

Introduction to Panel 3

Policy and governance

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Introduction

Panel 3 focuses on how energy efficiency policies can be designed, implemented and managed to generate optimal and lasting energy savings. The panel will focus on topics relevant to the European Union Directives (mainly the Energy Efficiency Directive), on their interactions and the need of coordination between the Directives (such as the Ecodesign Directive and the European Directive on Energy Performance of Buildings). The panel is structured in three interrelated thematic areas that provide insight on how the energy efficiency policies can be optimally implemented in order to boost their effectiveness, efficiency and efficacy.

The first part consists of lessons learned from innovative energy efficiency policies across the EU. Some evaluations on their ground implementation have been carried out, and reasons for their redesign and modifications over time explained. The second thematic area refers to the knowledge that can be gained from interactions of various policies in the field. The overlaps and complementarities of policies are always debated in both science and policy spheres and this topic demands further research in all policy dilemmas (how can policy interactions enhance effectiveness and efficiency). The lessons drawn from interactions of policies can be very useful for the implementation of similar policies in a policy crowded environment. Finally, the third thematic area covers the available tools and resources that can guide a policymaker towards better implementing the designed policies. This is reflected in specific policy aspects that policymakers must take into account when implementing energy efficiency policies, such as for instance taking into account the energy efficiency first principle or energy poverty. Background knowledge and best practices can assist them in selecting the effective implementation options.

Lessons from the implementation of energy efficiency policy instruments

In order to provide hints for effective and efficient policy implementation in the energy efficiency field, lessons must be drawn from the implementation process of incumbent policy instruments in various EU Member States. First, lessons from the Italian longstanding White Certificates scheme are illustrated in Di Santo & De Chicchis (3-059-19), where the modifications of the implementation of the scheme over time are analysed together with the effects of the new rules introduced providing figures on the results in terms of issued certificates and market price, hence assessing the cost effectiveness in the various phases of the scheme. In line with that, Osso et al. (3-099-19) evaluates the implementation phases of the French White Certificate scheme, which is being revised every three years. The lessons from this scheme are useful for most EU Member States that are also launching relevant schemes to address the Article 7 of the Energy Efficiency Directive. This paper focusses on the building renovation actions, the modifications of the methods for estimation of the energy savings and the requirements and discusses the trade-off between process simplification and the valuation of accurate energy savings.

In parallel to the French and Italian White Certificate schemes, an analysis of the implementation of the pilot Energy Efficiency Tender in Germany (as an alternative measure to energy efficiency obligations) is provided by Langreder et al. (3-251-19). The paper discusses the initial setup and stepwise improvement of the tender design and the program architecture, as well as how specific issues were tackled (such as the state aid rules, gaining market interest and others). The outcomes of the first evaluation of the tender scheme can serve as inspiration for other EU Member States that design tendering/auctioning schemes for

energy efficiency as innovative policy instruments to address the EED.

Following the debate on implementation lessons from individual policy instruments, Solá et al. (3-204-19) show the effects of energy labelling on consumers purchasing decision in Spain. A Spanish field experiment tests the effectiveness of presenting a monetary lifetime-oriented label with energy savings information. Conclusions are drawn on whether monetary lifetime-oriented labels increase the probability of consumers buying more energy efficient products. Furthermore, Renders & Meynaerts (3-112-19) analyse the outcomes of the implementation of national policies to address the Article 17 of the Energy Efficiency Directive. It assesses in essence how Member States introduced measures to provide information on the energy performance of buildings and to create a framework for developing skills, such as energy audits. Given their cross-cutting nature, the measures addressing these obligations in other articles of the EED (i.e. Articles 8, 12, 16 and 19), as well as the EPBD (Articles 17 and 20) were also considered. An assessment of the measures' effectiveness was carried out for a selection of ten representative Member States, following the intervention logic of inputs-outputs-effects of effective policy design, implementation and monitoring.

Finally, Spyridaki & Flamos (3-323-19) present the outcomes of energy efficiency subsidies under Article 7 EED in Greece. The assessment framework improves our understanding on how to estimate the energy efficiency potential that can be attributed to financial subsidies and highlights the importance of including evidence from ex-post analysis into ex-ante energy efficiency potential evaluations to more accurately reflect how these will perform in the future.

Implementation issues from interactions of policies

Following the discussion of the performance of individual policies, it is equally (and in some cases even more) important to identify the implementation issues that can arise when the policy instruments or policies interact with others in the same or different policy field (such as energy efficiency, renewable energy, climate, social and others).

As a start, Economidou et al. (3-274-19) explore how Member States have implemented various policies and measures to meet the EEDs requirements, including national energy efficiency targets for 2020. The paper reviews the assessment of the Annual Reports submitted by Member States from 2013 until 2018, and the implementation status of key EED provisions. The paper also discusses the national contributions towards the EU 2020 target, and it analyses the latest energy consumption trends and explanation from Member States on why energy consumption remained stable or increased. The paper provides valuable input for the successful implementation of future requirements under the new Energy Union Governance.

As another example, Noka et al. (3-153-19) deal with ways of tackling energy poverty through a combination of policies and measures, encompassing different policy domains and actors on the national, regional or local levels. The aim of this study is to elaborate and examine instruments and measures in place to combat energy poverty in a selection of EU Member States (Denmark, France, Ireland, Sweden and the United Kingdom),

test their applicability and transferability to the German context and draw tentative conclusions about a transferability approach in other countries. Along these lines, the interplay between energy efficiency and renewable energy policies is also an important issue in the EU energy policy framework. Departing from that, both EED and RED address the importance of making use of waste heat.

Schultz et al. (3-243-19) describe how demand response makes demand more flexible by examining case studies in Denmark and Austria. The paper shows that policies influence climate goals, energy price regulation and market structure, and that policies and regulations will influence the success rate of demand response. Next to that, Wilson et al. (3-370-19) follow up the global 'Low Energy Demand' (LED) scenario, which shows how global warming can be limited to 1.5 °C by transforming the way energy services are provided and consumed. The paper sets out a range of near-term actions for improving energy-service efficiency through a combination of technological, organisational and behavioural innovation. It focus on three energy services: heating and cooling in buildings, ownership and use of consumer goods, and passenger mobility. They identify several strategies to transform energy services: electrification, functional convergence, usership, utilisation rates, efficiency frontier, and user-oriented innovation.

On the building renovation aspects, there are various policies in place in all EU Member States to address the EPBD requirements. As an example, Mainali et al. (3-352-19) evaluate the policy instrument used for promoting deep renovation of residential buildings in the Netherlands. A 'theory-based evaluation' technique has been used in analysing the content of the policy instrument, and the underlying theories and policies, at output and impact level. A set of the evaluation criteria have been applied for assessing such policy instruments in leveraging energy efficiency investments and their effectiveness in terms of energy savings. The assessments are done based on the meta-analysis of relevant literature and data sources and finalized in consultation with the Dutch partners from INNOVATE project under Horizon 2020.

Feng et al. (3-129-19) describe programs in four Chinese cities to improve energy efficiency and reduce CO₂ emission from buildings. The paper presents policies and experience on energy efficiency and renewable energy utilization in buildings in Beijing, Fuzhou, Qingdao, and Shanghai. The paper compares and discusses retrofitting existing buildings, ultra-low energy buildings, renewable energy application, and several international cities building energy efficiency policies. Along the same lines, Verbeek (3-214-19) demonstrates the interactions of property taxation measures (tax on housing services, on capital, on land or other) with energy efficiency. The aim is to investigate the opportunities to include energy efficiency and sustainable land use in this policy instrument as a way to reduce energy consumption of buildings and urban sprawl. In this context a review is made on how different countries have integrated energy efficiency and/or sustainable land use in property taxation. The abstract induces a discussion on if and how property taxation with a combined focus on energy efficiency and sustainable land use could contribute to a shift from efficiency to sufficiency.

Linked to the property policies and energy efficiency, Wagner et al. (3-052-19) examine the incentives for motivating ac-

tive investors and the real estate market. Having the triangle of sustainability in mind with its ecologic, social and economic cornerstones the discussion – metaphorically spoken – currently pulls the three corners: Which should have the highest priority? Exploring these issues in the German context, the paper analyses if and to what extent it is likely to balance the three cornerstones of sustainability by integrating sufficiency aspects into efficiency policies. Finally, the interaction of energy and trade policies is analysed by Hartikainen & Meier (3-184-19) in the form of new tariffs and trade barriers that impact domestic production of goods and hence lower overall consumption. This means less container-kilometers for a ton of freight moved (tkm) to end-users, making transportation of goods for customers more energy efficient in general, but what other effects might a trade war have?

Tools and guidance for implementing energy efficiency policies

Next to the experiences gained from the individual and interacting policy instruments on the implementation aspects of policies, there is significant knowledge available in the form of tools or background document (on specific implementation topics) to guide the decisions of policymakers. As an example, using the Energy Efficiency First principle that is a cornerstone on nowadays policy as a starting point, Förster et al. (3-055-19) aim at bridging various aspects of energy efficiency first in policymaking. Increasing energy efficiency and the expansion of renewable energies are two relatively familiar ways and are regularly part of climate mitigation modelling exercises. Their study derives a first draft guidance for systematically integrating sufficiency when modelling stringent climate protection scenarios. The paper characterizes German longer-term scenarios with stringent climate protection goals in place. They investigate whether, and if so how, sufficiency is included in these scenarios. On the same level, Pató et al. (3-117-19) analyze whether capacity markets are being designed to reward the value of energy efficiency and demand response. Are demand response resources enabled to participate fully in the new markets, or are restrictions such as supplier compensation requirements standing in the way? The paper provides guidance and recommendations for Member States, relevant ministries, and NRAs on what actions they can take in their jurisdiction to implement the brand-new European legislative framework so that it creates opportunities for energy efficiency and demand response.

Thomas & Rosenow (3-122-19) describe, from a consumption perspective, how energy consumption has risen for two consecutive years and could result in EU missing 2020 efficiency-target. The paper presents an analysis of the drivers of recent increases in EU energy consumption. Various policy questions that emerge from this analysis are discussed and they outline a number of implications for policymakers.

More directly linked to the EED policies implementation, Oikonomou et al. (3-249-19) explore how several barriers during implementation hinder the adoption of measures foreseen in the directive. The paper discusses an assessment survey carried out in the framework of the EC H2020 PUBLENEF project and maps out the needs from policymakers in various governance levels. Several tools and best practices are developed in

EU projects, and the analysis shows that there are few or no tools in some of the areas, such as for example the role of public buildings, metering, billing, energy transformation, distribution, qualification, accreditation and certification schemes. The paper suggests additional focus points for EED Articles that lack support. In line with that, Lebot et al. (3-119-19) explore if energy efficiency potential remains untapped due to a gap between promoting energy efficiency and lack of implementation. They also show how energy efficiency is insufficiently supported, and formulates various ways that energy efficiency policies, programmes and projects can be supported. The paper highlights that international collaboration can accelerate the adoption and implementation of domestic energy efficiency policies.

On the evaluation aspects, Broc et al. (3-111-19) show that evaluation can support policy developments and implementation. Their paper underlines the importance of specifying objectives and priorities for the evaluation, and shows how transparency, documentation and replicability of the evaluation methods and results are essential for improved evaluation practices. The authors describe how expanding the scope of the evaluation to include other impacts than energy savings can enhance benefits from the evaluation and improve policy design.

Another aspect that is prominent in the policy implementation process is the legitimacy of the policy package. This issue is dealt with in a case study in the Netherlands by Vringer & Carabain (3-182-19), which explored the legitimacy of Dutch energy transition policies and how to measure the degree of such legitimacy. Policy legitimacy consists of public support for policy goals (input legitimacy) and support for the specific interventions needed to achieve these goals (output legitimacy). The authors conducted a survey among Dutch citizens and company representatives which shows there to be support (input legitimacy) for the Dutch climate policies. They found strong correlations between underlying aspects of legitimacy and the overall support for the interventions. Another policy aspect in the energy efficiency policymaking is the energy poverty that needs to be defined, operationalised and measured.

The paper from Vondung & Thema (3-270-19) investigates the role of energy poverty indicators for policy making. To do so, it provides an overview on existing measurement approaches. Furthermore, the paper presents the development and current state of energy poverty across the EU using a set of four complementary indicators used by the EU Energy Poverty Observatory. In addition, the paper highlights peculiarities of results on the different indicators, and describes persisting issues with regard to their calculation and interpretation against the background of the underlying data base.

On the city level Zambianchi & Petrichenko (3-296-19) present a methodological framework to identify the gaps preventing municipalities from reaching their energy efficiency goals. The methodology assesses if and how energy efficiency policies and projects are translated from the national to the local level. Five municipalities in Argentina are included in a case study, and the paper concludes that the dynamics between local and national level are determinant for the success of energy efficient city actions, demonstrating that the increased role of cities and the change of the system of governance has not yet fully occurred. Moreover, Hinge & Ribeiro

(3-361-19) focus on both energy reduction and GHG performance in cities by reviewing progress on reduced energy consumption from buildings in Tokyo and New York City. The two cities have completed comprehensive annual progress reports of both energy and GHG emissions for the building sector. The paper discusses challenges with comparing data on progress, and suggests recommendations to make future comparisons of relative progress more robust. The analysis gives several recommendations for other cities looking to learn from NYC and Tokyo.

Finally, Büttner (3-375-19) look into the Energy Efficiency Index of the German Industry (EEI) and describes a path for evidence-based decision-making on energy efficiency for policy makers and financiers, and provides important evidence to decision- and policy makers that often have limited means to get an untainted view from the demand side's perspective. This index builds the foundation for shaping policies, and business models that take account of the needs, values and realities of key industrial sectors by reflecting businesses' perception of energy efficiency opportunities and (potentially lacking) policies.