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## **Assessment of Policy Interrelationships and Impacts on Sustainability in Europe**

Instrument: *Collaborative Project*

Theme: *Area 6.4.2.1 -Tools for impact assessment*

### ***D4.2 Proceedings of the Stakeholder Consultation Workshop “Improving Environmental Policy Making in the EU: from Member State Experience to EU Policy Design”***

*Organised by CEPS in Brussels on 30 October 2013*

*Project coordinator: JIN*

*Work Package 4 Leader Organisation: VATT*

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## 1. MEETING NOTES

This Stakeholder Consultation Workshop was organised by CEPS and took place in Brussels on 30 October 2013.

The objective of the workshop was to present, discuss and test preliminary project results with a broad range of European stakeholders. The workshop focused on preliminary modelling results of four case studies on existing and planned environmental policies in selected sectors of EU Member States. These case studies focused on two main topics, which both feature prominently on the EU policy agenda for 2020 and beyond: resource efficiency and energy policy. The aim is to test the usefulness of these case studies and to assess how they can optimally be used to improve environmental policy making on the EU level. Stakeholders were asked to comment on the results of these case studies and the usefulness of the APPRAISE approach in general. They were also encouraged to share insights from their fields in order to refine the studies for optimal use by policy makers.

The results of the workshop will thus help to focus the project's results and to increase the relevance of policy recommendations as the APPRAISE project proceeds.

### Introduction

Welcome by Arno Behrens (CEPS)

Welcome by Anna Natasa Asik (DG Research, European Commission)

Introduction to the APPRAISE project, case studies and common modelling results by Vlasia Oikonomou (JIN)

### Session 1: Informing EU Environmental Policy to Increase Resource Efficiency – The Cases of Waste Management and Energy Efficient Buildings

Chair: Christian Sartorius (Fraunhofer)

Commentators: Pieter de Pous, Policy Director, European Environmental Bureau (EEB), Raymond van Ermen, Executive Director, European Partners for the Environment (EPE), Bogdan Atanasiu, Senior Expert, Buildings Performance Institute Europe (BPIE)

“Recycling of household plastics – the Netherlands and Germany”  
Wytze van der Gaast (Joint Implementation Network)

Dutch case study performed in the APPRAISE project completed by findings from the German case study where important differences with the Netherlands were observed.

The Netherlands have the goal of recycling 42% of plastics in the context of the “Packaging decision” of 2006, based on extended producer responsibility for packaging material. Regarding household waste recycling, municipalities play a key role in separating plastics from waste and subsequently sorting and processing plastic waste for recycling. That policy is based on a packaging tax paid by producers/suppliers of packaging materials, which was first thought to be an incentive to produce less plastic waste, but then turned to be more effective as a source of finance for reaching the recycling goals.

During 2006-2012, the recycling policy had limited effects on the prevention of waste. However, the combination of the packaging tax with producer responsibility and the agreement between producers,

national government and municipalities had the effect of substantially increasing the quantity of household plastics collected and prepared for recycling.

Both in the NL and in Germany plastic recycling targets have been achieved, but particularly in Germany stakeholders argued that ambitions were possibly too low and that strong competition has taken place between supplying plastic waste for thermal recovery and plastics recycling.

Crucial factors for supporting the recycling of plastic waste in the Netherlands and Germany have been:

- ▲ *Economic, political and technical context*: existing waste infrastructure, quality standards, and clear arrangement of responsibilities within the waste value chain; in this context, different attitudes towards certain policy instruments play an important role: Germany is more in favour of regulation, while the Netherlands prefer economic incentives.
- ▲ *Policy implementation*: coordination between institutes, flexibility to apply different waste collection and separation techniques depending on local contexts, enforceability;
- ▲ *Policy interactions*: collaboration between producers, government and municipalities has been an important factor for positive interaction between tax, producer responsibility and covenant policy instruments. However, low cost thermal recovery options (especially in Germany) create substantial competition for plastic recycling activities.

After all it has to be noted that, despite of some inefficiency, both Germany and the Netherlands are among the best performers in the recycling of plastic waste and more emphasis should be put in promoting the recycling of plastic waste in the as yet low-performing member states.

#### **Response by commentators:**

The plastic waste management case study is timely in light of current EU policy revisions for waste management. In this process, particular attention will be paid to the development of prevention and recycling targets, the waste hierarchy (incineration and thermal recovery vs. recycling) and the role of legal instruments in policy formulation. With regard to the waste hierarchy, it was underlined that it is the objective of the EU that plastics which can be recycled should not, in principle, be used for thermal recovery or otherwise incineration.

Regarding policy making, while at the EU level more generic targets, objectives and policy principles can be formulated, the actual policy formulation should clearly keep the country (or local) context in mind, creating incentives for municipalities / cities to implement the recycling policy instruments.

The management of the plastics waste value chain requires well-developed monitoring techniques.

#### **“Efficient buildings in Greece – Transposition and interactions of the EU Energy Efficiency Directive”**

Niki Artemis Spyridaki, Anastasia Ioannou (UPRC/NTUA)

The case study covers policy initiatives targeted at the upgrade of the building sector in terms of energy efficiency and policies oriented towards national targets for the collection and recycling of particular waste streams deriving from energy efficiency interventions in Greece and the Netherlands.

#### **Greece:**

The set of policy instruments and its observed effects and efficiency in Greece are:

- ▲ *Energy efficiency programme* in the form of financial incentives to municipalities;

- ▲ *Energy savings in households programme* in the form of soft loans and subsidies: 80% of the target of 50,000 entries achieved (target reset in 2012); the involvement of the private financing sector in the administrative and evaluation procedures was beneficial for the Programme's efficiency in the sense of relieving the administrative cost burden;
- ▲ *Temporary national subsidy for replacing old air-cooling units*: overachievement of targets; the programme is considered inefficient since the market signal induced was too high, resulting in a premature termination of the programme;
- ▲ *Regulation on the Energy Performance of Buildings (REPB)*: only 0.3% of the energy performance certificates (EPC) were issued for new buildings. The obligatory issuance of an EPC for the leases of flats (January 2012) increased substantially the number of issued EPCs; poor administrative and monitoring mechanisms of REPB hampered the effectiveness and proper implementation of the Regulation;
- ▲ *Extended producers responsibility regarding waste*: waste collection target achieved through the establishment of the National Collective System. The contribution fee for implementing producer's responsibility is considered an efficient instrument.

Different factors influenced these results. On one hand, decline in the building activity, which indirectly pushed retrofits, and escalating energy costs, which acted as additional incentives to end users to adopt energy efficiency measures were *positive contextual factors*. On the other hand, the economic downturn, reduced levels of households' disposable income, and building arbitrariness - causing long delays in project implementation - were *negative contextual factors*. Moreover, a lack of environmental awareness of consumers of the benefits of energy efficiency amplified their reluctance to invest. *Implementation factors* had contrasting effects: financial incentives yielded within a recessionary environment occurred for lower participation levels than expected; the monitoring system of the subsidy programmes, conducted in close cooperation with beneficiaries and Municipalities, facilitated the proper implementation of the programmes; the inclusion of financial institutions in the administrative procedures proved positive to the effective administration of energy efficiency policy instruments, and the inclusion of lower-income beneficiaries increased the effectiveness of the scheme. However, a lack of coordination among the different institutions regulating the schemes obstructed general administration capacity, and poor institutional capacity of the REPB negatively impacted the reliability and proper enforcement of the EPCs scheme.

In conclusion, reduced levels of national energy consumption in Greece are largely attributed to changes in the energy conservation behavior of households. Second, the increased efficacy of subsidies and soft loans was offset mainly by the recessionary environment that often made investments non feasible. Third, the inclusion of the private sector to deliver administrative and evaluation procedures enhanced the implementation of energy efficiency programmes. Fourth, understaffing in the administrative and monitoring authorities of the REPB, associated to low resources and state budget cuts, hindered the effectiveness and proper implementation of the Regulation. Finally, energy efficiency policies should be linked with policies for the treatment of various waste streams as a result of the uptake of energy efficiency interventions

### **The Netherlands:**

Findings for the Netherlands were also presented in case of similarities or differences with Greece. National policy instruments and its effects in the Netherlands are:

- ▲ *Mandatory Energy Performance Certificates*: the lack of sanctions for non implementation resulted in poor compliance;
- ▲ *Strengthening of ecodesign and the energy labelling of appliances*;
- ▲ *Reduced VAT for glass insulation*: effect not significant; more applications were submitted than the actual program budget;

- ▲ *Producer responsibility*: voluntary agreement between suppliers and municipalities for household waste, and mandatory for batteries, EEEs, car tires and packaging; very efficient;
- ▲ *Landfill tax*: tax on waste disposal aiming at increasing recycling rate and reduce landfills; the accumulated tax reserve can cover collection and recycling expenses for almost a decade.

It can be concluded for the Netherlands that waste management measures are indirectly linked to energy efficiency policies. Regarding EPCs, due to the frequent changes and inconsistency of the policy framework, the trust in the energy label system has drastically decreased.

### **Response by Commentators:**

The private sector should be more engaged in the energy efficiency upgrade of the building sector, since there is a great deal of opportunities there. Third party financing is also an important aspect and should also be enhanced. However, in Greece, a lot of money has been pushed in the private sector to promote energy-saving measures, while the private sector is not really short of money. By contrast, the financial sector has been quite reluctant to engage in such measures, although the involvement of financial institutions in the administrative procedures of energy efficiency subsidy schemes was considered beneficial. Therefore emphasis should also be placed on the role of financial institutions towards exploiting alternative ways of financing (insight from the Netherlands case study).

It is important to identify game changers within each system (e.g. shale gas, sharing economy). For instance in Greece, the recessionary environment is a parameter that influences greatly the progress of projects targeted at the upgrade of the building sector.

Like for the case study on waste, the focus must also be put on the regional and city level.

Property assessed clean energy programmes (PACES) are at the forefront (applications either at an individual or city level). Challenges exist as to how to convince property owners.

The transition to “Energy efficient buildings” does not constitute a technological issue but depends largely on societal changes.

Policy commitment is very important. For instance market transformation agencies facilitate the formulation of tailor-made policies and adjusting them to the market.

It is complained that making conventional buildings more energy-efficient uses only a small part of the saving potential. Very efficient building concepts exist, but are poorly realized. An efficiency transition would need more complete concepts, but there is no institution (e.g. DG or ministry) in the EU or its member states, which could promote such a more radical change.

Feed-in tariffs have shown their effectiveness, but turn out to be rather costly. Such policy instruments should be tested before they are introduced on a broader scale. Considering the high capital costs of EE interventions, policy initiatives must focus on cheap measures.

Stimulating the ESCOs, along with the transformation of the market can yield significant results instead of focusing on the introduction of new policies.

### **General discussion:**

The public policy process is undermined by specific lobby groups or large (multi-national) companies, which dominate the negotiation process between the government and the stakeholders. This can influence the ambition level of the policy and the monitoring process of policy results.

A representative of the plastic recycling industry emphasised that both case study countries, Germany and the Netherlands, are best-performers with respect to plastic waste recycling. Instead of looking for further marginal and costly improvements in those countries, it is considered more economical to use the large potentials for improvements in other countries, where large shares of plastic waste still go to landfills.

Eventually, recycling can be improved not only by increasing cost. Instead, intrinsic motivation should be strengthened, e.g. by persuading the public to want more recycling.

## Session 2: Informing EU Energy Policy – The Cases of Biofuels and Small Hydropower

Chair: Tarja Söderman, Head of Unit (Finnish Environment Institute)

Commentators: Oyvind Vessia, Unit Renewables and CCS Policy (DG Energy), Dirk Hendricks, Secretary General (The European Small Hydropower Association), Walburga Hemetsberger, Representative Brussels Office (Verbund AG)

### “Biofuels in Austria and UK – Transpositions and interactions of the EU RED”

Daniel Steiner (Joanneum) and Jenny Lieu (University of Sussex)

Austria and the UK have different sets of policy instruments for biofuels. Austria combines a fuel decree, mainly defining an overall biofuel target, a decree on agricultural outputs for biofuels, a mineral oil tax law, and a decree for a bioethanol mix. The UK has a Renewable Transport Fuel Obligation (RTFO), an excise duty, and motor fuel and transport shipping regulations.

*Context factors* impacting the effectiveness of policies in *favourable* ways both in Austria and the UK are an increased need for reducing GHG emissions and energy dependence. Context factors with *unfavourable* impacts are indirect land use change (ILUC) uncertainties and a subsequent limitation of first generation biofuels, tariffs and loopholes in customs commodity classification on imported biofuels, and reduced investor uncertainty. Specific to Austria, a technical limitation for the usability of B10 is unfavourable, while European guidance on sustainability certification procedures is neutral.

*Implementation factors* in Austria are the non-introduction of E10 (unfavourable), a simple national sustainability certification system (neutral), and differential duty for biofuels (favourable). In the UK, coordination and management among institutions, and fluctuating prices for the Renewable Energy Transport Certificates are unfavourable, while cancelled differential duty for biofuels is very unfavourable.

In terms of *interaction* impacting the effectiveness of policies, the interaction of biofuels policy with waste legislation has a favourable impact, while the interaction with climate protection targets has an unfavourable impact in both countries. Interactions with national policies and stakeholder system have a negative impact in the UK but a neutral impact in Austria.

In Austria, the expected effectiveness of the biofuels policy is a share of 8.45% in transport in 2020. Currently, a 6% limit on the first biofuel generation and the limited potential of second generation and alternatives complicate the achievement of the target. The interim target however was reached. In the UK, the achievement of the target of 5% biofuels in 2010 is uncertain, given that the interim target has not been met.

Overall, in Austria, the combination of C&C instrument with fiscal incentives was expected to be effective. However, external conditions jeopardize the achievement of the target, namely the limitation on first generation biofuels, and technical limitations for B10. Moreover, confusion about certification (e.g. mutual compatibility) reduces efficiency.

In the UK, the RTFO has not been as effective and efficient in meeting biofuel targets or developing a UK biofuels sector. The 4.7% cap on biofuels limits further the development of first generation biofuels. Targets are unlikely to increase until major issues on ILUCs are sufficiently addressed.

**Response of commentator** (Oywind Vessia, DG Energy):

▲ ILUC cannot be determined with certainty;

- ▲ The EU intends to stepping down incentives for first generation biofuels;
- ▲ The Renewables Directive does not require a certain biofuel share, it is up to member states how to achieve the 10% RES target in the transport sector;
- ▲ If Austria expects that its target is missed at a limitation of 1st generation biofuels, it just does not need to agree to this limitation;
- ▲ Regarding a “mess” of sustainability certification schemes in Europe/why is there no single European certification scheme: market agents can use the “voluntary schemes” which are acknowledged by the EC.

### **“The impact of hydropower generation on river basins”**

Andreas Türk (Joanneum) and Andrej Gubina (University of Ljubljana)

Three EU directives define the legislative framework for hydropower: the Renewable Energy Directive (2009/28/EC), the Water Framework Directive (2000/60/EC), and the Habitats Directive (92/43/EEC).

Austria and Slovenia have transposed these directives into their national laws. Austria has a Green electricity act, providing subsidies for hydropower, a National water act, and a Nature conservation Act. Slovenia has an Energy Act, as well as Acts on waters and nature conservation.

The *effectiveness* of policy instruments in the fields of water and nature in Austria are an improvement of chemical/ecological water quality, an adjournment of the achievement of targets from 2015 to 2021/2027, and exceptions for hydropower in the national water act. In the field of energy, effectiveness of policy instruments is an increase in hydropower, although the target for 2015 may not be met. This is in contrast with Slovenia, where the achievement of the target is on track. In terms of efficiency, the report of the water and nature targets prevents from making conclusions but conclusions can be drawn for energy related targets.

There have been a series of *context factors* impacting the efficiency of policy instruments in Austria in unfavourable ways, mainly economic developments, energy import dependency, and the price of electricity for policy instruments related to the implementation of small hydro power plants. The economic crisis has negatively impacted the implementation of river conservation measures. Decreasing available hydro potential also has had adverse effects on efficiency. Public awareness of biodiversity is favourable for nature and water policy instruments, but unfavourable for energy policy instruments. Decentralised and regional energy supply is favourable for energy policy instruments. The difference in Slovenia is the lower importance of the economic context on hydropower expansion, there is a long list of projects waiting for authorization.

*Implementation factors* unfavourable for nature and water policy instruments are the coordination among institutions and enforceability, while they are the administrative set-up and legal certainty, and financial feasibility for energy policy instruments. In terms of nature and water, the favourable impact comes from the consistency of policy instruments with sustainable development targets.

Finally, both *interactions* of policy instruments pursuing climate or nature protection and of stakeholders during the authorisation process are unfavourable to hydropower in Austria. This is less of importance in Slovenia. The interaction between policy instruments incentivizing the expansion of small hydropower and water act and nature related policy instruments can lead to high transaction costs in specific cases, and therefore significantly reduce efficiency.

In Slovenia on the other side new hydropower plants in ecologically sensitive areas are not authorized in order to avoid policy conflict and not to risk the correct implementation of EU directives.

In conclusion, Austria will not achieve its specific development goals for SHPP under current expansion rates. Besides, there are no clear guidelines on how to rightfully balance the conflict between nature and climate protection targets. However, many exceptions respective to targets of the national water act have been made for hydropower. In Slovenia, nature conservation and slow and inefficient procedures prolong the time to get permits for building new SHPP and increase investments. Compared with Austria, the conflict between nature and renewable energy expansion is less accentuated.

## **Conclusions**

The context of the policy analysis is on the national level, but sometimes the regional level is also important and should be looked at in some case studies.

The enforcement processes of policies are important in order to guarantee the achievement of their targets.

When evaluating and designing policies, the responsibilities of various actors have to be very clear, so that policymakers can know in advance possible market reactions to the policy itself.

Policy interaction as a concept is often misunderstood and needs to be taken into account in the policy design. APRAISE is quite interesting in this case, as it can complement the quality evaluation methods with models for quantitative results.

An important issue for the policies' success is the policy consistency, which implies that policies must not change constantly as they cannot provide the correct signals for medium long term planning and adaptation from the target group. Furthermore, interim targets are not helpful for the EC at this point, as there is already a lot in place for 2015/2020 etc.

There should be more guidance at the Member States level on the ways of implementing directives and new policies, as there appears to be an information deficit on policy implementation and evaluation.

Finally, besides effectiveness and efficiency, political acceptability is quite an issue for policy implementation.

## 2. WORKSHOP AGENDA



### APRAISE - Stakeholder Consultation Workshop

## “Improving Environmental Policy Making in the EU: from Member State Experience to EU Policy Design”

Brussels, 30 October 2013

Venue: CEPS, Place du Congrès 1, 1000 Brussels

The motivation of the APRAISE project (FP7) is to improve the scientific grounds for environmental policy making aimed at fostering the transition towards a sustainable economy in Europe. The APRAISE approach is to test the effectiveness and efficiency of environmental policy instruments for a number of key environmental areas. It identifies and quantifies **gaps between expected and observed effects** (environmental, economic and social) thus **enhancing the overall knowledge of public and private policy makers about the efficacy of environmental policy instruments** such as taxes, standards, education campaigns etc. APRAISE combines case study analysis with a quantitative analysis using economic models.

The objective of this Stakeholder Consultation Workshop is to present, discuss and test preliminary project results with a broad range of European stakeholders. The workshop will focus on preliminary modelling results of four case studies on existing and planned environmental policies in selected sectors of EU Member States. These case studies will focus on two main topics, which both feature prominently on the EU policy agenda for 2020 and beyond: **resource efficiency and energy policy**. The aim is to test the usefulness of these case studies and to assess how they can optimally be used to **improve environmental policy making on the EU level**. Stakeholders will be asked to comment on the results of these case studies and the usefulness of the APRAISE approach in general. They will also be encouraged to share insights from their fields in order to refine the studies for optimal use by policy makers.

The results of the workshop will thus help to focus the project's results and to **increase the relevance of policy recommendations** as the APRAISE project proceeds.

The workshop is structured in two sessions:

**Session 1:** Informing EU environmental policy to increase resource efficiency – The cases of **waste management and energy efficient buildings**

**Session 2:** Informing EU energy policy – The cases of **biofuels and small hydropower**

**APRAISE** (*Assessment of Policy Interrelationships and Impact on Sustainability in Europe*) is funded under the 7<sup>th</sup> Framework Programme for research and technological development (FP7) of the European Commission. 10 partners from all over Europe are working on APRAISE. Based on an empirical assessment of the efficiency, effectiveness, and efficacy of national environmental policies, and of the ways in which these policies interact, the project aims at informing and reducing inefficiencies of environmental policy making at EU level.

## Workshop Agenda

### 10:00 – 10:30 Registration

### 10:30 – 11:00 Introduction

Welcome (Arno Behrens, CEPS)

Welcome (Anna Natasa Asik, DG Research, European Commission)

Introduction to the APRAISE project, case studies and common modelling results (Vlasis Oikonomou, JIN)

### 11:00 – 12:30 Session 1: Informing EU Environmental Policy to Increase Resource Efficiency – The Cases of Waste Management and Energy Efficient Buildings

The first session focuses on resource efficiency policies in the context of waste management and buildings in the EU. The waste management case study deals with policy efforts in the Netherlands and Germany to increase the recycling of plastic packaging material. The sustainable buildings case study deals with the effectiveness and efficiency of policies to enhance the energy performance of existing buildings in Greece and the Netherlands and how to deal with new waste streams resulting from these policies. Together, these two studies give insights into how the 3E approach of APRAISE (efficiency, effectiveness, efficacy) in assessing environmental policies is applied in practise.

11:00 – 11:05 Introduction by the Chair (Christian Sartorius, Fraunhofer)

11:05 – 11:15 Case study on waste management (Wytze van der Gaast, Joint Implementation Network)

11:15 – 11:25 Case study on energy efficient buildings (Niki Artemis Spyridaki and Anastasia Ioannou, UPRC/NTUA)

11:25 – 11:45 Response by **Commentators**

Pieter de Pous, Policy Director, European Environmental Bureau (EEB)

Raymond van Ermen, Executive Director, European Partners for the Environment (EPE)

Bogdan Atanasiu, Senior Expert, Buildings Performance Institute Europe (BPIE)

11:45 – 12:30 Open discussion

### 12:30 – 13:30 Lunch break

## 13:30 – 15:00 Session 2: Informing EU Energy Policy – The Cases of Biofuels and Small Hydropower

The second panel focuses specifically on energy and climate change policies. The two cases studies to be presented in this session deal with biofuels and small hydropower. In particular, the biofuels case study deals the national implementation of the EU renewables energy target in Austria and the UK. The hydropower case study covers Slovenia and Austria and assesses the interaction between small hydropower expansion and the Water Framework directive. Both case studies aim to discuss the implementation of the current renewable energy targets comparing different EU member states in order to draw lessons and gain insights for energy and climate change targets for 2030.

- 13:30 – 13:35 Introduction by the Chair (Tarja Söderman, Head of Unit, Finnish Environment Institute)
- 13:35 – 13:45 Case study on biomass (Daniel Steiner, Joanneum/Jenny Lieu, University of Sussex)
- 13:45 – 13:55 Case study on hydropower (Andreas Türk, Joanneum/Andrej Gubina, University of Ljubljana)
- 13:55 – 14:15 Response by **Commentators**
- Oyvind Vessia, Unit Renewables and CCS Policy, DG Energy
- Dirk Hendricks, Secretary General, The European Small Hydropower Association (ESHA)
- Walburga Hemetsberger, Representative Brussels Office, Verbund AG
- 14:15 – 15:00 Open discussion

## 15:00 – 15:30 Conclusions and wrap up (at the latest)

### 3. LIST OF PARTICIPANTS



#### APRAISE - Stakeholder Consultation Workshop

## “Improving Environmental Policy Making in the EU: from Member State Experience to EU Policy Design”

Brussels, 30 October 2013

Venue: CEPS, Place du Congrès 1, 1000 Brussels

#### List of Participants

Last name	First name	Affiliation
Ab iago	Dafydd	Argus Media
Arents	Paul	VVM De Lijn
Artemis Spyridaki	Niki	UPRC
Atanasiu	Bogdan	Buildings Performance Institute Europe - BPIE
Azais	Nelly	Independent
Baffert	Claire	KIC Innoenergy
Berckmans	Eva	ESWET – European Suppliers of Waste to Energy Technology
Boulomyti	Eleni	EASAC
Brunati	Vicky	BP
Buffet	Laura	Transport & Environment
Buhagiar	Gordon	European Commission
Buyse	Myriam	European Commission
Commain	Sébastien	Euralia
Coyle	Michael	Coyle and co
Croesaerdt	Crystel	5 Stars Vision
De Diego	Ana	Aula Dei Science and Technology Park
de Pous	Pieter	European Environment Bureau
Dorosko	Kristine	European Commission - DG ENV
Fay	Eszter	European Environment Agency EEA
Fernández Pérez	Inés	Mission of Mexico to the EU

Ferrigno	Roberto	LuminaConsult
Garcia Aliste	Cristina	AIRBUS OPERATIONS
Giovannini	Sara	IUCN
Haut	Gaëlle	Surfrider Foundation Europe
Hemetsberger	Walburga	VERBUND
Hendricks	Dirk	The European Small Hydropower Association
Henning	Laurel	MLex
Honkatukia	Juha	VATT - Government Institute for Economic Research
Ioannou	Anastasia	NTUA
Justo Martínez	Almudena	Fundación Empresa Universidad Gallega - FEUGA
Khatchadourian	Arianna	SOAS, University of London
Laissy	Kathleen	EBCD
Lassaux	Morgane	ADEME / French Environment and Energy Management Agency
Lieu	Jenny	University of Sussex
Malache	Jacques	International PRESS Agency
Mark	Eric	Prognos AG
Moreno Falcon	Angela	FTI Consulting
Moroz	Sergey	European Water Partnership
Muñoz	Bernardino	Universidad Rey Juan Carlos
Niemi	Janne	VATT - Government Institute for Economic Research
Niestroy	Ingeborg	FFU/Alterra
Nørgaard	Kjersti Varpe	Mission of Norway to the EU
Ochoa Alonso	Carlos	Logos Public Affairs
Oikonomou	Vlasis	Joint Implementation Network
Pastleitner	Ralf	Association of Austrian Electricity Companies
Pavlakis	Christoforos	European Parliament
Perron-Piché	Guillaume	ESWET - European Suppliers of Waste to Energy Technology
Poltimäe	Helen	<a href="#">SEI Tallinn</a>
Puras	Alberto	CTC
Salaun	Guillaume	
Sarafianou	Cynthia	Burson-Marsteller
Sartorius	Christian	Fraunhofer
Simon	Cliff	Energy Experts International
Söderman	Tarja	Finnish Environment Institute

Spiliotopoulos	Christoforos	ECOS
Steiner	Daniel	Joanneum
Terrazas	Norberto	Mission of Mexico to the EU
Theiss	Johannes	Steltemeier & Rawe
Türk	Andreas	Joanneum Institute
van der Gaast	Wytze	Joint Implementation Network
Van Der Meer	Rob	HeidelbergCement
Van Ermen	Raymond	European Partners for the Environment (EPE)
Vandebriel	Ziggy	Global Governance Institute
Vessia	Oyvind	European Commission
Vlastari	Dafni	Burson-Marsteller
Xirou	Hara	Tetra Pak
Ye	Jiang	Shanghai Institute for International Studies / Friedrich-Ebert-Stiftung

## 4. BACKGROUND PAPER

### Introduction

This background document presents the assessment of environmental and sustainability-related policies in different policy fields: waste management, water management, resource efficiency and climate protection. These policy fields are reflected in four case studies

- ▲ Waste management with focus on plastic packaging waste
- ▲ Promotion of energy efficient buildings
- ▲ Use of biomass for the production of bio-fuel
- ▲ Hydro-power as an example of renewable energy sources

Starting point of each of these case studies is one (or a set of related) directive(s) enacted by the European Commission, which have to be transposed subsequently into national law. In most cases, the directives describe the environmental targets that are to be achieved, but do not prescribe exactly how the targets should be achieved. This leaves the countries plenty of room with regard to the choice of policy instruments and their respective designs. But not only the type and design of policy instruments is decisive for the effectiveness of the transposed policies; also many other factors can influence the policy output in favourable or unfavourable ways. These factors – specifically assessed in the APRAISE project – can result from

- ▲ The broader context including environmental, economic, social, and technological factors;
- ▲ Institutional settings that prevent the transposition and implementation of EU directives as well as policy specific context such as policy instrument design, operation and enforcement; and
- ▲ Interactions between policies and policy instruments, where one policy instrument can possibly reduce the effectiveness of another instrument or joint implementation of policy instruments could result in synergies.

Altogether, the specific policy instruments, their design, their interaction with one another and with other policy instruments, the context in which they work and the way they are implemented give rise to their specific output. For the assessment in APRAISE, this output is measured against the environmental targets stated in the policies – mainly in the directives, but also in the national laws – and the degree, to which the targets are achieved, is called the policy instrument's **effectiveness**. However, actual effectiveness sometimes differs from how a policy instrument could perform in theory. Therefore, not only the actual effectiveness of the assessed policy instruments is measured, but also the (maximum) level of achievement that could potentially be achieved. In many cases, this is also what the policy makers expected, when they planned and implemented the policy. In APRAISE, this potential achievement is called **efficacy**. Eventually, in order to assess the usefulness of policy instruments in achieving a certain target, their effectiveness (and efficacy) has to be related to the cost of implementing and pursuing these targets. This is determined by the **efficiency** of the policy instruments.

Eventually, measuring the effectiveness, efficacy and efficiency of a policy instrument and relating these results to the policy instrument's characteristics, their working context, specific implementation process and interaction with other policy instruments allows drawing conclusions as to why, possibly, a policy instrument does not perform as it was expected to and how the performance could be improved.

## Recycling of plastic packaging waste – the cases of the Netherlands and Germany

Wytze van der Gaast (Joint Implementation Network)

Carsten Gandenberger (Fraunhofer ISI): carsten.gandenberger@isi.fraunhofer.de

To substantially reduce the use of natural resources is a priority of the EU. One of the EU's most important political strategies addressing this issue is the thematic strategy on waste. Due to the environmental challenges associated with the strong growth of plastic waste worldwide, the two case studies focus on the management of plastic packaging waste in the Netherlands and Germany. There are several options available for the management of plastic waste, including recycling, thermal recovery, incineration with or without energy recovery, and disposal. Although the waste hierarchy specified by the EU's waste directive gives a preference to recycling, the interference with other policy instruments (e.g. promotion of secondary plastic material as refuse derived fuel) can impede possible progress with regard to recycling quota.

As a starting point for this assessment, the following table lists the policy instruments used to transpose the EU Directive on Waste (2008/98/EC) in the Netherlands and Germany.

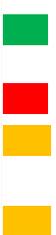
### Crucial domestic policy instruments

Crucial domestic policy instruments (Netherlands/Germany)	
<p style="text-align: center;"><b>The Netherlands</b></p> <ul style="list-style-type: none"> <li>• <b>Packaging tax:</b> paid by producers/suppliers of products packed in plastics (levied by weight). The tax revenues were partly earmarked for waste separation and prevention of litter.</li> <li>• <b>Producer responsibility:</b> producers/suppliers are responsible for the collection of the plastic material after consumption of the product.</li> <li>• <b>The responsibility of municipalities to collect household waste and optimise waste prevention and separation processes:</b> municipalities have a crucial role in the collection and separation of plastics from regular household waste and transfer of the separated plastics to recycling installations. Municipalities were compensated for that from packaging tax revenues.</li> </ul>	<p style="text-align: center;"><b>Germany</b></p> <ul style="list-style-type: none"> <li>• <b>Closed Substance Cycle and Waste Management Act:</b> stipulates the so-called 5-step 'waste hierarchy': (1) prevention, (2) preparing for reuse, (3) recycling, (4) other recovery (in particular energy recovery), (5) disposal.</li> <li>• <b>Packaging Ordinance:</b> formulates recovery and recycling quotas for specific packaging wastes streams. Starting from 1999 at least 60% of plastic packaging materials has to be recovered, thereof 60 % has to be recycled.</li> <li>• <b>Technical Ordinance on Waste from Human Settlements:</b> requires thermal treatment of waste and inertisation prior to final disposal in landfills</li> <li>• <b>German Greenhouse gas Emission Allowance Trading Act:</b> The overall objective of this act is to reduce greenhouse gas emissions from the energy sector and energy intensive industries.</li> </ul>

It is evident from the list that both countries call on the responsibility of the waste producers. Additionally, the Netherlands use tax incentives, whereas specific minimum quota are set in Germany.

In order to find out, why the intended policy targets were reached to a lesser or greater extent, three types of influential factors referring to the context and implementation of the relevant policy instruments and their interaction with other policy instruments were assessed. The results are provided in the following tables.

Positive 		Negative impact 	
<b>Crucial context factors impacting effectiveness/efficiency of policy instruments</b>			
<p><b>The Netherlands</b></p> <ul style="list-style-type: none"> <li>Household incomes and savings</li> <li>Existing infrastructure of waste management</li> <li>Availability of techniques for waste separation and skills</li> <li>Health concerns</li> <li>Role of government coalition</li> <li>Existence of markets for recycled goods</li> <li>Responsibilities of different parties in the producers responsibility</li> </ul>		<p><b>Germany</b></p> <ul style="list-style-type: none"> <li>Technological progress of recycling technologies</li> <li>Rise of the oil price</li> <li>Quality standards for recycled plastic</li> <li>Demand for plastic as an energy source</li> <li>Use of composite packaging materials</li> <li>Export of plastic waste</li> </ul>	

<b>Crucial policy implementation factors impacting effectiveness/efficiency of policy instruments</b>			
<p><b>The Netherlands</b></p> <ul style="list-style-type: none"> <li>Familiarity with prevention and recycling benefits</li> <li>Coordination among institutions</li> <li>Adaptability</li> <li>Enforceability</li> </ul>		<p><b>Germany</b></p> <ul style="list-style-type: none"> <li>Acceptance of recycling as a policy objective</li> <li>Flexibility of waste hierarchy</li> <li>Political support for investments in waste incineration</li> <li>Political support for thermal recovery of plastic waste</li> </ul>	

<b>Crucial interaction factors impacting effectiveness/efficiency of policy instruments</b>			
<p><b>The Netherlands</b></p> <ul style="list-style-type: none"> <li>Negative impacts on recycling because of low costs for incineration as a competing option for waste treatment</li> <li>Stakeholder interaction in waste value chain (producers, government and municipalities)</li> <li>Interaction between packaging tax, producer responsibility and municipality role in waste collection and separation</li> </ul>		<p><b>Germany</b></p> <ul style="list-style-type: none"> <li>Negative impacts on recycling because of low costs for incineration as a competing option for waste treatment</li> <li>Negative impacts on the objective to reduce plastic packaging</li> <li>Negative impacts on recycling because of increasing demand for plastic waste from RDF power plants and economic incentives for thermal recovery</li> </ul>	

The different sets of policy instruments used in both countries to transpose the Waste Directive render it little surprising that also the impacting factors are quite different. In general, the positive factors appear to be more abundant in the Netherlands. In the end, however, the effectiveness and the efficiency of the assessed policy instrument turn out to be rather similar in both countries. With respect to the better performance of Germany at the time of policy implementation, more advance targets could have been achieved, which may explain the more pessimistic assessment of the impact factors.



<b>Conclusions and country comparisons</b>	
<p style="text-align: center;"><b>The Netherlands</b></p> <ul style="list-style-type: none"> <li>• The agreement between producers/suppliers, government and municipalities, which enabled implementation of producer responsibility in collaboration with municipality waste collection and separation infrastructure</li> <li>• Willingness of households to separate plastics from waste at home</li> <li>• Possibility to apply different collection and separation systems depending on the context (larger cities, apartment blocks, etc.)</li> <li>• Economic conditions (recession, etc.) have reduced waste material supply, but plastic waste quantities have remained relatively stable as people changed their consumption patterns in terms of consuming in different price categories but not in terms of type of consumption goods</li> <li>• An increase in plastic separation activities leads to lower supply of waste to incinerators which operate below capacity levels for efficient through-put of waste incineration. The supply deficit is compensated through waste imports.</li> <li>• The European Emissions Trading Scheme (ETS) could have a positive impact on recycling of plastic waste as a high price on CO2 emission would make primary plastics relatively expensive compared to secondary (recycled) plastics. This effect could, however, not be observed during the 2006-2012 period for this case study as ETS prices were generally too low for that.</li> <li>• from € 475/ton plastic in 2009 to € 430 in 2013.</li> </ul>	<p style="text-align: center;"><b>Germany</b></p> <ul style="list-style-type: none"> <li>• Waste avoidance and recycling seem to be influenced negatively by interactions with other policy instruments. Both, the interaction between different waste management policies as well as the external interaction between waste management policy and climate policy have had a slightly negative impact on recycling.</li> <li>• In particular with regard to the recovery of low grade plastic waste, economic incentives for thermal recovery and incineration are much stronger than for recycling. The flexibility of the waste hierarchy has made the recycling objective susceptible to the potentially negative effects of policy interactions.</li> <li>• Due to the lack of dynamic incentives, the Packaging Ordinance by itself was not successful in increasing the recycling performance beyond the 36 % threshold level. Rather it seems to be the case that the observed increase of recycling between 2005 and 2010 was induced by a positive development of the system context,</li> <li>• However, it must be stated that this development could only take place with the basic recycling infrastructure being in place, which can be clearly ascribed to the provisions of the Packaging Ordinance.</li> </ul>

### Questions to stakeholders

- The case studies for the Netherlands and Germany show slightly different pictures with respect to the interaction between waste incineration and recycling goals. For example, in the Netherlands, waste supply shortage is mainly compensated through extra waste imports. In Germany, increased demand for plastic waste from RDF power plants and economic incentives for thermal recovery have a negative impact on recycling. ***How could, in your view, the interaction between plastic waste recycling and incineration activities be organised so that the waste hierarchy is observed more strictly?***
- Potentially, carbon pricing, such as the EU Emissions Trading Scheme, makes the use of primary plastics more expensive, which could stimulate use of recycled plastics. In practice, this effect has not been observed as EU ETS prices have been too low. ***Do you think that strengthening carbon pricing instruments (e.g. ETS or carbon taxation) is an effective and efficient way to achieve plastic recycling goals?***
- The introduction of an incineration tax has been proposed in order to make recycling of lower grade plastic waste more competitive compared with incineration. The introduction of more ambitious recycling quotas would be an alternative to that. Against this background, ***what type of policy instruments would be most promising in order to make further progress on recycling.***

## Energy Efficient Buildings – the cases of Greece and the Netherlands

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The improvement of energy efficiency is an EU priority under the Climate and Energy 20-20-20 package and one of the greatest energy saving potential lies in buildings. Towards to this direction, a number of policies have been raised, including subsidies and soft loans for energy efficiency interventions in buildings, the Regulation of the Energy Performance of Buildings etc. Occasionally, these policies include the replacement of inefficient equipment, the use of materials and other activities, which could potentially harm the environment in the sense of unsustainable exploitation of resources and improper management of waste streams deriving from the building sector. Under this scope, the objective of this case study is to assess national policy instruments, in terms of performance and to investigate possible overlaps or mutual reinforcements among policies and regulations impacting the building sector and policies referring to the treatment of wastes deriving from EE interventions.

Crucial domestic policy instruments	
<p style="text-align: center;"><b>Greece</b></p> <ul style="list-style-type: none"> <li>• <b>ENERGY EFFICIENCY programme:</b> financial incentives (70% subsidy scheme) to Municipalities to adopt practices targeted at the enhancement of energy efficiency interventions.</li> <li>• <b>Energy Saving in households programme:</b> aims at improving the energy performance of residential buildings through the provision of soft loans and subsidies;</li> <li>• <b>Changing Air-Condition programme:</b> promoted the replacement of old air cooling units with new more efficient ones by financing the 25% of the retail price;</li> <li>• <b>Regulation on the Energy Performance of Buildings (REPB):</b> introduces an integrated energy design in the household and tertiary building sectors to improve the energy efficiency through specific actions;</li> <li>• <b>Extended Producers Responsibility:</b> the financial obligation of Producers and importers of products for managing their products, by the end of their lifecycle.</li> </ul>	<p style="text-align: center;"><b>The Netherlands</b></p> <ul style="list-style-type: none"> <li>• <b>Energy Performance Certificates:</b> Mandatory for new and existing buildings in order to stimulate energy savings in the built environment including heating, cooling, ventilation, lighting and hot water;</li> <li>• <b>Reduced VAT for insulation work:</b> Financial incentive for installing insulation (ground, roof and facade) with a reduction of the VAT to 6% for such works;</li> <li>• <b>Temporary subsidy for glass insulation:</b> Financial incentive for stimulating the market of energy efficiency through glass insulation in existing homes built before 1995;</li> <li>• <b>Strengthening of ecodesign and the energy labelling of appliances:</b> mandatory labels to promote the design, production and purchase of energy efficient appliances;</li> <li>• <b>Producer responsibility:</b> Voluntary agreement between suppliers and municipalities for household waste and mandatory for batteries, EEEs, cars car tires and packaging;</li> <li>• <b>Landfill tax:</b> Tax on waste disposal aiming at increasing recycling rate and reduce landfills</li> </ul>

Crucial context factors impacting effectiveness/efficiency of policy instruments	
<p><b>Greece</b></p> <ul style="list-style-type: none"> <li>• <b>Recession amplified the reluctance of financial institutions to (take risks)</b> providing loans. Lack of liquidity hampered or even halted the participation of Local Authorities in the subsidy scheme. <span style="color: red;">■</span></li> <li>• <b>Decreasing construction activity</b> implicitly urged energy efficiency retrofits in the existing building stock. <span style="color: orange;">■</span></li> <li>• <b>Escalating energy costs</b> encouraged residential end-users to adapt their energy behaviour and adopt energy end-use efficiency habits and interventions. <span style="color: lightgreen;">■</span></li> <li>• <b>Building arbitrariness</b> (the questioned legality of buildings, eligible for participation in EE programmes, led to delays in projects' implementation). <span style="color: red;">■</span></li> </ul>	<p><b>Netherlands</b></p> <ul style="list-style-type: none"> <li>• Economic crisis affected housing sector reduced the willingness to invest in energy saving in the housing sector and the number of EPCs reduced. <span style="color: orange;">■</span></li> <li>• The environmental awareness is estimated to be quite high in the Netherlands, but this did not affect the EPC. <span style="border: 1px solid black; display: inline-block; width: 10px; height: 10px;"></span></li> <li>• The increase of the oil price did indeed create a signal for a more energy saving behaviour to consumers. <span style="color: lightgreen;">■</span></li> <li>• Constant political framework changes did not assist the creation of jobs due to the EPBD and many companies went bankrupt. <span style="color: red;">■</span></li> </ul>
<p>Positive <span style="color: green;">■</span> <span style="border: 1px solid black; display: inline-block; width: 10px; height: 10px;"></span> <span style="color: orange;">■</span> <span style="color: red;">■</span> Negative</p>	

Crucial implementation factors impacting effectiveness/efficiency of policy instruments	
<p><b>Greece</b></p> <ul style="list-style-type: none"> <li>• <b>Sufficient price signals</b> within a recessionary environment (unfavorable investment context). <span style="color: green;">■</span></li> <li>• <b>Enhanced administrative set up regulating and monitoring</b>, EU co-financed, energy efficiency subsidy programmes. <span style="color: lightgreen;">■</span></li> <li>• <b>Lack of coordination and management among institutions/fragmentation</b> of the institutional set up. <span style="color: orange;">■</span></li> <li>• <b>Poor institutional capacity for the administration and monitoring of the Regulation on the Energy Performance on Buildings' implementation</b> (i.e. lack of staff, expertise, resources). <span style="color: red;">■</span></li> <li>• <b>Fragmented public awareness campaigns</b> regarding the benefits of energy efficiency retrofits in buildings as well as of the separate collection and <span style="color: red;">■</span></li> </ul>	<p><b>The Netherlands</b></p> <ul style="list-style-type: none"> <li>• The lack of sanctions for not implementing EPCs under the EPBD resulted in a poor compliance, as they were left to the flow of the investment climate, which at this period declined. <span style="color: orange;">■</span></li> <li>• The lack of accuracy of the prescribed methodology, a standard training for educating qualified and independent assessors and the high price of the label have delayed the implementation of the EPBD. Similarly, The lack of the clear monitoring requirements for submitting the VAT reduction led to inefficiencies. <span style="color: orange;">■</span></li> <li>• With the labeling system, manufacturers and producers were stimulated to design more energy efficient products and by purchasing a product, consumers consider the energy use of the products as well next to other factors due to the increased awareness. <span style="color: green;">■</span></li> <li>• Municipalities have a long history with <span style="color: green;">■</span></li> </ul>

<p>disposal of electrical appliances.</p>	<p>waste collection and recycling, whereas also producers were familiar with their responsibilities based on earlier voluntary agreements and waste management policies.</p>
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**Crucial interaction factors impacting effectiveness/efficiency of policy instruments**

Greece	The Netherlands
<ul style="list-style-type: none"> <li>• <b>Discrepancies in the building code stipulating horizontal property rights in condominiums</b> / requirement of 100% consensus of owners to approve a decision and make a financial contribution. <span style="float: right; color: red;">■</span></li> <li>• <b>Provisions for the treatment of waste stream</b> in energy efficiency programmes can facilitates waste collection and treatment targets. <span style="float: right; color: lightgreen;">■</span></li> <li>• <b>Prioritization over specific technology clusters</b> (i.e. more easily achievable measures) crowding out investments in more “traditional“ material (i.e. lime and stone) and in more innovative but more costly interventions (i.e. geothermal heat pumps) may cause interactions among market actors and impede the achievement of future energy efficiency objectives. <span style="float: right; color: yellow;">■</span></li> </ul>	<ul style="list-style-type: none"> <li>• The EPCs in combination with VAT reduction, temporary insulation subsidy and energy labeling of appliances have enabled to carry out energy efficiency improvement in the built environment and increase awareness on energy saving; however, the total number of interventions was lower than anticipated due to implementation issues <span style="float: right; color: yellow;">■</span></li> <li>• Producers’ responsibility in combination with the landfill tax and the prohibition of landfilling recyclable and combustible waste requires that construction and electronic waste have to be separated for recycling or incinerated for energy and heat production. <span style="float: right; color: lightgreen;">■</span></li> <li>• The interaction between the energy efficiency policy mix can be assessed as slightly positive on the total effectiveness and efficiency of key policy instruments since VAT reduction and temporary subsidy for insulation work have successfully supported the system of EPCs. However, the implementation of EPCs is inconsistent and unreliable, therefore less effective than originally anticipated. <span style="float: right; color: yellow;">■</span></li> <li>• The combination of disposal tax and producers’ responsibility enabled an agreement between producers/suppliers, compliance schemes and municipalities to use revenues raised from disposal tax to compensate waste collection, separation and recycling activities. <span style="float: right; color: green;">■</span></li> </ul>



## Anticipated and observed effectiveness of domestic policy instruments (Greece/Netherlands)

### Greece

- A total number of 39,952 of applications entered the “Energy Saving in households” programme, **fulfilling 80% of the target set** after the inclusion of a new lower-income eligibility category for funding.
- During its first round, 106 Municipalities entered the ENERGY EFFICIENCY programme.
- A large increase in the number of issued EPCs during the year 2012 (211.475) compared to the year 2011 (62.525) occurred with the obligatory issuance of an EPC for the leases of flats (January 2012).
- The Producers Responsibility **contributed extensively to the achievement of WEEE collection targets** through the establishment of the National Collective System. (i.e. average 81% of target achievement during 2006-2012).

### The Netherlands

- Around 2 million Dutch dwellings possessed an energy label (mostly C and D) by the end of 2011 which was a quarter more than at the end of 2009. The trust in the energy label is rather low in the Netherlands; therefore the label is often not used by transactions (as it was expected to follow housing prices), despite having awareness of it.
- The actual effect of the VAT reduction was not significant and did not create additional effects than the autonomous trend. In contrast, the temporary subsidy has received 100.000 applications (around 800.000 m2 installed glass insulation), which also resulted to increase in short term employment perspectives in the glass industry
- The market share of appliances equipped with energy label A has significantly increased (currently 95% of appliances) as a success of the labeling system, which provides a legitimate platform for technology innovation in the industry of electronic appliances and useful information about energy efficiency to consumers.
- The total recycling of MSW was already on a high level in the Netherlands from 2001, but it still increased from 45 % to 51 % to 2010, already fulfilling to the 50 % recycling target. Furthermore, the collection target of the 2002/96/EC Directive (4 kg/inh/year) was already reached in 2010 as well as in 2008 and 2006
- The revenue from the tax was at its maximum in 2001 and was quite stable until 2008. Then it started drastically to decrease due to the reduction of the waste landfilled, but it still created a heavy administrative burden. The amount of waste going to landfills was 12 million tons in 1991 and it drastically decreased to somewhat over 2 million tons by 2008.

**Anticipated and observed efficiency of domestic policy instruments (Greece/Netherlands)**

<b>Greece</b>	<b>The Netherlands</b>
<ul style="list-style-type: none"> <li>• Understaffing in the administrative and monitoring authorities of REPB associated to low resources and state budget cuts, resulted in low administrative costs hampering however the effectiveness and proper implementation of the Regulation</li> <li>• The contribution fee for implementing Producer’s responsibility is considered an efficient instrument for the management of WEEE as it covers high costs associated with the collection procedures, requiring the coordination of multiple actors.</li> <li>• Changing Air Condition Programme is considered inefficient since the market signal induced was too high resulting in a premature termination of the Programme due to increased demand.</li> <li>• The involvement of the private sector in the administrative and evaluation procedures under the ‘Energy Saving in households’ programme was beneficial for the Programme’s efficiency in the sense of relieving the administrative cost burden.</li> </ul>	<ul style="list-style-type: none"> <li>• The goal of the EPC was to grant 50.000 customized advices to home owners in the period of 2009-2010 with the means of a temporary subsidy for market advise, but these owners or renters often had no serious intention to save energy. Consequently, the EPCs could have been more efficient if the financial resources had been distributed on a more deliberate way.</li> <li>• The low VAT rate applied to labor and material costs if the material costs were less than 50% of total costs of home insulation. The total amount spent for the temporary subsidy up to 2010 is 28 million €, which amounts to an average cost of 34.21 €/m<sup>2</sup> of glass insulation for HR+ and HR++ glass with a maximum of 1.100 € per household. In essence, more applications were submitted than the actual program budget.</li> <li>• The costs for the EPR (operational and rebate costs) amounted to 65 million € in 2000 and was more than doubled to 135 million € in 2001. Concerning CO<sub>2</sub> reduction, the EPR saved 210 million kg CO<sub>2</sub> in 2002. The operational costs could have been reduced by more deliberate costs planning.</li> <li>• For the producer responsibility, this system has turned out to be very efficient since the collected amount did not just cover the expenses, but also provided a large amount of reserve. The accumulated tax reserve is quite high (more than € 200 million) that can still cover the expenses of collection and recycling for almost a decade.</li> </ul>

### Conclusions – Country Comparisons

#### Greece

- Reduced levels of national energy consumption are largely attributed to changes in the energy conservation behavior of households usually at the expense of personal comfort or satisfaction.
- The increased efficacy of subsidies and soft loans was offset mainly due to the recessionary environment (i.e. difficulties in access to finance, lack of liquidity) that often made investments non feasible.
- The inclusion of the private sector to deliver administrative and evaluation procedures enhanced the implementation of energy efficiency programmes.
- Regulation on Energy Performance for Buildings was ineffective in terms of raising awareness on the energy savings potential.
- Energy efficiency policies should be linked with policies for the treatment of various waste streams as a result of the uptake of energy efficiency interventions.
- Monitoring and evaluation mechanisms must be built in to a new regulatory framework, following common monitoring protocols and methods of assessing impacts and efficiency of policy instruments. Public expenditure and re-funding of instruments could thus be justified.

#### The Netherlands

- Due to the frequent changes and inconsistency of the EPC policy framework, the trust in the energy label system has drastically decreased. Owing to the inconsistency of the policy framework, companies specialized on energy performance advice suffered huge financial losses.
- When energy efficiency interventions/construction activities are carried out, information displayed on the equipment could help customers to purchase the most efficient equipment and help to reach the desired efficiency target.
- Waste management measures are indirectly linked to the energy efficiency policies by the fact that construction activities e.g. replacement of old an inefficient equipment and construction materials generally result in increased amount of waste streams, therefore the national collection and recycling targets have been achieved.

### Questions to stakeholders

1. Considering that the Dutch landfill taxation policy was effective but was terminated due to increased administrative costs, and the absence of a similar Greek scheme to encourage industries and households to find alternative ways to collect and process their waste, what other types of policy instrument could have performed more cost-effectively?
2. The Greek Changing Air-Condition programme included specific provision for the treatment of resulting waste streams (i.e. airconditions) that enhanced waste collection and treatment to a significant extent. Should energy efficiency policies be linked with waste-treatment policies integrating similar provisions for waste collection and treatment?
3. Unlike the case of the Netherlands, environmental awareness on the benefits of energy efficiency in Greece has remained limited due to fragmented information campaigns. At the same time, lack of proper enforcement of the Buildings Regulations was the result of inadequacies in the monitoring system of the mechanism. Under the current economic constraint where should the Greek government turn its focus and resources first?
4. Energy Efficiency subsidy schemes have underperformed largely due to the unfavorable investment climate. Considering the new property tax recently imposed on the Greek electricity consumers and the fact that Greece holds the second biggest share of private tenants in Europe, would other types of energy efficiency programmes be more efficient within the given recessionary environment (e.g. Property Assessed Clean Energy programs).
5. In other words, what is the optimal financial policy mix for buildings in the period of a declining economic activity environment? Are subsidies useful when households cannot cover the upfront costs? Maybe policies on the 'upper' part of the chain would make more sense (i.e. project developers).

## Transposition of the EU Renewable Energy Directive and its interactions with other environmental objectives (focussing on biofuels for transport) – the cases of Austria and United Kingdom

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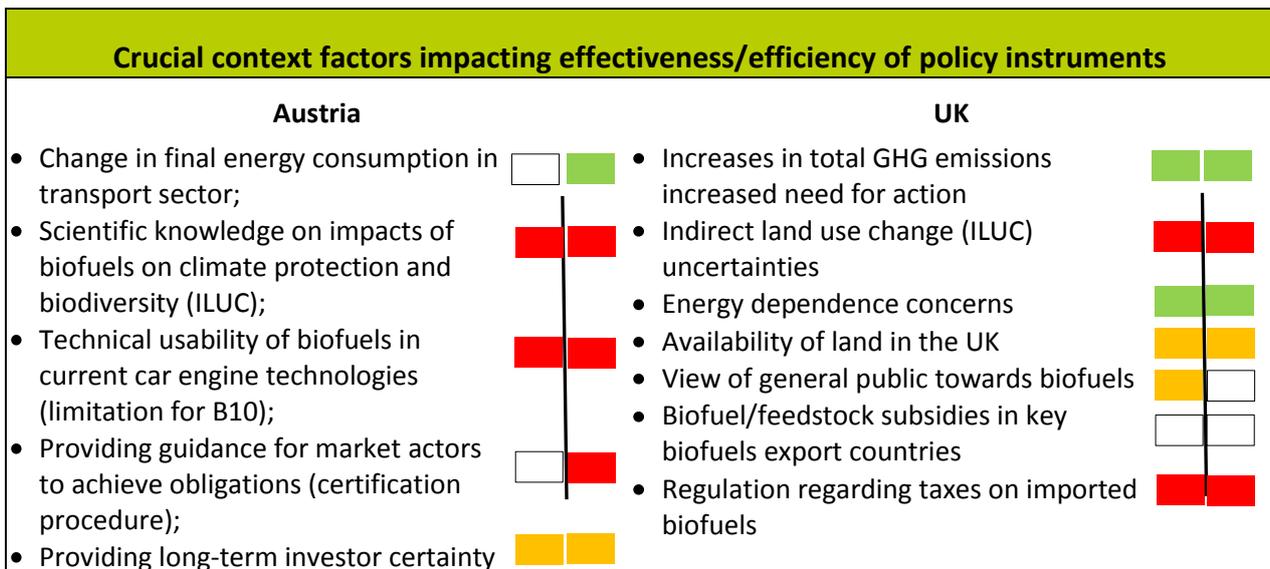
For making the mobility sector more sustainable and climate friendly biofuels as bioethanol, biodiesel and biomethane are intended to contribute to this aim (8.45 % biofuel target in Austria and 4.7% in the UK). This aim is achieved in EU- member states by different ways, because country-specific characteristics and conditions have to be taken into consideration for achieving this aim.

The promotion of biofuels is differently successful in different EU-MS and leads potentially to interrelations with aspects regarding biodiversity, water bodies' protection and waste reduction. Furthermore agriculture and climate protection issues are of interest in this respect. Thus, the case study explores how the aims of the EU renewable energy Directive (with special focus on biofuels for transport) are achieved in Austria and UK, which policy instruments have been used and how did they perform, and what are the (positive and negative) interactions with other (mentioned) policy themes (biodiversity, water, etc.). The bases of this analysis are the EU Renewable Energy Directive (2009/28/EC) as well as the repealed Biofuels Directive (2003/30/EC).

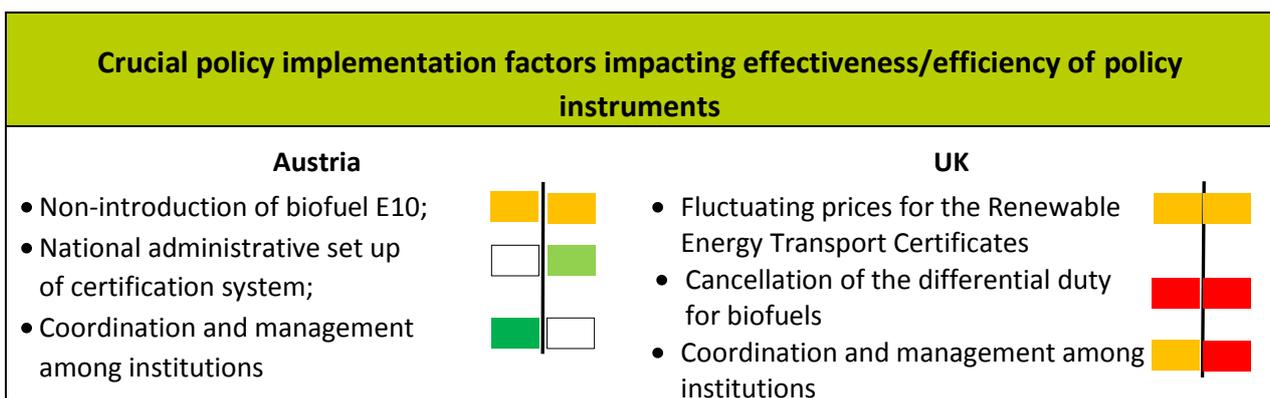
The table below shows that both countries have set policy instruments (PIs) setting targets for biofuels, whereas Austria preferred a command & control measure and UK a market based system for key biofuels policy instruments. Both countries introduced different tax rates for biofuels and fossil fuels at certain points in time.

Crucial domestic policy instruments	
Austria	UK
<ul style="list-style-type: none"> <li>● <b>Fuel Decree:</b> Defines an Austrian biofuel target for 2020; minimum substitution shares for transport fuel suppliers; options for double counting of biofuels from waste; minimum GHG reductions of biofuels compared to the corresponding fossil fuels (includes instructions for set-up of national system for certifying sustainability);</li> <li>● <b>Decree regarding agricultural outputs for biofuels:</b> Defines land areas which must not be used for cultivation of biofuels' feedstock (includes instructions for set-up of national system for certifying sustainability);</li> <li>● <b>Mineral oil tax law:</b> Defines different tax rates for 100% fossil fuels and transport fuels blended with biofuels; positive tax discrimination of fuels blended with biofuels;</li> <li>● <b>Decree for bioethanol mix:</b> Defines partial tax refunds for E75/E85</li> </ul>	<ul style="list-style-type: none"> <li>● <b>The Renewable Transport Fuels Obligation (RTFO),</b> a transposition of the Renewable Energy Directive and the former Biofuels Directives, establishes a mandatory biofuels target and tracks the obligation through a certificate trading system.</li> <li>● The <b>Excise Duty</b> overseen by HM Revenue and Customs sets taxation rate for all fossil fuels including biofuels based on the Energy Taxation Directive.</li> <li>● The <b>Motor Fuel and Merchant Shipping Regulations (MFMS)</b> address the goals of the Fuel Quality Directive to reduce emissions in the transport sector by allowing the sale of biofuel content between 7-30 % for transport fuel.</li> <li>● <b>Environmental Permitting Regulation (EPR),</b> is a broad environmental programme that sets controls for the transport, storage, use and the treatment of biodiesel from tallow such as melted animal fat and waste oils</li> </ul>

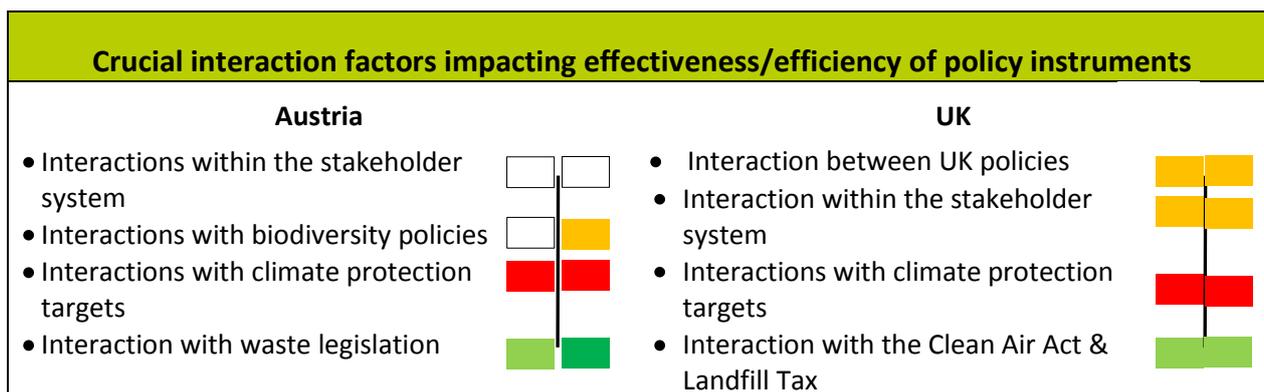
The upcoming discussion about ILUC (connected with availability of land for cultivating biofuels' feedstocks) and subsequent limitations for 1<sup>st</sup> generation biofuels impact effectiveness and efficiency negatively in both countries. Other aspects (technical limitations for B10, taxes on imported biofuels) are country specific. Continued increases in global GHG emissions would intensify pressure to invest in low carbon and renewable energy technologies. Additionally, uncertainties surrounding indirect land use changes have also temporarily placed a cap on biofuels in the UK and targets are unlikely to change until major sustainability issues are addressed. Energy security concern is a positive driving force for the UK biofuel sector, which promotes domestic fuel production (to a certain degree).



It turns out that considerably different aspects in the national implementation process had impacts on effectiveness and efficiency of PIs. In Austria the failure of introducing E10 had negative impacts whereas the national administrative framework and coordination among institutions have been beneficial. In UK fluctuating conditions (prices for RETC, tax incentive) have negative impacts on success of biofuels in UK.



Upcoming knowledge about ILUC and thereby assumed potentially lower GHG abatements by 1<sup>st</sup> generation biofuels have led (will lead) to a limitation of these biofuels. This provision to ensure climate mitigation due to biofuels has highly negative impacts on achieving national biofuel targets.



Due to different biofuel targets in Austria (8.45%) and UK (4.7%) problems associated with national biofuel target achievement are different. The high Austrian interim targets on biofuel-shares could always be overachieved in the past; however, the (likely coming) limitation of 1<sup>st</sup> generation biofuels and technical limitations for introducing B10 highly jeopardize the Austrian 2020-biofuel target. The market-based system in the UK has not sufficiently contributed to meeting the biofuels target. The B10 cap threatens the biodiesel market as it eliminates the differentiation between the bioethanol and biodiesel market in the UK. As a result, the biodiesel market is likely to shrink in the UK, as bioethanol is more economical compared to biodiesel.

Expected and observed effectiveness of domestic policy instrument	
Austria	UK
<ul style="list-style-type: none"> <li>• Expected by policy makers: achieving 8.45 % biofuel target (energetically) by biofuels E10/B10 subject to sustainability criteria of EU Dir. 2009/28/EC;</li> <li>• Observed: overachievement of interim targets of biofuel shares;</li> <li>• Tax exemptions/refunds makes it profitable for market agents to use blended fuels rather than 100% fossil fuels;</li> <li>• Current 6% limit on 1st generation biofuels <u>jeopardizes biofuel-target achievement</u> considerably, as non –biofuel options are technically highly limited;</li> <li>• Also the current technical constraints to apply B10 <u>hinders target achievement</u></li> <li>• Sustainability and minimum GHG reduction of biofuels is guaranteed by legislation</li> </ul>	<ul style="list-style-type: none"> <li>• Expected: biofuels target has originally set to 5 % for 2010 (by blending 5 % bioethanol and 7 % biodiesel);</li> <li>• The biofuel target was reduced to 5 % from 2012 onwards, latest revision sets target on 4.7 % from 2013 onwards (continuous revision of targets)</li> <li>• Since the RTFO was implemented in 2008, biofuel targets have not been met (with the exception of 2008)</li> <li>• The RTFO addresses sustainability and GHG emissions savings through sustainability criteria, which are tracked and verified through the issuance of RTF certificates (RTCF)</li> <li>• The duty differential was the primary driver for developing the biofuels in and the industry has lagged since its cancelli; 2009</li> </ul>

For Austria options other than biofuels are considered as more efficient in achieving the 10% RES-target for the transport sector (e.g. modal shift). However, in Austria these other options are considered not to be viable for achieving the 2020-target. In the UK, biofuels contribute less to the 10% RES target than other

renewable energy options. Confusion in certification procedure might be a problem especially in Austria, which produces much more of its biofuel demand domestically (in %) than UK.

Observed efficiency of domestic policy instrument	
Austria	UK
<ul style="list-style-type: none"> <li>• Achieving the RES-target mostly by biofuels is not the most efficient strategy (in the long term);</li> <li>• However, it is the only option in the short term with essential leverage</li> <li>• EU-wide confusion in certification procedure reduces efficiency</li> </ul>	<ul style="list-style-type: none"> <li>• The RTFO and its corresponding RTFC has not been successful in meeting biofuel targets thus questions the efficiency of the market based mechanism</li> <li>• It may take some time for the RTFC prices to stabilise but this is also dependent on other factors such as setting sufficient biofuel targets to drive demand and supply</li> <li>• Uncertain biofuel policy strategies at the EU level impacts UK biofuel policies</li> </ul>

The fixed biofuel targets and external contextual factors in both Austria and the UK limit the expansion of first generation biofuels and second-generation biofuels are not likely to make a sizable contribution to meeting 2020 targets, although in the UK there is growing investment and research and development in the area. Overall Austria and the UK have interpreted EU directives and implemented national policies differently. The command and control mechanism in Austria appear to be more effective and efficient in meeting national biofuel targets compared to the market based instruments in the UK.

## Conclusions and country comparisons

### Austria

- Command and control measures have been effective in combination with fiscal incentives to achieve Austrian biofuel target;
- However, 6% limit for 1<sup>st</sup> generation biofuels jeopardize both biofuel and RES-target achievement;
- Another barrier: Applying B10 is technically not viable yet;
- Thus, putting strong focus on just one option (i.e. biofuels) makes target achievement vulnerable if conditions change (rare diversification of options);
- Future generation biofuels are not likely to be provided to a sufficient extent until 2020;
- Increasing R&D in future generation biofuels would reduce (at least short-and medium term) efficiency of strategy for RES-target achievement;
- Changing conditions have decreased investment certainty;
- Confusion with certification obligations/procedures considerably reduce efficiency of using biofuels;
- No biodiversity damages domestically, but potentially abroad because of displacement of food cultivation potentially also to areas with high ecological value;
- **Austria has chosen a command & control instrument with fiscal incentives → high efficacy (high expected effectiveness);**
- **Changing external conditions (1<sup>st</sup> generation biofuels) and technical limitation (B10) jeopardize target achievement, low diversification of measures to achieve RES-target → low expected effectiveness → need to adjust policy instruments domestically;**
- **Confusion about certification (e.g. mutual compatibility) reduced efficiency → need to adjust policy on EU level.**

### UK

- A market mechanism along with quota setting (RTFO certificate trading) has been questionable in terms of its effectiveness in meeting biofuel targets;
- Policy interactions: other policies include command and control measures that either increase the cost of biofuels production or indirectly encourage biofuels production;
- The 4.7% cap on biofuels limits further development of first generation biofuels. The 4.7% target is unlikely to increase until the major issues on indirect land use changes are sufficiently addressed;
- The cancellation of the duty differential increased uncertainty in the biofuels market and led to that fact that biofuels higher taxed than fossil fuels (due same tax rates but lower energy content of biofuels);
- Second generation biofuels and biofuels from waste are expected to play a more important role in biofuels production within the mid-term;
- The majority of biofuel feedstock are imported from abroad due to lower/more competitive prices from subsidised biofuels in other countries as well as limited land in the UK
- **The overarching biofuel policies do not consider the wide variety of feedstocks for biofuels and different environmental impacts → differentiated policy targets may necessary for different types of biofuels based on their environmental impact;**
- **The implementation of the RTFO has not been as effective and efficient in meeting biofuel targets or developing a UK biofuels sector → need to re-examine the implementation process and targets as well as the impacts on different biofuel producers (small vs. large scale production, biodiesel vs. bioethanol).**

### Questions to stakeholders

#### Austria

- Why was no unique European sustainability certification system established?
- What are potential solutions for the problem of dislocating food cultivation to potentially areas with high ecological value?
- Is there a “plan B” of EC if future generation biofuels cannot be provided until 2020 to a sufficient extent?
- Which factors have considerably impacted achievements of national biofuel targets?
- Which factors have considerably impacted efficiency of national biofuel targets?

#### UK

- Do you think that a quota and certificate policy such as the RTFO or a command and control policy (ie. taxation) creates a more viable environment for developing the biofuels sector?
- Does there need to be separate targets set for biodiesel and bioethanol due to the diverse feedstocks used and also different environmental impact for each fuel type?
- Are separate targets required for biodiesel and bioethanol? And why?
- What role do you think second generation biofuels will play in the UK biofuels sector in the medium and long term?

## The impact of hydropower generation on river basins – the cases of Austria and Slovenia

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Hydropower investment decisions are often a controversial issue in EU environmental policy. On the one hand, renewable hydropower generation causes almost zero greenhouse gas emissions, helping the EU Member States to achieve their RES targets given by the Renewable Energy Directive (2009/28/EC). On the other hand, hydropower plants impact the environment, influencing river ecology and biodiversity and make them a thorn in the side of other EU environmental and nature conservation policies such as the Water Framework Directive (2000/60/EC) and in some cases also of the Habitats and the Birds Directives (92/43/EC; 2009/147/EC).

In this case study we investigate the possible conflict between policy instrument at the Member State levels Austria and Slovenia focusing on the implementation of hydro power plants on the one hand and the Water Framework Directive (WFD) as well as nature conservation on the other hand. We considered the entire sector small hydropower plants (SHPP - plants with a maximum capacity up to 10MW), however have chosen a specific example in each country as a starting point for detailed surveys.

We observed that both countries postponed their 2015 EU goals regarding the Water Framework Directive due to various reasons including the economic crisis. In both countries the conflict of interest between water conservation interest groups and SHPP investors is noticeable, especially in Austria where a significant part of the hydro power potential is already exhausted. In Slovenia the biggest issue regarding new SHPP is the length of the procedure to obtain the building permits. While in Austria (interim) targets for SHPP expansions are being missed, Slovenia is on track to meet its targets.

Crucial domestic policy instruments	
Austria	Slovenia
<ul style="list-style-type: none"> <li>• <b>Green electricity act (consistent with NREAP):</b> provides sponsorships for chosen power generation plants based on RES (SHPP: feed-in tariffs or investment incentives – depending on the size of the plant); defines RES –type specific development goals (SHPP (including middle sized plants): from 2010-2015 increase about 350 MW)</li> <li>• <b>National water act:</b> command and control instrument which covers all water related questions (authorization process for SHP); implements the targets of the WFD (achievement of a good status of all water bodies and prevention of further deterioration)</li> <li>• <b>Nature conservation act:</b> command and control instrument which covers all nature protection related questions. These include authorization process for SHP, regulations concerning European Nature conservation areas (Natura 2000 - stricter regulations in regard to SHP authorization) and EU nature conservation directives such as Bird and Habitats Directives.</li> </ul>	<ul style="list-style-type: none"> <li>• <b>Energy Act:</b> Introduced a better way of supporting the investments in renewable energy sources through feed-in tariffs</li> <li>• <b>National action plan for renewable energy sources (NREAP):</b> Contains specific goals for electricity production from renewable energy sources and means of achieving the goal</li> <li>• <b>Act on waters:</b> Goal is to achieve good usage in combination with good state of all waters within Slovenia by implementing water concessions. The act includes the transposition of the WFD. (achievement of a good status of all water bodies and prevention of further deterioration)</li> <li>• <b>Act on nature conservation:</b> Defines the allowed interactions with natural environments for exploiting natural resources without acting harmfully on nature and natural species in the specific area (EU nature conservation directives such as Bird and Habitats Directives)</li> </ul>

Crucial context factors impacting effectiveness/efficiency of policy instruments	
Austria	Slovenia
<p><b>National water act</b> (<i>in combination with the nature conservation act</i>)</p> <ul style="list-style-type: none"> <li>• Economic development <span style="color: red;">■</span></li> <li>• Importance of Energy import independency <span style="color: red;">■</span></li> <li>• Political priority of case study topic <span style="color: orange;">■</span></li> <li>• National legal preconditions (existing water rights) <span style="color: red;">■</span></li> <li>• Public awareness of biodiversity <span style="color: green;">■</span></li> <li>• Weak enforcement of EU environmental legislation <span style="color: red;">■</span></li> </ul>	<p><b>Act on waters</b> (<i>in combination with Act on nature conservation</i>)</p> <ul style="list-style-type: none"> <li>• Economic development <span style="color: orange;">■</span></li> <li>• Political priority of case study topic <span style="color: red;">■</span></li> <li>• Public awareness of biodiversity <span style="color: lightgreen;">■</span></li> <li>• Strict Implementation of EU environmental legislation <span style="color: green;">■</span></li> </ul>
<p><b>Green electricity act</b></p> <ul style="list-style-type: none"> <li>• Economic development <span style="color: red;">■</span></li> <li>• Price of electricity <span style="color: red;">■</span></li> <li>• Public awareness of biodiversity <span style="color: red;">■</span></li> <li>• Decentralized, regional electricity supply <span style="color: lightgreen;">■</span></li> <li>• Decreasing available hydro potential <span style="color: orange;">■</span></li> </ul>	<p><b>Energy Act</b> (<i>together with National action plan for renewable energy sources (NREAP)</i>)</p> <ul style="list-style-type: none"> <li>• Economic development <span style="color: orange;">■</span></li> <li>• Price of electricity <span style="color: orange;">■</span></li> <li>• Public awareness of biodiversity <span style="color: orange;">■</span></li> <li>• Importance of Energy import independence, <span style="color: lightgreen;">■</span></li> <li>• Fit with national legislative framework <span style="color: red;">■</span></li> </ul>

In Austria the implementation of the Water Framework Directive was significantly delayed due to the economic crisis, low electricity prices and the importance that hydro has for energy independence, as well as by national legal preconditions. Also the available hydro potential becomes low. In Slovenia the water act was not high on the political agenda, but EU environmental legislation is being in general implemented rather strict.

Crucial policy implementation factors impacting effectiveness/efficiency of policy instruments	
Austria	Slovenia
<p><b>national water act</b> (<i>in combination with the nature conservation act</i>)</p> <ul style="list-style-type: none"> <li>• Coordination among institutions <span style="color: red;">■</span></li> <li>• Transaction costs <span style="color: orange;">■</span></li> <li>• PI consistency with Sustainable Development targets <span style="color: green;">■</span></li> <li>• Enforceability (range of interpretations) <span style="color: red;">■</span></li> </ul> <p><b>Green electricity act</b></p> <ul style="list-style-type: none"> <li>• Low Adaptability <span style="color: red;">■</span></li> <li>• Administrative set up &amp; Legal certainty <span style="color: red;">■</span></li> <li>• Financial feasibility (low financial incentives, cost increases due to environmental requirements) <span style="color: red;">■</span></li> <li>• Image <span style="color: orange;">■</span></li> </ul>	<p><b>Act on waters</b> (<i>in combination with Act on nature conservation</i>)</p> <ul style="list-style-type: none"> <li>• Motivation for environmental policy <span style="color: green;">■</span></li> <li>• PI consistency with Sustainable Development targets transaction costs/effort to implement <span style="color: green;">■</span></li> </ul> <p><b>Energy Act</b> (<i>together with National action plan for renewable energy sources (NREAP)</i>)</p> <ul style="list-style-type: none"> <li>• Motivation to invest in SHPP <span style="color: green;">■</span></li> <li>• Low financial equity among technologies <span style="color: orange;">■</span></li> <li>• Low Adaptability <span style="color: red;">■</span></li> <li>• National legal preconditions (e.g. long approval procedure) <span style="color: orange;">■</span></li> <li>• Coordination and Management among Institutions <span style="color: orange;">■</span></li> </ul>

In Austria the implementation of the water act saw large problems regarding the coordination among institutions, while in Slovenia no similar problems occurred. Also, in Austria the national water act leaves open potential for interpretations, in some cases impacting its enforceability. The investors of SHPP in Austria were confronted with legal uncertainty, and low financial feasibility. Legal uncertainty such as long approval procedures were main barriers in Slovenia.

Crucial interaction factors impacting effectiveness/efficiency of policy instruments	
Austria	Slovenia
<ul style="list-style-type: none"> <li>• Interaction of policy instruments pursuing either climate protection or nature protection targets (green electricity act vs. national water act, nature conservation act) <span style="color: red;">■</span></li> <li>• Stakeholder interactions (conflicts) during the authorization process <span style="color: red;">■</span></li> </ul>	<ul style="list-style-type: none"> <li>• Local interest groups encourage nature protection which may stop or delay SHPP projects <span style="color: orange;">■</span></li> <li>• Environment protection NGOs pledge themselves to decreasing the feed-in tariffs by any means <span style="color: orange;">■</span></li> </ul>

In Austria there is a strong conflict between SHPP and the national water act as well nature conservation act in some cases. In Slovenia this conflict is also present but less accentuated than in Austria.

### Anticipated and observed effectiveness of domestic policy instrument

#### Austria

##### **National water act** (*in combination with the nature conservation act*)

- Improvement of chemical/ecological water quality especially in the context of ground water protection
- Shifting of target achievements from 2015 to 2021/2027 – target achievement delay
- Several exceptions respective to targets given in the national water act (prevention of further deterioration) or in the nature conservation act (Natura 2000 areas) have been made for (S)HPP

##### **Green electricity act**

- Generally: constant increase in SHP
- Specific target settings: SHPP still behind its targets

#### Slovenia

##### **Act on waters** (*in combination with Act on nature conservation*)

- Chemical condition of water bodies improved
- With the implementation of Natura 2000 rivers got more protected and are in better condition
- Behind of some of the targets (e.g. ecological conditions)

##### **Energy Act** (*together with National action plan for renewable energy sources (NREAP)*)

- Installed power goal of small hydro power plants (SHPP) was achieved

In Austria the expansion of SHPP is still behind its targets while Slovenia is on track after several years of drawbacks, as the target for 2011 has been already reached in 2009.

Anticipated and observed efficiency of domestic policy instrument	
Austria	Slovenia
<p><b>National water act</b> (<i>in combination with the nature conservation act</i>)</p> <ul style="list-style-type: none"> <li>• Target achievement delayed until 2027: therefore not possible to assess entirely if the planned budget has been rightfully calculated (target achievement delays – investment uncertainties)</li> </ul> <p><b>Green electricity act</b></p> <ul style="list-style-type: none"> <li>• <i>Approach 1</i>: Public expenses for SHP support vs. public expenses for the support of other RES types: SHP = lowest compensation/constant increase in SHP generation</li> <li>• <i>Approach 2</i>: Transaction costs: In some cases unexpected high costs due to the hydropower related nature/climate protection conflict</li> </ul>	<p><b>Act on waters</b> (<i>in combination with Act on nature conservation</i>)</p> <ul style="list-style-type: none"> <li>• Target achievement delayed until 2027, introducing additional investment uncertainty.</li> <li>• Money collected in Water Fund is used for hydropower investments, although primarily intended for flood prevention actions. Some of the planned expenses have been deferred to a later date due to target delaying.</li> </ul> <p><b>Energy Act</b> (<i>together with National action plan for renewable energy sources (NREAP)</i>)</p> <ul style="list-style-type: none"> <li>• Energy Act efficient for SHPPs. Larger number of planned SHPPs</li> <li>• Money spent on subsidy for generation from SHPP dropped in year 2011 due to less energy generated. Meanwhile money spent for other RES technologies increased. Biggest rise was seen for photovoltaic.</li> </ul>

Subsidizing SHPPs is efficient in Austria and Slovenia compared to other technologies but in some cases in particular in Austria high transaction costs cause large inefficiencies.

### Conclusions and country comparisons

#### Austria

- With current expansion rates specific development goals for SHP will be not achieved - high uncertainty factors (e.g. financial feasibility, legal uncertainty) need to be eliminated, authorization procedures are currently lasting too long
- No clear guidelines how to rightfully balance the conflict between nature and climate protection targets – extends authorization processes, raises uncertainties
- Many exceptions respective to targets of the national water act (WFD) have been made for (S)HPP.

#### Slovenia

- Getting permits for building new SHP due to nature conservation and slow and inefficient work prolong the time and increase the investments in SHP
- Conflict between nature and renewable energy expansion is less accentuated than in Austria.

#### Questions to stakeholders

- How could more legal certainty be provided to investors in small hydro power plants?
- Is there a need for EU guidance on when to invest in hydro? (considering the need to implement other environmental directives)
- Would interim targets for the Water Framework Directive help a more timely transposition?
- Should there be a limit for exceptions in the Water Framework Directive