficiency within the 'Clean Energy for all Europeans' package, in the con-

text of free trade agreements, and as it relates to broader policy areas that are not primarily focused on energy.

Cowart et al. (2-281-17) assess how the 'Clean Energy for all Europeans' package delivers on the principle of "Efficiency First". The authors consider the revised Energy Efficiency Directive (EED), the Energy Performance in Buildings Directive (EPBD), the Directive on common rules for the Internal Energy Market for electricity (IEM), the Regulation on the electricity market and the Regulation on Governance of the Energy Union.

Yada et al. (2-300-17) analyse how free trade agreements could support energy efficiency. They conclude that there is unexploited potential related to international cooperation through free trade agreements (FTA). If energy efficiency and trade officials would work more closely together during FTA negotiations, there would be an opportunity to achieve greater harmonization of minimum energy performance standards (MEPS) at the level of international best practice on the basis of FTA.

Royston et al. (2-105-17) consider ways in which non-energy policies affect energy consumption. These "invisible" energy policies play an essential role in determining energy consumption trends and patterns, and therefore form part of the policy framework that must be considered in achieving ambitious energy demand reductions. The authors challenge the policy community to re-think the governance process in a way that delivers deeper energy savings.

Energy efficiency and carbon policies

The following papers focus on the relationship between energy efficiency and carbon policies.

Yushchenko and Patel (2-437-17) analyse how the Swiss carbon levy could contribute to greater CO₂ and electricity savings. By using the carbon tax revenue for financing energy efficiency and renewable energy programs (EEREP) they estimate a substantial positive effect on GDP and employment for Switzerland.

What are the effects of Brexit on the UK's ability to meet its carbon budget in buildings? Guertler and Rosenow (2-099-17) undertake an analysis of whether, in an uncertain policy landscape, Britain is likely to meet its carbon budget for buildings. By comparing their own projections with official abatement scenarios, the authors demonstrate that Britain is, in fact, unlikely to leverage the necessary investment to meet its abatement goals. They propose a set of policy recommendations that can help Britain meet its goals and access the multiple benefits of increased efficiency in buildings.

Low carbon prices have limited effect on the uptake of energy efficiency technologies. Sonnenschein et al. (2-243-17) consider the role of minimum energy performance standards in advancing carbon emission reductions by incorporating a high carbon price into standard setting. The authors demonstrate that a modest tightening of existing MEPS is enough to mimic a situation in which a high carbon price is internalized in the electricity price. They further demonstrate that MEPS can overcome behavioural market failures that carbon prices cannot.

Broader perspectives on efficiency, renewables and demand response

What role do electricity markets play in driving efficiency or demand response as well as CO₂ emissions reductions?

Coenen et al. (2-159-17) analyse what potential the European Federation of Renewable Energy Cooperatives (REScoop) have in supporting their members in reducing energy demand. They present different case studies of REScoop initiatives to support energy efficiency. They find that there is potential for the cooperative model to enhance energy efficiency. However, given the lack of a randomised control group and self-selection they are not able to claim causality.

Zancanella et al. (2-278-17) assess the status of demand response (DR) in Member States of the European Union. They differentiate two categories of DR which serve different purposes and are both equally important: explicit DR allows participation on balancing and ancillary services markets; implicit DR exposes consumers to time-varying electricity prices or time-varying network tariffs. They find that only a few Member States (Belgium, France, Ireland and the UK) have seriously looked to enable DR and that those are succeeding despite continued challenges.

The last paper in this session, by McKenna and Darby (2-107-17), focuses on demand response technologies and how they can support the reduction of CO₂ emissions. They focus on the potential of smart technologies such as smart grids and smart appliances, as well as battery systems to enable load shifting, and assess under what circumstances this may lead to a reduction – or increase – in CO₂ emissions.

Multiple Benefits of energy efficiency

The multiple benefits of energy efficiency include avoided generation, transmission, and distribution costs, improved air quality, positive health effects, and economic stimulus including employment creation, to name just a few.

Rosenow and Bayer (2-011-17) compare the costs and benefits of energy savings achieved pursuant to Energy Efficiency Obligations (also known as White Certificates) under Article 7 in the EU. The paper emphasizes that, while there is an upfront cost to investing in energy efficiency, the net benefits far exceed the costs, and the cost per kWh lifetime savings is substantially less than the cost of supplied energy. Still, more needs to be done to account for the multiple benefits of energy efficiency in policy design and evaluation.

How to visualise the multiple benefits of energy efficiency is the focus of the paper by Persson and Landfors (2-042-17). They present a free of charge, easy to use-tool which was developed in Sweden on the basis of the IEA report "Capturing the Multiple Benefits of Energy Efficiency", which is readily available for local and regional actors to use. The tool gives a visual picture of the normally hidden benefits of energy efficiency and aims to support local actors to accelerate the implementation of energy-efficiency measures.

Lane et al. (2-100-17) assess distributional impacts of climate and energy efficiency policies with regard to product policy. They find in their literature review that evidence for distributional impacts for product policy is not clear-cut. Literature evaluating distributional impacts of minimum energy performance standards in the US and Australia suggests that MEPS in those countries induced falling product prices.

Article 7 – policies that have worked well and why

Five years after the adoption of the Energy Efficiency Directive (EED, 2012/27/EU) several papers focus on the evaluation of policies implemented under the Directive. Suerkemper et al. (2-247-17) report on the conclusions of the Energy Efficiency Watch 3 project, which undertakes a comprehensive assessment of implementation of European and national energy efficiency policies. The authors contrast national reports and communications with the perspective of experts in analysing progress with energy efficiency policies. They identify challenges to delivering energy efficiency, and propose recommendations on how to strengthen policy frameworks and implementation.

Economidou et al. (2-292-17) dive into more detail on progress in implementing Articles 5 and 7 of the Energy Efficiency Directive. The analysis charts energy savings achieved in the Member States, taking into account broader energy consumption trends. It concludes that energy efficiency policies are delivering measurable savings, and recommends ways to improve the reporting template to gather consistent data on Member State progress in delivering on key articles of the Energy Efficiency Directive.

Can established Energy Efficiency Obligation Schemes (EEOS) continue to deliver significant savings; will new schemes meet their targets; and will EEOS have an important future role? Those are the questions addressed by Fawcett et al. (2-059-17). The authors analyse the active EEOS of 14 Member States. They

conclude that, for some MS, EEOS contribute substantially to the energy efficiency target, while for others, they play a minor role.

Energy efficiency as infrastructure

Energy efficiency plays an important part in broader infrastructure planning and investment.

Pädam et al. (2-036-17) consider the relationship between district heating, energy efficiency in buildings, and indoor climate. Their analysis identifies synergies that can be achieved through greater alignment of customer and utility interests. It concludes with recommendations on how to overcome split incentives to deliver greater energy savings to the benefit of consumer health, carbon emission reductions, and heat and electricity system operations.

Cornelis and Vingerhoets (2-141-17) analyse the potential for high-efficiency cogeneration and district heating among Member States. Based on reports submitted under Article 14 of the Energy Efficiency Directive, they discuss the benefit-cost analysis of the potentials throughout Europe. They conclude that, despite some challenges, Article 14 has elevated high-efficiency cogeneration and district heating to the political agenda of Member States and should be built on to deliver further progress.

Bergman and Foxon (2-120-17) examine the failure of the Green Deal in the UK and explore what role financial institutions could play in transforming energy systems. They suggest that energy efficiency can benefit from approaches taken to finance other infrastructure projects, and from taking a broader view of energy efficiency as part of wider energy infrastructure planning. The paper suggests additional avenues to scale up energy efficiency initiatives and to develop business models to attract finance.

Governance of energy efficiency among SMEs and industry

Three papers focus on lessons learnt from energy efficiency policies in the industry sector and give examples of smart combinations of policies.

Weiß et al. (2-214-17) gives first insights into an energy efficiency pilot programme called "Energy Savings Meter". The programme was introduced in Germany in 2016 and relies on absolute savings instead of deemed savings. It funds digital energy services e.g. measurement of energy consumption in addition to a remuneration based on energy savings achieved. The aim of the new programme is to support the development of the ESCO market and energy performance contracts and it gives special conditions to small and medium enterprises (SME).

Nabitz et al. (2-193-17) also focus on Germany. They evaluate empirically the impact of different policies (informational e.g. an energy audit as well as financial instruments e.g. low interest loans) on the adoption of energy efficiency measures in SMEs. Their findings show that companies which are targeted by both informational and financial policy instruments significantly improve their energy efficiency performance compared to companies that were targeted by informational policies only.

Ellegaard Vejen and Maagøe Petersen (2-339-17) evaluate 25 years of experience with the Voluntary Agreement Scheme

for Large Industries in Denmark. They point out that the strong incentive to participate and comply with the targets is driven by the reduction of the CO₂ tax. Thus, voluntary agreements seem to be successful only in combination with the tax reduction. Based on several evaluation studies, they conclude that the scheme has been successful in continuously promoting energy efficiency measures.

Innovative approaches to EE policy

Some papers show creative approaches to energy efficiency policy, drawing on international experience in policy design and implementation. We begin with a comparison of how energy savings (or efficiency) obligations are designed in Europe, the United States and Australia. Nadel et al. (2-066-17) consider the motivations behind these policies, analyse the results, and suggest lessons learned. They offer design considerations and recommend approaches for policymakers, drawing on the deep pool of available experience.

Jollands and Leutgöb (2-257-17) shift the focus to lessons learned from experience in building energy efficiency policy dialogue in developing countries. The paper draws on experience of the European Bank for Reconstruction and Development and through case study illustrations develops a series of critical factors to deliver successful energy efficiency dialogue in transition countries.

Janda et al. (2-113-17) analyse how leases are evolving to become 'greener' in Sweden, Australia, and the UK, drawing on experience from an IEA project on behaviour change and a UK project on energy strategy development. They recommend that international green lease standards could be a way to assist multinational tenants and property owners in upgrading both their premises and their operational practices.

Displays

Panel 2 features display presentations by eight authors. The display session is dedicated to interactive cross-fertilisation of experiences and ideas on energy efficiency policy design, energy efficiency platforms, action plans and indicators, governance and implementation in Europe and around the world.

Several papers focus on experience with energy efficiency policies across the board. Sundaramoorthy and Walia (2-055-17) will describe lessons learned from design of energy efficiency policies in India. Their recommendations for creative governance structures build on experience in programs for appliance standards and labelling, domestic lighting, space cooling and demand response.

The display by Ernedal et al. (2-211-17) will present the National Energy Efficiency Action Plan of Tanzania. How this plan helps to promote energy efficiency is explained with practical examples from the water and sanitation sector.

Berrutto et al. (2-290-17) investigate the European experience with the Horizon 2020 and Intelligent Energy Europe programmes in supporting development and implementation of European energy efficiency policies.

Büttner et al. (2-344-17) present a first analysis of the results of the Energy Efficiency Index of the German Industry (EEI) which is an indicator focussing on entrepreneurs' opinions. They show that opinions, intentions and actions around

energy efficiency differ a lot across company sizes. Hirzel et al. (2-319-17) will explain the German energy research funding information system 'EnArgus', which helps to review and cluster publicly-funded energy research projects in Germany carried out since 1970. Attali et al. (2-381-17) help navigate the complexities of framing our word choice when discussing energy efficiency in an international context and in politically turbulent times.

Experience with specific policy design and application provide lessons for the future. Morton et al. (2-254-17) provide a spatial perspective on uptake of energy efficiency measures in the UK under the Green Deal. Spiak et al. (2-370-17) discuss ways to address the environmental and health impacts of cookstoves in Ghana and – more broadly – provide valuable insights for addressing the three billion people reliant on cookstoves around the world.